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POST-NATAL DEPRESSION IN FIRST TIME FATHERHOOD

WORWOOD, EMMA VICTORIA

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POST-NATAL DEPRESSION IN FIRST TIME FATHERHOOD

by

EMMA VICTORIA WORWOOD

A thesis submitted to the University of Plymouth

in partial fulfilment for the degree of

DOCTOR OF CLINICAL PSYCHOLOGY

Department of Psychology

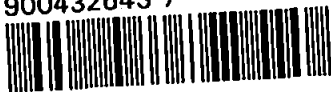
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Post-natal Depression in First Time Fatherhood

Emma Worwood

It is gradually becoming acknowledged that fathers do suffer from post-natal depression, but very little is known about their experience or how many fathers are actually affected. The factors that may increase a father's susceptibility to post-natal depression, or those that might indeed protect him, have also been given little consideration in research to date.

This study examined the prevalence and comorbidity of post-natal depression in 100 first time parents, using the Edinburgh Post-natal Depression Scale (EPDS). The psychological factors of infant temperament, perception of own parenting and social support were investigated in a smaller sample of 30 fathers subsequently interviewed. These were measured using the Neonatal Perception Inventory (NPI), the Parental Bonding Instrument (PBI) and the Significant Others Scale (SOS) respectively.

The findings suggest that approximately 12 per cent of first time fathers may suffer from post-natal depression and fathers are significantly more likely to experience this if their partner is also depressed. Depression amongst fathers was found to be associated with having little social support, perceiving one's own baby as more difficult than the average baby and perceiving one's own father as having been uncaring. The findings are discussed together with their clinical implications and areas for future research.

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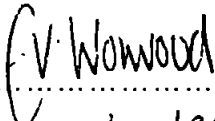
Finally, I would like to thank all the parents who took part for their time and genuine interest in this project.

Author's declaration

At no time during the registration for the degree of Doctor of Clinical Psychology has the author been registered for any other University award.

The contents of this bound volume are identical to the volume submitted for examination in temporary binding except for the amendments requested at the examination.

This study was conducted while the author was a Trainee Clinical Psychologist in the South West Region based in Southmead Health Services N.H.S. Trust and the research was conducted in collaboration with Southmead Health Services N.H.S. Trust

Signed.....
Date.....7/07/99

Chapter 1: Introduction

1.1 Overview

In 1996 there were just over 730 000 births in the UK (Office for National Statistics, 1998). We know that post-natal depression affects between 10-15 per cent of mothers, but currently there is little research into its prevalence in fathers. Even if this figure was as low as 1 per cent this would still mean 7300 fathers per year were affected. If both parents experience such symptoms, particularly in the early post-natal period, the infant may be at risk in terms of compromised cognitive and emotional development.

The introduction to this study reviews a wide range of research on postnatal depression and its clinical implications, in order to produce testable predictions about its presentation in first time fathers. The literature review begins by examining the traditional definition of post-natal depression, its prevalence, course and the potential risk factors involved for mothers. This will provide a context in which to compare the little research that has considered the experience of fathers in the early post-natal period. The methodological limitations of these studies will be highlighted to demonstrate the rationale for this study.

The review will then move on to consider the clinical implications for infant development and suggests how current interventions and support available might be developed to consider the whole family triad. The third section comments on the changing nature of fatherhood and uses a number of psychological theories to hypothesise why fathers might become depressed. Finally, the present study will be introduced with the proposed experimental hypotheses.

1.2 Depression in the post-natal period

Types

The mental health literature focusing on the mother in the post-natal period suggests that there are three depressive conditions that can arise following childbirth. Firstly, post-natal blues, which arises in the first two weeks postpartum and describes the transitory irritability, weepiness and depression, which does not by definition last into the third post-natal week (Boyce, Hickie & Parker, 1991; Cox, 1986). Secondly, puerperal psychosis, which typically has its onset within three weeks of childbirth and affects one or two women per 1000 deliveries. Boyce *et al.* (1991) report that this disorder is probably biologically determined and related to the affective psychoses (Brockington, Cernik, Schofield, Downing, Keelan & Francis, 1981). Thirdly, post-natal depression consists of a non-psychotic depressive episode that begins in or extends into the postpartum period and is distinguished from post-natal blues by its greater severity and longer duration (Cox, Murray & Chapman, 1993; Watson, Elliott, Rugg & Brough, 1984).

In post-natal depression, behaviour does not tend to be obviously abnormal and only careful enquiry about the presence or absence of certain depressive symptoms will enable this problem to be recognised (Cox, 1986). It tends to consist of unfamiliar and prolonged depressive symptoms, which usually commence after returning home and cause distress to the mother as well as to her family. Symptoms include headaches, palpitations, irritability, poor concentration, depressive mood and thoughts, excessive anxiety about the baby, sadness and difficulty coping with household tasks.

Nott (1987) and Spangenberg & Pieters (1991) suggest that the clinical picture of post-natal depression is similar to 'neurotic/reactive' non-postpartum depression and do not regard it as a unique diagnostic entity. Certain somatic symptoms e.g. fatigue and reduced

appetite are reported by a relatively high proportion of non-depressed postpartum women (Campbell & Cohn, 1991). It is therefore important not to over pathologise such somatic symptoms, which may fall into the normal adjustment reactions for postpartum women (Campbell & Cohn, 1991).

For fathers the most common symptoms of depression experienced include depressed mood, worrying, brooding, tension pains, loss of libido and initial insomnia (Ballard, Davis, Cullen, Mohan & Dean, 1994). There was a highly significant correlation between the symptom profile of depression in fathers and that seen in mothers in Ballard & Davies' (1996) study. Interestingly, Ballard *et al.* (1994) showed that mothers have significantly more symptoms than fathers, although the type of symptoms were very similar. They suggest two likely explanations, fathers may have less severe depressive illness than mothers in the postpartum period; or fathers may be less likely to report symptoms. In their study the Present State Examination (PSE) was used which demands that symptoms must be out of proportion to the circumstances, however many depressive symptoms such as loss of libido, disturbed sleep and exhaustion occur as a normal part of the puerperium and so may not have been included. Another possible explanation for the lower symptomatology in men may be that their distress is expressed in different ways not examined in this study.

Prevalence

Post-natal depression is a relatively common problem affecting 8-20 per cent of women within one year of birth (Boyce *et al.*, 1991; Campbell & Cohn, 1991). O'Hara & Swain (1996) conducted a meta analysis of 59 studies to date, (n = 12 810 women) and revealed an overall prevalence rate of 13 per cent for non-psychotic postpartum depression in the early post-natal period. Campbell & Cohn (1991) suggest that the rate of clinically

diagnosed post-natal depression is similar to that for women in the general population and Kumar & Robson (1984) reveal a comparable incidence rate of 10 per cent during pregnancy. The clinical significance of depression in the post-natal period is the subsequent implications for the child's emotional and cognitive development (see section 1.3).

The research to date on paternal mental health reveals clear evidence that some fathers have experienced problems in the post-natal period for many years and emphasises the diversity of morbidity, which may emerge. However, the number of studies are few and there are some limitations to their design. Ballard & Davies (1996) cite a number of psychiatric studies that have been conducted. Harvey & McGrath (1988) found 40 per cent of fathers whose wives suffered from postpartum psychosis experienced a DSM-III psychiatric disorder. Similarly 50 per cent of spouses whose wives were admitted to a mother and baby unit with psychiatric illness were found to have a psychiatric disorder, the onset typically following admission of their wives (Lovestone & Kumar, 1993). This was higher than in a control group of men whose partners were admitted to a psychiatric hospital with non-puerperal illness. It is important to bear in mind however, that such psychiatric samples are limited by how depressed mothers are defined and recruited and so findings cannot be generalised to a community population.

A study by Rees & Lutkins (1971) with 77 fathers using the Beck Depression Inventory (BDI) found a rate of mild or moderate depression of 13 per cent. Atkinson & Rickel (1984) studied a sample of 28 couples and found 13 per cent of fathers scored above threshold on the BDI at eight weeks. Raskin, Richman & Gaines (1990) assessed 86 couples during pregnancy and eight weeks after childbirth. The rates of depressive cases using the Centre Epidemiological Studies of Depression (CES D) questionnaire were 22

per cent in both mothers and fathers post-natally. All three of these studies used self-assessment tools, which are standardised on non-puerperal adults and thus may overstate the severity of depressive symptoms in the post-natal period. One of the only studies to date to use the Edinburgh Post-natal Depression Scale (EPDS) with fathers was Ballard *et al.* (1994). He studied a community sample of 200 couples at six weeks and six months after delivery and revealed 9 per cent of fathers were depressed at six weeks and 5 per cent at six months. The EPDS has been shown to be an effective screening instrument for both mothers and fathers in clinical practice (Ballard & Davies, 1996).

Ballard & Davies (1996) considered whether the prevalence rates of psychiatric morbidity in the post-natal period were higher than would be expected in a control sample. From community studies they report an expected prevalence rate of case depression of 2-4 per cent in young males. This, compared to Ballard *et al.*'s (1994) findings at six weeks post-natally, is much lower than the 5 per cent prevalence rate at six months postpartum which is closer to expectation (Ballard & Davies, 1996). Ballard *et al.*'s study found neither mothers nor fathers were significantly more likely to be cases than the control group suggesting there is no additional vulnerability to depression in the post-natal period. However, the control group used was parents with children between three and five years of age and so the results may suggest an increased rate of psychiatric morbidity amongst parents with young children generally. What is needed to fully answer this question is a study including a third group of male adults married or cohabiting with a partner but without children. Ballard *et al.* (1994) also indicate that the significantly higher prevalence rate of post-natal depression in mothers compared with fathers is similar in magnitude to that seen in non-puerperal samples.

It is important to note that prevalence estimates are affected by the nature of the assessment method and the length of the postpartum period under evaluation (O'Hara & Swain, 1996). Different sample selection procedures also affect the figures (Ballard *et al.*, 1994). From the literature, rates are lower when using clinical interviews and diagnostic criteria as opposed to self-report symptom checklists.

Comorbidity

There have been very few studies considering both men and women during the transition to parenthood. Raskin *et al.* (1990) proposed that if the birth of a child is stressful for both parents, then it could be hypothesised that having an affected spouse during a period of psychosocial stress would be a risk factor for becoming distressed oneself. However, their findings produced no significant correlation between husband and wives' depression scores during pregnancy or in the postpartum period. Ballard *et al.* (1994) comment that Raskin's data does show a trend for there to be a greater prevalence of concurrent depression in both members of a couple than might be expected. Ballard *et al.*'s (1994) findings also indicate that although comorbidity was no greater than expected by chance *per se*, fathers were significantly more likely to be cases if their partners were also cases. It seems important further studies consider comorbidity as a possible risk factor, particularly because of the combined detrimental effect this may have on a child's development.

Course

The evidence to date suggests that post-natal depression in women typically has its onset within a few weeks of delivery, but it may arise any time between three and nine months postpartum (Kumar & Robson, 1984; Nott, 1987). Small, Brown, Lumley & Astbury's (1994) research evidence suggest it is highest around three months. In terms of its duration

the evidence indicates that post-natal depression can last up to a year and can become chronic. Nott's (1987) study found prevalence at three months of 18.5 per cent, at nine months of 28 per cent and at fifteen months to be 31 per cent. Campbell, Cohn, Flanagan, Popper & Meyers (1992) found a quarter of those depressed in the immediate postpartum period continued to manifest clinically significant symptoms after six months. Recovery has been associated with factors such as the child becoming older, more partner support, going back to work, greater marital satisfaction, less perceived stress during pregnancy and in the post-natal period, and the perception that the infant is less bothersome (Gotlib, Whiffen, Wallace & Mount, 1991; Small *et al.*, 1994).

Although the numbers are small, the provisional indications are that the recovery rates for fathers are similar to those seen in mothers (Ballard, 1992) and are not dissimilar to the recovery rates from depression in the community (Brugha, Bebbington & McCarthy, 1990). As already cited the prevalence rate of depression is higher at six weeks than at six months postpartum amongst fathers, which is similar to the trend reported amongst mothers (Ballard *et al.*, 1994).

Identification

Ballard & Davies (1996) suggest there is a strong argument for the routine screening of partners of women who are known to be depressed, because of the high comorbidity rates and evidence that suggests males are less likely to acknowledge psychiatric illness. Lovestone & Kumar (1993) suggest that the partners of women with post-natal psychiatric illness be of particular interest because they are not only the relatives of psychiatric patients, but they are fathers too. In discussion, they suggest that one might expect the impact of post-natal psychiatric illness on spouses to be greater than psychiatric illness at other times, because of the additional burdens of parenthood.

Risk factors involved in post-natal depression

Researchers have proposed a number of biological and situational variables believed to independently and/or interactively influence susceptibility to post-natal depression in women (Schweitzer, Logan & Strassberg, 1992). Empirical evidence concerning biological factors is far from conclusive, however there is substantial data supporting the psychosocial aetiology of post-natal depression (Nott, 1987).

Paykel, Emms, Fletcher & Rossaby (1980) suggests that having a baby seems to be more than just 'an additional stress in tenuous situations' and life events prior to the birth of a child show a strong association with post-natal depression, particularly when self reports are used (O'Hara & Swain, 1996). O'Hara, Neunaber & Zekoski (1984) studied the importance of life stress using the Pilkonis Life events schedule and found that this accounted for 19 per cent of the variance in post-natal depression symptomatology. These events were related to the early post-natal period, not a gradual accumulation of stress pre-natally.

Social and emotional support during pregnancy is a strong negative predictor of depression. Spangenberg & Pieters (1991) found that the satisfaction experienced with the available social support was significantly different between a group of post-natally depressed and non-depressed women. More specifically, Campbell *et al.* (1992) showed that the perceptions of limited spouse support were particularly important. The Intimate Bond Measure was used by Boyce *et al.* (1991) and showed that at one month postpartum the highest risk of depression in a mother was where the spouse was rated as 'low in care' or 'over controlling'.

The quality of the marital relationship appears fundamental according to the literature (Boyce *et al.*, 1991; Spangenberg & Pieters, 1991). Lower levels of marital satisfaction during pregnancy were reported in women who became depressed in the post-natal period (Gotlib *et al.*, 1991; O'Hara & Swain, 1996). Kumar & Robson (1984) found that cases of post-natal depression were predicted by marital conflict pre-natally and detached feelings towards the child.

Schweitzer, Logan & Strassberg (1992) used the Intimate Bond Measure and the Beck Depression Inventory. They found support for their hypotheses that compared to controls, women currently suffering from post-natal depression and those who had recovered, perceived their husbands as showing less care and more control. The inclusion of a recovered group was important as it showed that the stresses associated with a husband perceived as controlling and uncaring are insufficient by themselves to produce significant levels of depression.

A mother's negative perceptions of her own parenting have been demonstrated as significantly associated with post-natal depression (Boyce *et al.*, 1991; Gotlib *et al.*, 1991). The former used regression analyses to reveal that the perception of low maternal care, an over-controlling spouse and an under-protective father were the best predictors of a mother's high EPDS score. Current difficult relationships with a mother have also been indicated as relevant (Kumar & Robson, 1984).

Research has also looked at the possible contribution of infant factors in relation to maternal depression. Gotlib *et al.*'s (1991) study used the Neonatal Perception Inventory (NPI) and the Degree of Bother Inventory (DBI) to investigate mothers' perceptions of their infants' temperament. Their findings showed that depressed women perceived their

infants as more difficult to care for and more bothersome than non-depressed women. However, the direction of causality is not established; are these infants actually more temperamentally difficult? Or, are the mothers' interpretations of their infant affected by the depression?

Research evidence concerning cognitive style is inconclusive. A negative cognitive attributional style (Campbell *et al.*, 1992) and neuroticism showed a clear association with post-natal depression in O'Hara & Swain's (1996) study, although Gotlib *et al.*'s. (1991) data indicated no such difference between depressed and non-depressed mothers. O'Hara *et al.* (1984) showed dysfunctional self control attitudes rather than attributional style was a vulnerability factor and Boyce *et al.* (1991) describe interpersonal sensitivity as an important predictor of post-natal depression.

Several researchers have demonstrated that there is a strong association between depression and anxiety in a mother during pregnancy and in the post-natal period (O'Hara *et al.*, 1984; O'Hara & Swain, 1996). Previous depressive episodes and depression in first-degree relatives have also been shown to be significantly associated (Kumar & Robson, 1984; Campbell *et al.*, 1992). Family history however, has not been found to be a significant predictor (O'Hara & Swain, 1996).

The research evidence looking at the role of socio-demographic variables as predictors of post-natal depression is equivocal. No significant demographic differences were identified between a group of post-natally depressed women and a non-depressed group (Spangenberg & Pieters, 1991). Kumar & Robson (1984) did find being over the age of 30 a risk, but there were many older mothers in their sample with a history of trying to

conceive a child. Ballard *et al.* (1994) showed that being over the age of 30 formed part of the aetiology for brief post-natal depression in mothers.

Ballard *et al.* (1994) also found that being unemployed before the pregnancy and being in social class IV or V was implicated in persistent post-natal depression. O'Hara & Swain (1996) identified a small, yet significant, association with family income and the mother's occupation, whilst lower occupational status in husbands was relevant in Campbell & Cohn's (1991) study. Other studies have found no evidence for the significance of social class (Small *et al.*, 1994).

Other risk factors considered important in the aetiology of maternal post-natal depression include the birth of a premature baby, neonatal illness or disability, and obstetric variables such as birth complications (Kendall-Tackett & Kantor, 1993; O'Hara & Swain, 1996). There appears to be no evidence to date that perinatal factors play a role (Spangenberg & Pieters, 1991). A history of a previous termination has also been implicated (Ballard *et al.*, 1994). Kumar & Robson (1984) have suggested that the emergence of depression in this case may be triggered by a dormant grief reaction.

Prospective studies have enabled the aetiology of post-natal depression to be considered. Gotlib *et al.* (1991) found that the level of depression during pregnancy and negative perceptions about the amount of caring received from parents were both significant predictors of postpartum diagnostic status. The studies by Cooper & Stein (1989) and Boyce *et al.* (1991) both considered the possibility that different aetiological factors may be important at different post-natal stages. At one month they found that previous dysfunctional parenting and an uncaring or over-controlling partner were important, at three months a partner providing insufficient care and an over-protective father were more

significant. This changed at six months, to high interpersonal sensitivity and the presence of depression at assessment at three months. Campbell *et al.* (1992) suggested that specific risk factors might differ, as experiences will be different depending on the life stage and social context of depression, as well as the developmental stage of the infant. This seems particularly relevant when considering what possible interventions might be most helpful.

From the above discussion it is apparent that many of the reasons why post-natal depression emerges in early motherhood have been explored in the research to date, albeit with some methodological limitations. The literature is somewhat lacking though when it comes to considering fathers. The few studies that have explored this area indicate that having a partner who is suffering from post-natal depression, being unemployed, having a past history of a psychiatric disorder, dissatisfaction with perceived support and care from own father, current marital discord and a perception that the infant is difficult all play a contributory part (Atkinson & Rickels, 1984; Ballard *et al.*, 1994; Ballard & Davies, 1996; Harvey & McGrath, 1988; Lovestone & Kumar, 1993).

Most of the above associations have been reported in isolation, in only one study and mainly in small numbers of subjects, hence there is a clear need for replication. In addition several other limitations are apparent, Lovestone & Kumar (1993) focused specifically on spouses of women admitted to a mother and baby unit with post-natal psychiatric illness and used the GHQ 30 rather than the more specific EPDS with fathers. Atkinson & Rickel's (1984) study successfully managed to consider both parents before and after the birth, but used the BDI rather than the EPDS. Harvey & McGrath (1988) used DSM III psychiatric criteria and only targeted partners of women with post-natal psychosis. Despite methodological rigor in definition, the findings can therefore only be

generalised to a relatively small population of psychiatrically ill women and their partners. It appears that Ballard *et al.* (1994) is the only study to date to consider a community population using a prospective design and the EPDS however, little consideration was given to the involvement of psychological risk factors for fathers in this study.

Summary

The research reviewed indicated that depression in fathers is relatively common, albeit less so than in mothers. Only a few of these studies actually used a screening tool specifically designed for the post-natal period and so prevalence figures may be unreliable. The issue of comorbidity is raised, although it is difficult to draw any firm conclusions from the handful of studies that have explored first time parents together. The potential risk factors involved in developing depression in the early post-natal period for fathers were highlighted, but there are clear methodological limitations to some of these studies, again resulting in only tentative conclusions. Section 1.5 puts forward the rationale for the present study, in part, drawing from these conclusions.

1.3 The impact of post-natal depression on child development

The clinical significance of maternal depression in the post-natal period has been well documented in relation to the impact it can have on the infant. Little consideration has been given to the effects of paternal depression at this time. By briefly reviewing the maternal literature to date, one can draw the reader's attention to the potential detrimental effects of one parent's disturbed mental health, as well as raising the question: what is the likely impact on a child's development, if both parents are suffering from depression?

Lin Murray describes infants as 'pre adapted to an environment of human care and highly sensitive to the quality of their interpersonal contacts' (1992, p.544). An infant's primary

environment in these early months is often largely constructed by its parent/s. When parents are depressed their behaviours and mental state can potentially interfere with their functions and responsibilities as caregivers and in turn with the development of a good affective relationship with their child (Stein, 1991). Hence, the effects of post-natal depression on infant and child development are of significant clinical importance (Campbell & Cohn, 1991; Murray, 1992). There are also negative implications for the mother (Cox, 1983) the family (Wrate, Rooney, Thomas & Cox, 1985) and the marital relationship (Cox, Connor & Kendell, 1982).

Emotional development in the early years

Post-natal depression and psychological development in early infancy has mainly been assessed through the observation of mother-infant interactions (Murray & Cooper, 1996). A study by Stein, Gath, Bucher, Bond, Day & Cooper (1991) found that the quality of the infants' interpersonal functioning, when in direct engagement with a post-natally depressed mother, showed less affective sharing, lower rates of overall interaction, less concentration and more negative responses. Whiffen & Gotlib (1989) identified that such infants appeared to be tenser and less content, and Field (1984) found fewer positive infant facial expressions, more negative expressions and protest-behaviour in such infants.

Stein *et al.* (1991) also found that at 19 months mother-infant interactions were less affectively positive and less mutually responsive in cases where mothers had suffered from post-natal depression than non-depressed mother-infant pairs. This association held not only for mothers still depressed at 19 months, but also for those who had recovered. Murray & Cooper (1996) identify some of the literature assessing the quality of infant attachment to a post-natally depressed mother and point out the association between depression and insecure attachments at one year (Lyons-Ruth, Zoll, Connell, &

Grunebaum, 1986; Murray, 1992). Cohn, Matias, Tronick, Connell & Lyons-Ruth (1986) also found profiles of disturbed infant behaviour such as avoidance and protest, however these only seemed to occur when there was wider socio-economic adversity within the family context.

Behavioural problems

Murray (1992) investigated the level of behavioural problems in 18-month-old infants using a modified behavioural screening questionnaire. She found that, compared to women who had been well in the post-natal period, women who had experienced post-natal depression were more likely to report behavioural difficulty in their child, sleeping, eating difficulties, excessive temper tantrums and separation problems. Weissman & Siegel (1972) identify tyrannical behaviour, an inability to separate and ego boundary problems as more common in infancy, when a parent has an affective disorder. Such early behavioural problems have been linked to emotional and behavioural problems during later childhood (Campbell, 1991) and antisocial and delinquent behaviour during adolescence (Loeber, 1982).

Gross, Conrad, Fogg, Willis & Garvey (1995) carried out a longitudinal study and revealed maternal depression, amongst mothers of two year old boys, predicted lower social competence and more behavioural problems at three years. Sinclair, Murray, Stein, & Cooper (1996) used the Pre-school Behavioural Checklist with class teachers and found increased levels of behavioural disturbance in boys. However, other researchers have found no increase in reported child behavioural disturbance (Caplan, Coghill, Alexandra, Robson, Katz & Kumar, 1989; Ghodsian, Zajicek & Wolkind, 1984; Wrate *et al.*, 1985).

At school age, excessive rivalry for attention with peers and siblings, feelings of isolation or depression, hyperactivity, school problems, inattention and withdrawal have all been identified as common problems in such children (Weissman & Siegel, 1972). By adolescence, defiant behaviour, rebellion and withdrawal have been highlighted. Thus it would appear that impairments might be long standing (O'Connell, Mays & O'Brien, 1979).

Cognitive development

Rutter (1985) observed that among the important influences on a child's early cognitive development are the provision by parents of a variety of activities and opportunities for play and conversation, responsiveness to the child's signals and the teaching of specific skills. Such influences may be adversely affected by post-natal depression through impaired mother-infant interaction and attachment (Kumar & Robson, 1984).

Cogill, Caplan, Alexandra, Robson & Kumar (1986) in a four year follow up study found children of post-natally depressed mothers were significantly delayed on a general cognitive index (McCarthy Scales of Children's Abilities) compared to controls. This was only found when the mothers' depression occurred in the first year of the child's life. This may therefore, indicate a sensitive period in which post-natal depression may have a subsequent long-term effect on cognitive development (Cogill *et al.*, 1986). Marital conflict and a reported past history of psychiatric problems in a husband were also found to be correlated with the group of mothers who had post-natal depression. Such factors may have an interactive influence with post-natal depression on a child's developing cognitive abilities.

Pathways to adverse child development

Murray & Cooper (1996) suggest a number of reasons why there may be an association between post-natal depression and adverse child development:

1. The direct impact on the child of exposure to maternal depressive symptoms. Stein *et al.* (1991) suggest depressive symptoms directly interfere with a mother's capacity to relate to her child; self pre-occupation, social withdrawal, loss of interest and irritability may reduce facilitation and rapport. Murray (1992) found that the duration of an infant's exposure to depression was unrelated to infant outcome on any measure. This is consistent with the existence of a sensitive period early in development, when maternal functioning has a direct impact on the infant which influences later outcome.
2. There may be an indirect effect through interpersonal behaviour qualities. Infants are highly sensitive to these and an impaired pattern of interaction occurring between a mother and her infant, in the context of depression, is thought to influence the child's functioning. Murray (1992) suggests that such impaired interactions can become established features of maternal engagement with a child and may persist beyond any improvement in maternal depressive symptoms. Field, Healy, Goldstein, Perry, Bendell, Schanberg, Zimmerman & Kuhn (1988) found evidence to suggest that subsequent infant behaviour can generalise into interactions with non-depressed strangers.
3. Finally variables such as social adversity are believed to be influential. Stein *et al.* (1991) found that marital and social difficulties often accompany depression and make independent contributions to the prediction of mother-child interaction. Stein *et al.* (1991) also suggest that the child's temperament may induce and aggravate depression and reinforce a mother's lack of confidence and self esteem. Impaired mother-child

interaction may still persist in some mothers who have recovered from post-natal depression because such interacting variables continue to be present.

The balance of evidence regarding cognitive development suggests that adverse outcomes for children of women with post-natal depression arise from early infant exposure to disturbed maternal interactions. This is secondary to the affective disorder itself and/or social adversity (Murray, 1992). What is interesting to note is that whilst substantial attention has focused on the adverse influence of clinical depression, what is more common is variations in mood states among mothers who are not clinically depressed. Such disturbances are still associated with the aforementioned difficulties in child functioning (Tannenbaum & Forehand, 1994).

The role of the father

Psychological theories of early development reveal a vast literature directed at the mother child relationship, with almost complete exclusion of the father. This has the implication that compared to the mother, the father is biologically ill equipped to respond to the infant's needs (Rendall, 1997). However, many of today's fathers appear to be just as 'engrossed' with their new-born infants as mothers are, and they become increasingly responsive to their infants' social and emotional signals over the first year of the child's life (Belsk & Rovine, 1988). Indeed there is accumulating evidence to suggest that participant fathers are good for children's development (Lamb, 1981, Lamb & Oppenheim, 1989, Pruett, 1993). There are qualitative differences in the relationships with two parents and thus each contributes something different (Lamb, 1978). It is as if each parent can make up for some of the defects of the other, as a couple are likely to have different strengths and weaknesses. This is particularly important if one parent is temporarily ill or depressed, the latter of which forms the focus of this research.

Lamb (1981) reports that many infants form attachments to their fathers during the third quarter of the first year, particularly if the father spends a lot of time with them. He also noted that fathers and mothers respond in different ways to their babies and are both able to be versatile in their functions. A higher level of paternal involvement in child rearing is associated with benefits for children, especially sons in the area of intellectual growth, school performance, social development, self-esteem and sex-role identity (Riley, 1985).

As discussed in the previous chapter there is growing research evidence to suggest that post-natal depression is unlikely to be biological in nature and is thus not a uniquely female experience (Carro, Grant, Gotlib & Compas, 1993). It is therefore plausible that fathers may experience depressive symptoms during this period and in turn that paternal depression may represent an additional risk factor for child maladjustment (Carro *et al.*, 1993). Surprisingly few studies have examined whether or not fathers can serve as a protective function.

Carro *et al.* (1993) examined the role of maternal and paternal depression as predictors of later child development and found them to be risk factors, both alone and combined. Fathers' depressive symptoms served as an additional risk factor for increased child behavioural problems at 2-3 years and interacted with mothers' depression to predict higher subsequent internalising problems. The authors suggest that post-natal depression in fathers may affect subsequent child functioning by contributing to later distress and depressive symptoms in mothers, when infants are 2-3 years old. It may be however, that there is a more direct impact of paternal depression on the earlier emotional development of the infant. Previous studies suggest that depressed mothers are withdrawn and non-responsive in their interactions with infants. Carro *et al.* (1993) suggest that it is possible

that fathers may manifest their depressive reactions differently, perhaps by exhibiting increased levels of irritability and hostility, which are frequently associated with depressed mood.

Tannenbaum & Forehand (1994) found that when a good father-adolescent relationship existed in the presence of maternal depressed mood, the behavioural problems of adolescents were equal to that of adolescents not exposed to depressed mothers. Ballard & Davies (1996) discuss the importance of morbidity in fathers in relation to increased irritability and poorer marital relationships, as well as the impact on the child if both parents are depressed. Goodman, Brogen, Lynch, & Fielding (1993) found such children to be especially vulnerable with significantly impaired self-concepts and more difficulties in peer relationships.

Summary

Both mothers and fathers play a significant part in their child's development. It appears that fathers' attachments may develop somewhat later into the first year than mothers and together can provide a different, more balanced experience for the infant. The potential protective function that a father can serve, if a mother is depressed, is enormous and may reduce the likelihood of later problems in attachment and peer relationships for the child.

Interventions

Cogill *et al.* (1986) suggest that as one in ten mothers become clinically depressed in the months after childbirth the size of the problem alone merits attention. Murray's (1992) findings that the remission of maternal depression by three months does not bring about an improvement in the mother-infant relationship and confers no significant advantage to infant outcome carries important therapeutic implications. She suggests there should be a

shift away from focusing on depressive symptoms to the relationship between mother and child. Given that there is now some research data to suggest an almost comparable prevalence of depression for fathers, it seems important to be considering both parents therapeutically. Ballard & Davies (1996) propose that interventions should be aimed at developing better support between marital partners and thus emphasise services for the whole family.

1.4 Sociological considerations and psychological theory

A psychosocial framework

Only recently has attention been paid to how fathers interpret and define what being a father means. Silverstein (1993) argues that until the 1980's the role that fathers played in the lives of their children was ignored to such an extent that Lamb (1975) referred to fathers as the 'forgotten contributors to child development'. Kraemer (1994) wrote:

Men are peripheral to the business of making babies. Their biological task is over 40 weeks before the baby appears. From this biological point of view the father is redundant within seconds (p.21).

It seems that men, because of this lack of direct experience with biological functions such as pregnancy and lactation, have somehow been viewed as without the natural tendency to nurture children and assigned the role of the provider (Silverstein, 1993).

There are now far greater expectations for active involvement by the father in a child's life. Lamb (1986) states that over the last two decades the dominant emphasis of fatherhood has shifted from 'moral teacher' to 'breadwinner' to 'sex-role model' to 'new nurturant father' (p.4-6). Yet Dickie (1987) and Daly (1993) point out that men are

attempting to meet these heightened cultural expectations with a set of preparations that are rooted in the 1950's. McBride (1989) found that the result of their lack of preparation appears to be an increase in stress (Daly, 1993).

Daly's (1993) research findings indicate that fathers in his sample tended to perceive they had no specific role models from which to draw upon. For many of the men in his study the failure of their own fathers to serve as adequate role models was the result of generational differences in expectations for how one should father. The emphasis that their own fathers placed on work, at the cost of their family experiences concerned the subjects. Some of the common experiences of being fathered included the absence of one's own father through work, a distant relationship and an emphasis placed on a set of values and standards for proper behaviour. Daly claims that this 'model at a distance' reflects a lack of clear guidelines for new fathers. A father aspiring to be more involved with his child but lacking models and experience of the kind of fathering he is hoping to create has a very real struggle to overcome his own early family patterns (Krampe & Fairweather, 1993).

Social policy

Cresci (1995) argues that the opportunities for considering the transition and choosing a style of fatherhood are quite limited. Such opportunities would increase if there were widespread social encouragement for men to be active parents. Kraemer (1994) states:

Mothers are enabled by nature to look after the baby for a while at least. Fathers, because they are more reliant on social definition, need social structures to promote them (p.24).

It is interesting to note that there are few opportunities for paternity leave and little provision for taking leave at other times in the child's life, such as when he or she is ill. Hawkins, Christiansen, Sargent & Hill (1993) argue that with the current employment and care giving arrangements, the economies of unequal salaries and residual societal attitudes about men's roles, it is easy to see how fathers come to view themselves as less adequate carers. In addition, despite the increase in the number of publications on fathering in the last 15 years, fathers continue to be under represented in clinical research (Silverstein, 1993). It does seem that the existing cultural constructions of fathering are being questioned and reviewed, but it is likely to be a while before this has a dramatic impact on public policy.

Psychological theory

From the above discussion one can start to tease out a variety of reasons why men might develop depression in early fatherhood. In order to do this, it is helpful to draw from different psychological models to formulate these potential explanations and to provide support for the psychological risk factors that are examined in this particular study.

Systemic model

Systemic theory considers a family as a system, where changes in one part are likely to result in changes in other parts (Minuchin, 1974). Problems are believed to emerge at times of transition where issues around the renegotiation of roles, power, boundaries and support become prominent. Transitional problems may be directly related to the pregnancy, the birth of the baby or the subsequent events around child care and can lead to depression (Brown & Harris, 1978). The transition to fatherhood and conflict in negotiating both new and previous roles have been discussed earlier in this section and such adjustment difficulties can also result in depression. Perceived support from others is

purported to have a major influence on coping with life changes, such as having a baby (Paykel, Emms, Fletcher & Rassaby, 1980). Gruis (1977) points out that the additional demands of child care occur at a time when less emotional support is given to the father by his partner and more support is expected by the mother (Ballard & Davies, 1996).

In this study some of these factors are systematically examined and using a systemic framework one might predict that a father who experiences depression will have lower perceived levels of social support and/or perceive the events related to having a baby as more stressful and negative. One might also predict that the incidence of comorbidity would be raised because a father may receive less emotional support from a partner who is depressed.

Cognitive behavioural model

This theory emphasises the role of cognitions in depression and suggests that some people have learned to perceive, interpret or evaluate events in a way that makes such situations more stressful or negative. The result is an increased likelihood of depression. Abramson, Seligman & Teasdale (1978) highlight the role of dysfunctional causal attributions in the aetiology of depression. In particular, they maintain that internal, stable and global attributions about the causes of negative events lead to guilt (self-deprecation), dysphoria, hopelessness and passivity, all of which are central to depression. Given that depression is seen as a recurring disorder, it may also be predicted that individuals who have had previous depression would be more likely to become depressed following a stressful event e.g. childbirth.

In this study no direct evaluation of cognitive vulnerability factors is made. However, consideration is given to the father's perception of his infant's temperament. This taps

into a person's cognitive evaluations of one particular aspect of fatherhood; the developing relationship with the infant. From this model one can predict that a father might experience depression if he perceives the temperament of his infant to be more difficult than the average baby. Personal and family history of depression is also explored and hence allows for the consideration of biological vulnerability. A cognitive behavioural model is also relevant to such indices, because repeated patterns of negative evaluations may have been learnt in early childhood, from one or other parent, and subsequently reinforced.

Psychodynamic model

A psychodynamic perspective takes into account an individual's own parental rearing when looking at the origins of depression. Bowlby (1969, 1988) argued that disruptions of, or dysfunctional, early attachments can lead to deficits in intimate adult relationships and difficulties in the subsequent bond formed with the new infant. These processes have the effect of reducing self-esteem and can impart an increased risk to depression. The memories of one's own parenting may be reawakened and become increasingly prominent when one becomes a father and hence issues of loss may surface. This may be coupled with the acute loss of intimacy with the partner when the baby arrives.

This study explores the notion that poor perceptions of one's own parenting leads to increased susceptibility to depression for fathers in the early post-natal period. Using this model one might also predict that a depressed father would perceive his infant as more difficult in temperament. The origins of which, in this case, concern unresolved issues of loss associated with a father's own parenting, which are subsequently replayed in the relationship with his infant.

Interestingly, on the issue of comorbidity, Lovestone & Kumar (1993) report that psychodynamic theorists have emphasised that becoming a parent is a time of 'psychosocial flux'. They suggest that disruption of this process, by illness in a partner, may lead to psychological disturbance and illness in susceptible men. Their findings also provide some support for the notion that people vulnerable to psychiatric disorder intermarry more often than by chance.

1.5 Summary and rationale for this study

It is gradually becoming acknowledged that fathers do suffer from post-natal depression, but very little is known about their experience. The impact this can have on a father's psychological well-being, his relationship with his partner and his feelings associated with becoming a parent are all likely to be affected. There are also severe implications for the child's emotional and cognitive development, particularly if both parents are depressed.

The factors that may increase a father's susceptibility to post-natal depression, or those that might indeed protect him, have also been given little consideration in research to date. As these are systematically investigated it will become possible to screen for those families who may be at greatest risk and target appropriate clinical or therapeutic interventions. Finally, it is important to locate such research and subsequent clinical management within the changing social context of fatherhood, in order to understand the new demands that fathers face and how best they can be supported.

This study

This study aims to examine the existence of post-natal depression in a sample of mothers and fathers at six weeks post-partum. In line with previous research it was decided to focus on first time parents in the early post-natal period. This makes it possible to

compare the findings with other studies using this group and acknowledges the complexity of experiencing depression as a second or third time parent, thereby controlling for this factor.

The study aims to investigate the prevalence of depression in the partners of post-natally depressed women compared to post-natal, non-depressed women. This will enable the issue of comorbidity to be explored. By interviewing a smaller sample of couples from the screened population this study explores whether a father's perception of his infant's temperament, his own parental care and the social support available are associated with the risk of experiencing symptoms of depression. No previous research has attempted to explore all the above aims in a community population using an appropriate, post-natally sensitive, screening tool.

As this study is exploratory in nature it will be valuable to comment on the appropriateness of its design and acceptability to the subjects involved. This will provide useful information for future research in this field. Finally, this study aims to develop recommendations for the health care professionals involved in the clinical management of parents.

1.6 Hypotheses for the study

The following hypotheses were investigated in this study:

1. Post-partum mothers will have a higher prevalence of depression at six weeks than post-partum fathers.
2. Depressed mothers are more likely to have depressed partners than non-depressed mothers.

3. The level of social support available to a father will be negatively associated with a father's depression score.
4. A father's perceptions of his own parenting will be negatively associated with his depression score.
5. A father's perception of his infant's difficultness will be positively related to his depression score.
6. There will be a positive correlation between scores on the Edinburgh Postnatal Depression Scale (EPDS) and the General Health Questionnaire (GHQ₂₈) for fathers.
7. Fathers who have experienced depression in the past are no more likely to experience depressive symptoms at six weeks post-partum, than fathers with no prior history.
8. Fathers with a family history of depression are no more likely to experience depressive symptoms at six weeks post-partum, than fathers with no family history.

Chapter 2: Method

2.1 Design

This study used a cross-sectional design, focusing specifically on the early post-natal period. It comprised of three stages: a recruitment phase, a screening phase and an interview phase. A sample of 100 couples was screened for postnatal mood disturbance (the dependent variable) and a 'between groups' design was used for comparison. An experimental group of 15 randomly selected depressed women and a control group of 15 randomly selected non-depressed women were chosen from the screened sample. These women and their partners were interviewed about their experience of becoming a parent. Psychological risk factors of perceived infant temperament, own parental care and current social support (independent variables) were also investigated in the fathers of the two groups.

Because there is currently little research evidence to provide a prevalence estimate of post-natal depression in fathers, it seems inappropriate to design this study around obtaining an experimental and a control group of fathers. There may have been insufficient time available to recruit the appropriate sample size to each group, and fathers may have been less motivated to take part in a study that did not involve their partners. Hence, it was decided that the most effective way to recruit fathers into the study was through their partners and to involve parents as a couple. By using a group of depressed and non-depressed women the study could also investigate what happens to the partners in each of these groups.

2.2 Participants and Sampling

Subjects were self selecting volunteers from a target group of mothers on the post-natal wards of the Maternity Unit at Southmead Hospital, Bristol and their partners. One

hundred and eight couples volunteered to participate in the screening stage of the project. The ward administrator was responsible for recruitment and the following inclusion criteria were applied:

1. Parents needed to be primiparous and cohabiting;
2. Parents with a full-term, healthy, singleton baby.

The following exclusion criteria were applied at the point of recruitment:

1. Parents with a baby who had severe medical complications or a congenital abnormality;
2. Parents with a baby who was pre term (i.e. < 37 weeks);
3. Parents with twins.

Prematurity and neonatal illness or disability are known to increase the likelihood of post-natal depression in parents (see Chapter 1) and were relatively easy to exclude at this stage. Parents who had had twins were also excluded in an attempt to reduce the heterogeneity of the screened sample. Out of the 108 couples agreeing to take part in the screening stage of the study, 100 couples (92 per cent) completed and returned the EPDS at six weeks. This figure is comparable with the 90 per cent response rate achieved in Ballard *et al.*'s (1994) study.

Two groups were subsequently selected from the screened sample and invited to participate in the interview stage of the project. The groups were as follows:

- (1) A **study group** consisting of a random sample of mothers who scored above threshold on the EPDS (i.e. score ≥ 10) and their partners (n = 15 couples).
- (2) A **control group** consisting of a random sample of mothers scoring less than threshold on the EPDS and their partners (n = 15 couples).

Those couples expressing a wish at the screening stage not to participate in the interviews were excluded from the random sampling (5 per cent). This figure is comparable to Murray and Carothers (1990) study, where 4 per cent of their sample expressed unwillingness to continue to the interview stage.

Power analysis

Cohen's (1992) paper provides a helpful aid to power analysis and was used to determine the appropriate size of the interviewed sample (study and control group). He identifies that the sample size necessary for 0.80 power varies according to the population effect size sought and which statistical test is used. Given that a Pearson correlation and a multiple regression analysis (for three independent variables) would be undertaken on the data from the interviewed sample, his paper shows a sample size of $N=28$ and $N=34$ respectively is needed. This is based on a 0.80 power, detecting a large population effect size ($\alpha = 0.05$). A sample size of 30 was subsequently chosen given the time involved to carry out each interview and hence this meant 15 mothers were needed for the study group ($EPDS \geq 10$).

To work out the appropriate size for the screened sample it was important to consider both the need to obtain 15 mothers for the study group and an appropriate power analysis. In Chapter 1 the prevalence of post-natal depression in mothers, using the EPDS, was identified as 28 per cent (Ballard *et al.*, 1994). Using this figure suggests a minimum sample of 54 couples would need to be screened to obtain a sufficient number of mothers for the study group ($EPDS \geq 10$). However, given the overall prevalence rate from a meta-analysis is quoted as 13 per cent (O'Hara & Swain, 1996) a sample size closer to 100 would be more appropriate. Cohen's (1992) paper was used again to consider the appropriate sample size for the screened population, given that a t-test, Pearson correlation and difference between proportions would be undertaken. A sample size of between 63 to

85 is needed for 0.80 power to detect a medium population effect size ($\alpha = 0.05$). Thus a screened sample of 100 still seemed appropriate and would allow for a certain degree of non-responders.

Demographic and obstetric data of participants

The screening population was drawn from a wide selection of geographical areas within Bristol that are served by Southmead Hospital. Seventy-six per cent of the couples in the sample were married and the remainder were co-habiting. Although no other demographic data was collected there was no reason to believe this screened population differed significantly from the two groups subsequently interviewed, as the latter were randomly selected.

The interviewed sample consisted of 30 couples and the mean age of the parents involved is shown in Table 1.

| | Mothers (years) | Fathers (years) |
|---------------------------|----------------------------|----------------------------|
| Mean | 30 | 32 |
| Standard deviation | 3.88 | 4.67 |
| Range | 23-42 | 24-44 |

Table 1. Age of participants in the interviewed sample

The Office for National Statistics (1997) found the mean age of mothers and fathers in England and Wales to be 26.8 years and 30.9 years respectively. The latter figure, however, includes all fathers and so one might expect the national average age of first time

fathers to be lower. The figures in Table 1 show that, in comparison to the national average, the mean age of mothers and fathers in this study is higher.

The summary of the social class (Office of Population Censuses and Surveys, 1980) and socio-occupational status (Office of Population Censuses and Surveys, 1991) of the interviewed sample, ascertained from the paternal occupation, can be seen in Table 2.

| | Social class | Socio-occupational status |
|--------------------|--------------|---------------------------|
| Mean | 1.97 | 3.43 |
| Standard deviation | 0.96 | 2.13 |
| Range | 1-4 | 1-8 |

Table 2. Social class and socio-occupational status of the interviewed sample

Table 3 shows a comparison of social class data between the interviewed sample, the population served by the hospital involved in the study and the 1981 Population Census for England and Wales.

| | Interviewed sample | Southmead Trust^a | National Population^b |
|---|-------------------------------|--|--|
| Non-manual [social class 1,2 and 3 (non- manual)] | 63% | 40% | 47% |
| Manual [social class 3 (manual), 4 and 5] | 37% | 22% | 48% |
| Other (including those retired, disabled and unemployed) | — | 38% | 5% |

Table 3. Comparison of local and national social class data with those interviewed

^a (1991) Data from Avon Health Authority.

^b (1981) Population census for England and Wales.

From this table it can be seen that the sample interviewed does not reflect the exact social class characteristics of the population served by the trust, or the national population. There are more individuals in the higher social class groups in the interviewed sample and no participants who are retired (as one might expect), disabled or unemployed. When the proportion of those retired are excluded from the Southmead trust sample, the figures for the 'non-manual', 'manual' and 'other' categories become 50 per cent, 28 per cent and 22 per cent respectively. The differences between this sample and the interviewed group still exist, but are less marked with this correction.

The mean length of time couples had lived together was 4.6 years (s.d. 3.86), with a range of 0-17 years. The average birth weight of the baby was 3.6kg (s.d. 0.48), with a range of 2.61-4.53kg. Eighty-seven per cent of mothers and 83 per cent of fathers stated the pregnancy was planned. All but one father had attended at least one antenatal class and only one father was not present at the birth.

Table 4 shows the type of delivery experienced by mothers in the interviewed sample.

| Nature of delivery | Study group (n=15) | Control group (n=15) |
|--|-------------------------------|---------------------------------|
| Natural birth | 4 | 7 |
| Instrumental (e.g. forceps) | 9 | 2 |
| Planned Caesarean | 1 | 0 |
| Emergency Caesarean | 1 | 6 |

Table 4. Nature of the delivery for mothers in the interviewed sample

From this table it can be seen that more women in the control group had either a natural birth or an emergency Caesarean and more women in the study group had an instrumental delivery. Six women had experienced a miscarriage in the past, five of which were in the study group. Finally, only one mother had had a previous termination and she was in the study group.

2.3 Setting

Parents were recruited from two out of the three postnatal wards of Southmead Hospital Maternity Unit. This maternity unit is one of the largest in the country, with 5209 deliveries in 1996/97. There are approximately 3000 births per year or 55 per week in this unit (roughly 30 per week on the two wards used). From the experience of the maternity ward staff it was felt that on average half of these babies would be born to first time parents.

A voluntary group called 'Mothers for Mothers' exists in the Bristol area and provides support for distressed and depressed mothers. This group was contacted by the researcher to inform them about the proposed study and would have been considered as a potential source of subjects if any difficulties arose in recruitment.

2.4 Materials

Equipment

- In order to gather the completed consent forms, collection boxes were located in the reception area of each maternity ward involved. They were colour coded with the information sheets for ease of association.
- Information sheets were provided for staff members (see Appendix 1). These were designed following consultation with the liaison supervisor and placed on display for the staff in the ward receptions.
- Information sheets and consent forms for parents were provided (see Appendix 2). These were initially designed using the Southmead Health Services NHS Trust ethical committee's guidance notes. They were then piloted with a mother and father dyad, amended according to their comments and subsequently approved by the ethical committee.

Measures

Edinburgh Post-natal Depression Scale (EPDS)

Cox, Holden & Sagovsky (1987)

This is a self-report scale used to identify post-natal depression within the community at six weeks postpartum (Cox, 1986). It consists of 13 statements (subsequently abbreviated to a 10-item scale) describing symptoms of post-natal depression with four possible responses, each graded according to their severity or duration (see Appendix 3). It is

simple to complete, taking approximately five minutes and it has a high response rate even with postal administration. It is also simple to score and uses the Likert method, with a total score being derived by adding each of the item scores.

The 10-item scale was used in this study as the literature purports that the additional items in the 13-item version form a separate non-depression factor and thus suggests omitting these items might increase the specificity of the scale. It also has the advantage of taking less time to complete. The EPDS, unlike the Beck Depression Inventory (BDI), does not place emphasis on the somatic symptoms of psychiatric disorder that may be caused by normal physiological changes associated with childbearing.

The EPDS has been found to have satisfactory validity when tested against Research Diagnostic Criteria for depressive illness carried out on a community sample of women. Its face validity is satisfactory and it is also acceptable to mothers themselves. The usual threshold score for concern is 13 and above. As it is important however, in some clinical or research settings, for actual cases of depression not to be missed, Cox, Holden & Sagovsky (1987) suggest that the failed detection of cases can be reduced to under 10 per cent, if a cut-off score of 9/10 is used on the 10-item scale.

Murray & Carothers (1990) validation study of the 10-item scale found its sensitivity to be 84 per cent (that is the proportion of Research Diagnostic Criteria depressed women who were true positives), its specificity to be 88 per cent (proportion of non-depressed women who were true negatives) and its positive predictive value (proportion of women above threshold on the EPDS who met RDC criteria for depression) to be 48 per cent. The EPDS has been found to have a split-half reliability of 0.88 and it is also sensitive to changes in

the severity of depression over time. Ballard *et al.* 1994 have validated the 13-item EPDS on men and found a sensitivity score of 87.5 per cent.

General Health Questionnaire (GHQ)

Goldberg (1972)

This is a self-administered screening test designed to detect non-psychotic psychiatric disorders or psychological distress in community settings. The GHQ is a pure state measure, responding to how much subjects feel their present state is unlike their usual state. It aims therefore to detect the inability to carry out normal functions and the appearance of new and distressing phenomena, rather than focusing upon lifelong traits (Goldberg & Williams 1988). It is well established and can be completed in about five minutes. The GHQ₂₈ (Goldberg & Hillier 1979) is used in this project as it provides scaled sub-scores on somatic symptoms, anxiety and insomnia, social dysfunction and severe depression (see Appendix 4). These subscales are not independent and represent dimensions of symptomatology, which do not necessarily correspond to psychiatric diagnosis.

The GHQ's sensitivity to depression is comparable to any of the dedicated scales, but the specificity is not so good. It can be used to compare the psychological health of two groups of subjects, without making any assumptions about psychiatric caseness. The reliability of the GHQ₂₈ has been studied in terms of the internal consistency of the items on the test (split-half reliability) and was found to be between 0.83-0.95 and the test-retest reliability which was found to be 0.73-0.77. The latter tends to be higher when measured on clinically defined groups with a high prevalence of disorder.

The validity of the GHQ₂₈ has also been explored. Each test item is known to be highly discriminating between groups of respondents with or without mental illness. It is also apparent that the GHQ is highly sensitive to a dimension of general dysphoria, which can be found in most subjects with non-psychotic mental illnesses (construct validity). Criterion validity has been examined by comparing the GHQ responses with the results of an independent and standardised psychiatric assessment. The median correlation between the GHQ and such a criterion interview has been found to be +0.70. Finally, the sensitivity of the GHQ₂₈ has been identified as 84 per cent and the specificity as 82 per cent.

Neonatal Perception Inventory (NPI)

Broussard & Hartner (1971)

The NPI looks at a parent's perception of his/her baby at one month after the birth and uses the parent's concept of the average baby as an anchor for comparison. The following behavioural items are rated on a five-point scale, sleeping, vomiting, feeding, elimination, crying and predictability (see Appendix 5). Scores are produced by totalling these ratings for the 'average baby' and for one's 'own baby' and a discrepancy score is calculated between the two. It is an easily administered instrument that takes on average about 5 minutes to complete.

The NPI has been shown to identify children at one month who are at high risk of subsequent emotional developmental problems. Broussard & Hartner (1971) found that infants whose mothers rate them as better than average at one month were a low-risk group and infants who were rated as worse than average or average constituted a high risk. The test has shown predictive validity; more infants in the high risk group needed therapeutic intervention at age 4 ½ years than those in the low risk group. Concurrent validity has also been demonstrated; mothers who perceived their one-month old babies as better than

average tended to score lower on depression, irritability, negative aspects of child rearing and anxiety symptom scales than those who did not see their babies as better than average. The literature on the NPI does not comment on its reliability, apart from test-retest reliability that has been shown to be 0.82.

The NPI has been used to look at the antecedents of mothers reports at 4-6 months on the Infant Characteristics Questionnaire (Bates *et al.*, 1979). These authors found that the less favourably the mother rated her baby at one month, the more she described her baby as fussy/difficult at 4-6 months. It was suggested that the two instruments are different enough in content and format with a sufficient time interval between them that this correlation adds to the construct validation of the instruments and indicates some continuity in a mother's perceptions of her infant.

Parental Bonding Instrument (PBI)

Parker, Tupling & Brown (1979)

This scale is used to assess the quality of parenting a person perceives he/she received during his/her own childhood (see Appendix 6). Subjects are asked to rate each parent on 25 attitudinal/behavioural items, which are then scored using the Likert method to produce two sub-scales: caring and over-protectiveness. Used together these scales represent a bonding instrument and can be used to examine the influence of parental distortions on psychological and social functioning of subjects. The two dimensions do not appear to be independent of one another as their scores correlate negatively. A growing body of literature suggests that although the PBI measures perceived parental characteristics, these perceptions are not only stable over a 3 year period (Gotlib, Mount, Cordy & Whiffen, 1988), but furthermore, they correspond closely to the perceptions of the parents themselves (Parker, Tupling & Brown, 1979)

This instrument has been shown to have good test-retest reliability (0.761 for the care scale and 0.628 for the overprotection scale), good split-half reliability (0.879 for the care scale and 0.739 for the overprotection scale) and good inter-rater reliability (0.851 for the care scale 0.851 and 0.688 on the overprotection scale). Concurrent validity has been measured by comparing scores on the PBI to scores assigned from interviews and this revealed a correlation of 0.78 and 0.51 for care and overprotection respectively (Parker *et al.*, 1979).

Significant Others Scale (SOS)

Power, Champion & Aris (1988)

This is a measure of perceived adequacy of support and asks subjects to rate the support they actually receive and the 'ideal' level of support they would like to receive, from important people in their lives. The functions of social support are divided broadly into emotional and practical support. The short form SOS is used in this study and can be completed in 5-10 minutes (see Appendix 7). It assesses four different social support functions (two emotional and two practical) in seven individuals. Scores can be produced for actual social support, ideal social support, and the discrepancy, as well as breaking this down for emotional and practical support. The larger the discrepancy the lower the perceived quality of social support. Power, Champion & Aris (1988) found that the largest actual-ideal discrepancies were produced by their depressed sample.

Test-retest reliability has been calculated over a six-month interval and all four summary support functions (actual and ideal, emotional and practical support) were significant (range from 0.73-0.83). The validity of the SOS has been established by concurrent and construct methods, as well as some incidental evidence on face validity (taken from a high response rate of 72 per cent). Concurrent validation compared non-cases, non-depressed

cases and depressed cases using the GHQ and the SOS and found significant differences between the depressed cases and the two other groups on the GHQ and the discrepancy scores of the SOS. In addition, Lovestone & Kumar (1993) have suggested that the spouse/partner section of the SOS can be used as an indicator of marital satisfaction.

Semi -structured interviews

Questions were developed by the researcher to cover the following areas: demographic information, pregnancy and birth history, obstetric data, experience of previous miscarriage/ termination and personal/familial experience of previous depression. These factors have all been shown to influence a mother's vulnerability to depression in the post-natal period, but little consideration has been given to their role in the well-being of fathers (as discussed in chapter 1). Questions were also included to look at parents' feelings about their baby, both before and after the birth, as well as their experience of the delivery. Qualitative comments were recorded and a rating scale was developed to identify how negative or positive these feelings were on a scale of 0-10.

The initial draft interview was discussed with both the research tutor and liaison supervisor, the latter of which role-played the interview with the researcher. From these discussions the interview was amended and piloted on a first-time father. This provided the opportunity to practice the interview and amend it according to the father's comments. In particular, the rating scale was amended to include numbers between 0 and 10 and a written description of the extremes. This made it easier for the subject to understand and rate his/her feelings. The final version of the maternal and paternal interview can be seen in Appendix 8. All participants involved in the study were invited to comment on the content and design of the interview and their feedback was recorded.

2.5 Process

Design phase

Once the materials had been collated a pilot study was carried out in order to test the feasibility and face validity of the project. A first time mother and father dyad were visited at their home. The reasons for the project, the proposed procedure and the chosen materials were discussed. Overall the pilot study demonstrated that this was an interesting and clinically important area to research and the design of the project was suitable. Several important suggestions emerged and were subsequently incorporated:

- The consent form was amended to include parents' signatures and the baby's name.
- The letter to parents and the EPDS were to be sent out in one envelope and returned separately in SAEs.
- At the end of the EPDS a box should be included for parents to indicate if they do not wish to participate further in the project.
- It was suggested that a contact number for help/support should be provided, where appropriate, at the interview stage.

The materials were further piloted by sending them to a first-time father/colleague for consideration and his comments were as follows:

- The word 'confidential' should be changed to 'anonymous' on the information sheet.
- The consent form should be amended to include the statement 'We have understood the outline of the research project and we are happy to participate'.
- The EPDS does not ask about any change in a person's ability to concentrate. Why does it ask about anxiety when it is meant to be addressing depression?
- The SOS was easy to complete and felt an appropriate way of measuring support.
- The PBI was a little confusing to follow and 'you had to check you had given the response you had actually intended'.

From the first two points the forms were amended. The limitations of the EPDS are acknowledged in Chapter 4. Because of the final comment, care was taken to give an appropriate explanation to each subject of what was required when completing the PBI and time was made for any queries during completion. Finally, the whole interview battery was piloted on a friend in order to rehearse the material, to test the length of time involved and to amend any further problems identified. This interview took approximately one hour and helped to identify ways of linking or introducing each new item that could then be rehearsed.

Pilot recruitment phase

The Women's Health and Maternity Unit Manager was contacted by the researcher about the project. Following local ethical committee approval (see Appendix 9) it was agreed to pilot the recruitment stage on one ward for a week to see the response. The ward administrator agreed to be the key person for co-ordinating the handing out of information and consent forms and choose to do this mid-morning just before the start of visiting hours for partners. An information sheet was given to the administrator, which identified who to include and exclude from the study, and this was discussed. A rehearsal of what was most appropriate to say to parents was also carried out with the administrator. At the end of the pilot there was a sufficient number of returns for the ward manager to agree to continue for six months. After this pilot the second ward was involved, following agreement from the ward manager.

2.6 Procedure

Parents were recruited on two postnatal wards by the administrator of each ward. This involved handing out an information sheet about the study and a consent form for

completion. The administrator requested that the parents read through the information sheet and if they would like to take part to return the consent form to a member of staff or to the collection box. Unfortunately the researcher could not carry out the recruitment phase due to time limitations and so had to rely on the good will of the administrators. The consent of both parents was needed at this phase and the forms were collected by the researcher each week.

This method of recruitment was most appropriate given that (a) previous research has shown that contact and consent prior to sending out questionnaires significantly increases the response rate (Goyder, 1982), (b) it demonstrated a connection to normal maternity ward procedures and, (c) it provided an equal opportunity for participation by fathers.

After this initial contact, 100 pairs of parents were screened for depression at six weeks postpartum using the EPDS. This was sent to their home address with a letter (see Appendix 10) and SAE for return to the Child Psychology Department at Southmead Hospital. The researcher collected all returns on a weekly basis. Those who had not responded within two weeks were followed up with a reminder letter (see Appendix 11). Ballard *et al.* (1994) suggested their good response rate may have been achieved by their reminder procedures.

Upon receipt of the EPDS 30 pairs were contacted by the researcher and, upon agreement, were interviewed at home. A letter confirming the interview date and time was sent out after the initial telephone contact and agreement (see Appendix 12). The interviewed sample included an experimental group consisting of 15 women who were experiencing mood disturbance (scoring ≥ 10 on the EPDS) and their partners, and a control group of 15 non-distressed women and their partners. Interviews were done independently and

confidentially at the parents' homes and all data was subsequently anonymised. The mother completed the GHQ and then went through the semi-structured interview with the researcher. The father completed the GHQ, NPI, the semi-structured interview, the PBI and finally the SOS. The researcher during the interview noted any comments made by the participants. The GP's name and address of each parent was also recorded so a letter could be sent acknowledging his/her participation in the study (see Appendix 13).

2.7 Preparation for data analysis

All questionnaires and interview forms were coded so individual participants could not be traced. The questionnaires were scored after completion of each interview and entered into a SPSS spreadsheet over the course of the data collection period. Occupational data was coded from paternal occupation, according to social class (Office of Population Censuses and Surveys, 1980) and standard occupational group (Office of Population Censuses and Surveys, 1991). The descriptive nature of the data set was subsequently explored and formal statistical analysis was carried out using the SPSS package. In addition, the scores relating to the qualitative comments from the semi-structured interviews were analysed. Chapter 4 contains a discussion of the quantitative findings and uses some of the qualitative comments made by fathers to illustrate these findings.

Chapter 3: Results

3.1 Description of the methods of data analysis

Data was entered into a SPSS computer package and was explored to look at the distribution and variances of the dependent variable (depression) and the independent variables (social support, infant temperament and own parental care). These are relevant when considering whether parametric statistics can be used, as such tests assume that the data of each variable (a) approximates to the normal curve and (b) shows similar variances. Where assumptions of normality were violated it was judged that parametric statistics were sufficiently robust to produce only minor effects on results, given that the sample sizes were equal and variances were similar (Howell, 1987; Kinnear & Gray, 1994). In the case of correlational analysis the data was also screened for evidence of linearity and outliers.

3.2 Description of the participants

As identified in Chapter 1, age, social class and obstetric data are all potential risk factors to post-natal depression in women. It is therefore important to compare the study and the control group according to these factors. First, an independent t-test was used to see if there was a significant difference between the ages of the parents in the study and control group and showed no significant difference for mothers ($t = 0.417$, $d.f. = 28$, $p > 0.05$, **two-tailed**). However there was a significant difference between the groups for fathers' age; fathers were older in the study group ($t = 2.205$, $d.f. = 28$, $p < 0.05$, **two-tailed**).

Secondly, a Mann-Whitney test was used to compare the study and the control group on social class and standard occupational grouping. The analysis reveals that the two groups did not differ significantly either in terms of their socio-occupational status ($U = 83$, $z = -1.29$, $p > 0.05$, **two-tailed**) or social class ($U = 94.5$, $z = -0.80$, $p > 0.05$, **two-tailed**).

Chi-squared tests were not carried out on the obstetric data obtained because the frequencies in some of the categories were too small for formal statistical analysis. However, the descriptive data reported in Chapter 2 does show that there were more mothers in the study group who had had an instrumental delivery and a miscarriage in the past compared to the control group.

3.3 The screened sample

The mean scores obtained on the EPDS are given in Table 5. From the standard deviations it can be seen that the two groups (mothers and fathers) satisfy the parametric assumption for similarity of variances.

| | Mothers | Fathers |
|--------------------|---------|---------|
| Mean | 7.4 | 4.5 |
| Standard deviation | 4.33 | 4.00 |
| Range | 0-23 | 0-18 |

Table 5. Mean EPDS scores for mothers and fathers at six weeks post-partum

Note: Maximum possible score = 30

The distribution of depression scores for mothers and fathers are illustrated in Figures 1 and 2 respectively. The former shows an approximate normal distribution of scores for mothers, the latter shows a more positively skewed distribution of scores for fathers. The EPDS threshold score used for depression was ≥ 10 .

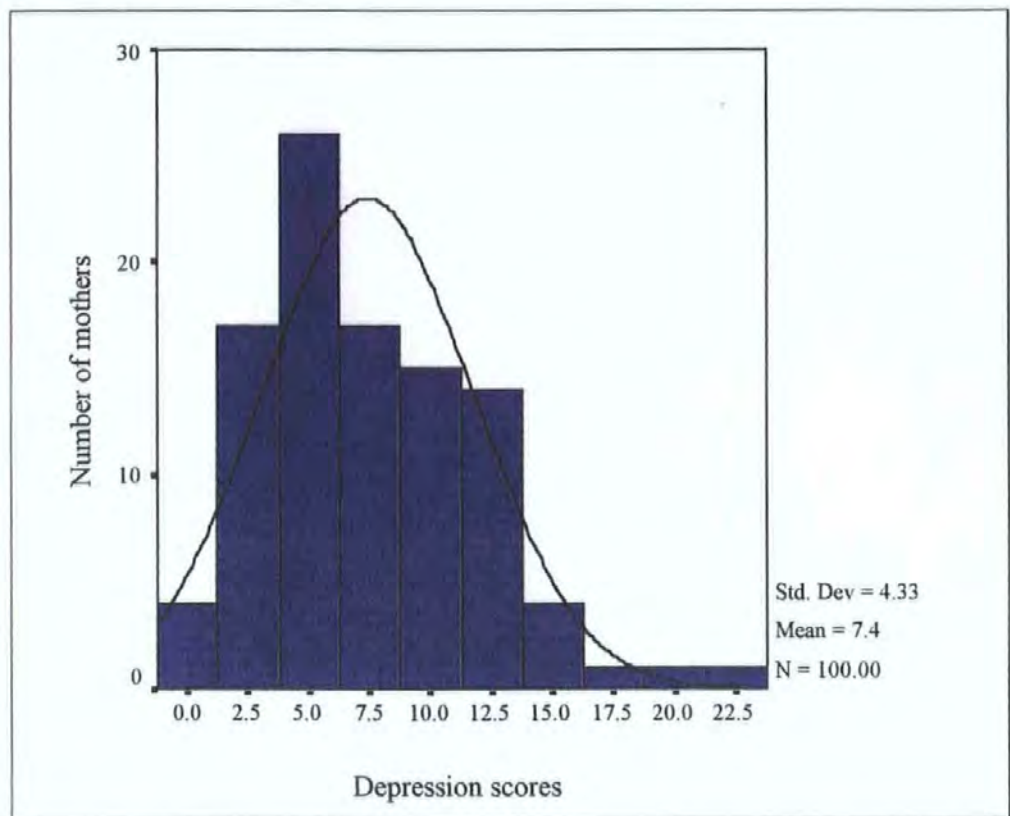


Figure 1. Range of depression scores for mothers at six weeks post-partum

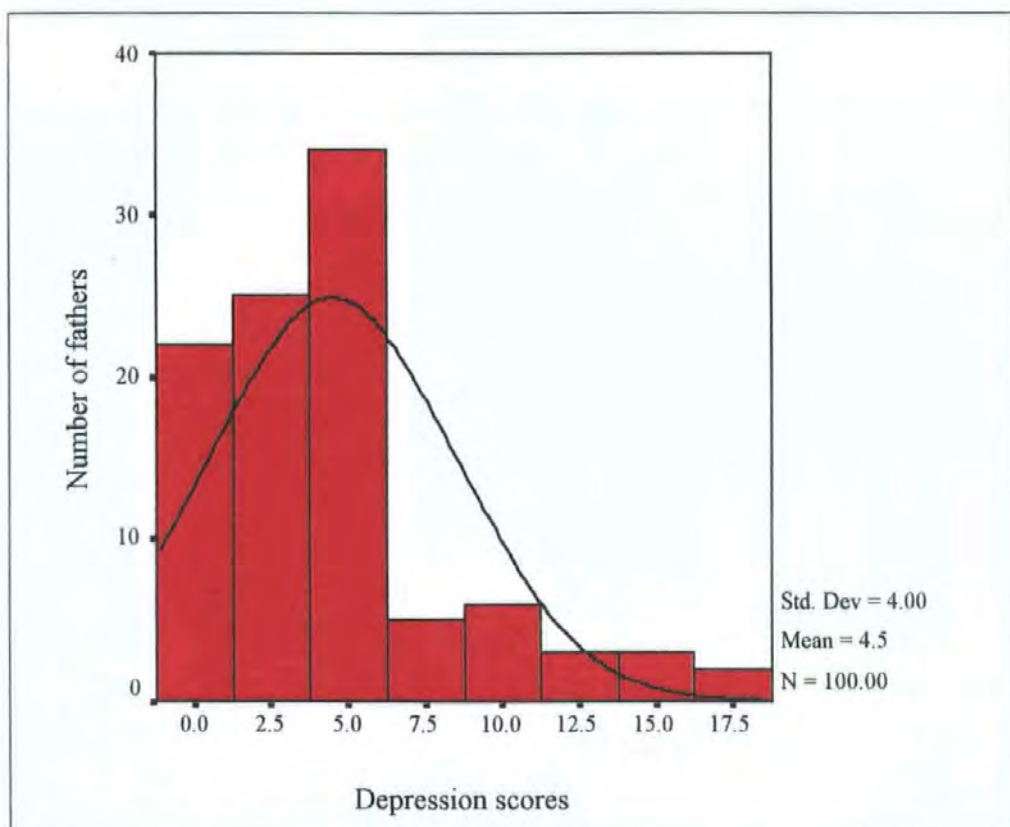


Figure 2. Range of depression scores for fathers at six weeks post-partum

Hypothesis 1 states that post-partum mothers have a higher prevalence of depression at six weeks than post-partum fathers. Table 6 shows prevalence figures of depression for the screened sample.

| | Mothers (n=100) | Fathers (n=100) |
|------------------------------|--------------------|--------------------|
| Number with EPDS score <10 | 69 | 88 |
| Number with EPDS score 10-12 | 20 | 7 |
| Number with EPDS score >12 | 11 | 5 |

Table 6. Prevalence of depression in the screened sample

It can be seen that 31 per cent of mothers and 12 per cent of fathers scored above the threshold (≥ 10) on the EPDS. Using raw EPDS scores a paired t-test was carried out and provides some evidence to support the above hypothesis, indicating that mothers have significantly higher scores of depression than fathers ($t = -6.37$, d.f. = 99, $p < 0.001$, one-tailed). To examine if there is a higher prevalence of depression in mothers than fathers a McNemar test was used to examine the nominal data of these related samples. The result of this analysis also supported the hypothesis ($\chi^2 = 12$, $n = 100$, $p < 0.001$, one-tailed). Thus suggesting that women are more likely to suffer from post-natal depression at six weeks than men, never the less between 5-12 per cent of men also show signs of depression.

Hypothesis 2 states that depressed women are more likely to have depressed partners than non-depressed women. Figure 3 shows a scatter plot of EPDS scores for mothers and fathers and from visual inspection gives some impression of linearity.

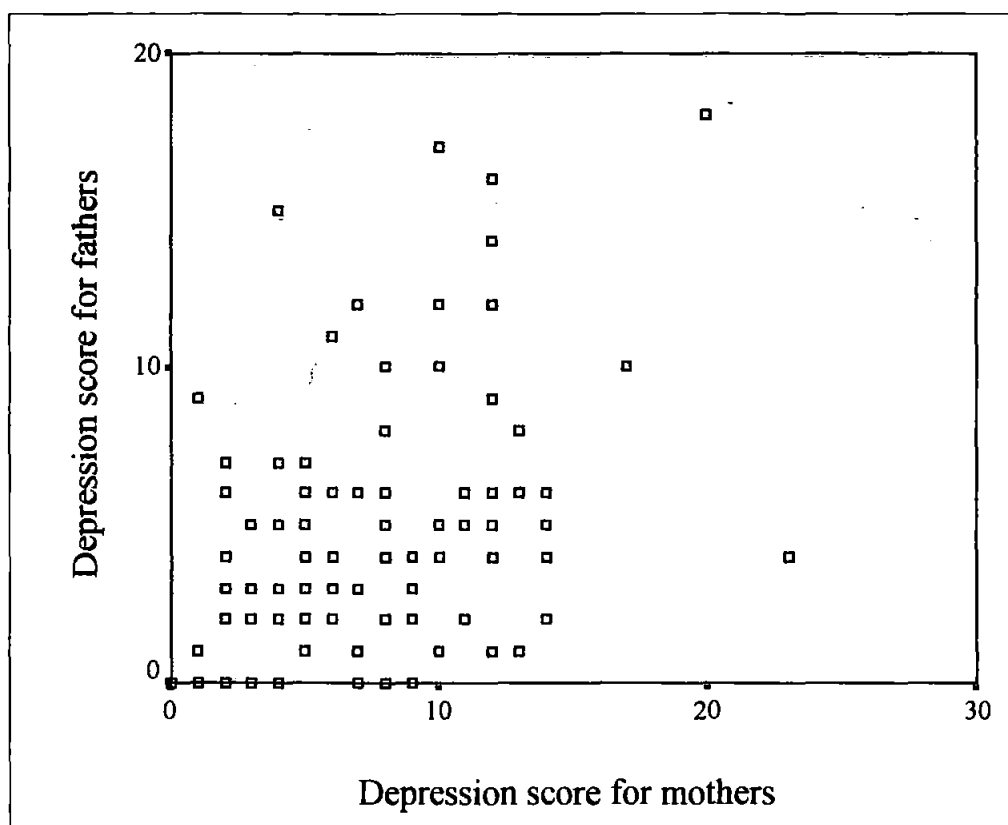


Figure 3. Scatter plot of depression scores for mothers and fathers

A Pearson product moment correlation was hence calculated on the raw EPDS scores of women and their partners to see if there was a significant positive association. The results of the analysis ($r = 0.401$, $d.f. = 98$, $p < 0.01$, one-tailed) provides some evidence to support this hypothesis. However, from inspection of the box plot for this data there was one extreme outlier (> 3 box-lengths away). This was removed and the Pearson correlation test was re-run, producing a similar significant result ($r = 0.335$, $d.f. = 97$, $p < 0.01$, one-tailed).

Table 7 shows the number of depressed men who are partners of depressed women and those who are partners of non-depressed women.

| | Non-depressed fathers | Depressed fathers | Total |
|------------------------------|----------------------------------|------------------------------|--------------|
| Non-depressed mothers | 65 | 4 | 69 |
| Depressed mothers | 23 | 8 | 31 |

Table 7. Distribution of depression in couples in the screened sample

To compare the proportions of these two groups (8/31 and 4/69 respectively) conditional probability was used based on this nominal data. The analysis gives a **z-score = 2.8 ($p < 0.01$, one-tailed)** and shows that there is a significantly higher proportion of depressed men who are partners of depressed women than non-depressed women (i.e. comorbidity is an issue).

3.4 The Interviewed sample

Pearson Product Moment Correlation was used for the following three hypotheses to see if there was a statistically significant correlational relationship between the independent variables (social support, perception of own parenting and infant temperament) and the dependent variable (EPDS depression score). A table of the mean, standard deviation and range of scores for each of the variables can be found in the Appendix 14. There were no extreme outliers found for these variables from a box plot analysis.

Hypothesis 3 states that the level of social support available to a father will be negatively associated with a father's depression score. The results of this analysis for each of the social support sub-scores on the Significant Others Scale are shown in Table 8.

| Significant others scale (sub-scales) | Pearson correlation coefficient | Significance (one-tailed) |
|--|--|--------------------------------------|
| 'Actual emotional' support | -0.397 | p<0.05 |
| 'Actual practical' support | -0.540 | p<0.01 |
| 'Ideal emotional' support | -0.277 | n.s. |
| 'Ideal practical' support | -0.399 | p<0.05 |
| Discrepancy score | 0.312 | p<0.05 |

Table 8. Correlational analysis for sub-scores on the Significant Others Scale

Note: d.f. = 28 for each correlation

All but the sub-score of 'ideal emotional' support were significantly correlated thus supporting the hypothesis. A father who perceives he has a high level of current support and ideally would change very little tends to have a lower depression score.

Hypothesis 4 states that the perception of a father's own parenting will be associated with his depression score. The results of the analysis can be seen in Table 9.

| Parental Bonding Instrument (sub-scales) | Pearson correlation coefficient | Significance (one-tailed) |
|---|--|--------------------------------------|
| Care by own father | -0.397 | p<0.05 |
| Overprotection by father | 0.230 | n.s. |
| Care by own mother | -0.056 | n.s. |
| Overprotection by mother | 0.148 | n.s. |

Table 9. Correlational analysis for sub-scores on the Parental Bonding Instrument

Note: d.f. = 28 for each correlation

A significant negative correlation was found on the 'care by own father' sub-scale, but no other sub-scale was associated with depression scores. This suggests that the greater the care a father perceives he had from his own father, the lower his depression score at six weeks post-partum.

Hypothesis 5 states that infant temperament scores will be associated with depression scores in fathers. The result of the analysis for each sub-scale can be seen in Table 10.

| Neonatal Perception Inventory (sub-scales) | Pearson correlation coefficient | Significance (one-tailed) |
|--|------------------------------------|------------------------------|
| 'Average baby' score | 0.355 | $p < 0.05$ |
| 'Own baby' score | 0.513 | $p < 0.01$ |
| Difference score | -0.261 | n.s. |

Table 10. Correlational analysis for sub-scores on the Neonatal Perception Inventory

Note: d.f. = 28 for each correlation

A significant correlation was found for both the average baby and own baby sub-scales thus, in part, supporting this hypothesis. If a father perceives his own baby has little difficulty with basic functions and routine then this is associated with a lower depression score. Likewise, a father who perceives the average baby in the same way is also likely to have a low score on the EPDS. Despite no significant correlation shown for the discrepancy score ('average baby' score minus 'own baby' score) with depression scores, there is a trend towards fathers scoring higher on the EPDS, if they perceive their baby as more difficult than the average baby.

Pearson correlation is a measure of a supposed linear relationship between two variables. The supposition of linearity needs to be confirmed by inspection of scatter plots (see Appendix 15). There appears to be a clear linear relationship for both 'actual practical' support scores and 'own baby' scores with EPDS scores. There is also a reasonable linear relationship for 'care by own father', 'actual emotional' support and 'ideal practical' support scores. It is arguable whether this is the case for the 'discrepancy' support score or the 'average baby' score, hence one needs to be tentative in suggesting there is a real relationship between these two variables and depression scores.

Multiple regression

The results of the above analyses show several of the independent variables are associated with depression scores. A correlational analysis was also carried out between the three independent variables (social support, perception of own parenting and infant temperament) and some intercorrelations were identified (see Appendix 16). As a result, it was considered that a step-wise multiple regression analysis could be used to investigate which combination of the above independent variables best predicts the depression score variability. From this analysis a multiple correlation coefficient $R = 0.606$ was found for the independent variables of 'actual practical' support and perception of the 'average baby' and the analysis of variance for the model was significant ($F(2, 27) = 7.82, p < 0.01$). The multiple regression equation formed for the predicted EPDS score is as follows:

$$= -0.241 (\text{'actual practical' support score}) + 0.717 (\text{'average baby score'}) + 9.231$$

The analysis also produced beta weights that indicate the relative importance of the independent variables. 'Actual practical' support was found to be the highest predictor of the EPDS score; a change of one standard deviation in this score produces a change of -

0.54 in the EPDS score. The addition of more independent variables did not improve the accuracy of the prediction for the EPDS.

A histogram of standardised residuals and a cumulative probability plot were generated and showed some deviation from a normal distribution. Howell (1987) concludes that substantial departures from a multivariate-normal distribution are likely to be tolerable, as such tests are reasonably robust. A scatter plot of the predicted scores against residuals showed no pattern, thereby confirming that the assumptions of linearity and homogeneity of variance have been met.

Hypothesis 6 states that GHQ scores and EPDS scores will be positively correlated. There was a significant positive correlation ($r = 0.685$, $d.f. = 28$, $p < 0.001$, one-tailed). All GHQ sub-scales, except that of 'social dysfunction' were also significantly positively related to depression scores. This provides concurrent validity for the use of EPDS with fathers.

Hypothesis 7 states that previous depression in father will not be associated with depression experienced at six weeks post-partum. Table 11 shows the proportion of men in the interviewed sample who had experienced an episode of depression in the past.

| | Not depressed | Current depression | Total |
|---------------------|---------------|--------------------|-------|
| No prior history | 19 | 5 | 24 |
| Previous depression | 2 | 4 | 6 |

Table 11. Prevalence of prior depression in the fathers interviewed

Conditional probability was used on this categorical data to test the prediction that the proportion of men currently depressed with a previous experience of depression (4/6) will not be significantly higher than those currently depressed with no prior history (5/24). The result of the analysis (**z-score = 2.19, $p < 0.01$, one-tailed**) disproves the hypothesis and thus suggests there is an association between prior history of depression and early post-partum depression in fathers.

Hypothesis 8 states that a family history of depression will not be associated with depression in fathers experienced at six weeks post-partum. Table 12 shows the proportion of men in the interviewed sample who had a first degree relative who had suffered from depression.

| | Not depressed | Current depression | Total |
|--------------------------|---------------|--------------------|-------|
| No family history | 14 | 3 | 17 |
| Family history | 7 | 6 | 13 |

Table 12. Prevalence of a family history of depression in the fathers interviewed

Conditional probability was used on this data to test the prediction that the proportion of men currently depressed with a family history of depression (6/13) will not be significantly higher than those currently depressed with no family history (3/17). The result of the analysis (**z-score = 1.69, $p < 0.05$, one-tailed**) disproves the hypothesis and thus suggests there is an association between a family history of depression and early post-partum depression in fathers.

3.5 Post hoc analysis

Profile of the EPDS scores

A comparison of the means scores on individual questions of the EPDS for men and women in this sample was carried out, to see if they present a similar profile and degree of symptoms. Figure 4 shows a graph of these mean scores and clearly demonstrates (a) an almost parallel distribution between mothers and fathers and (b) a consistent difference in the level of mean scores.

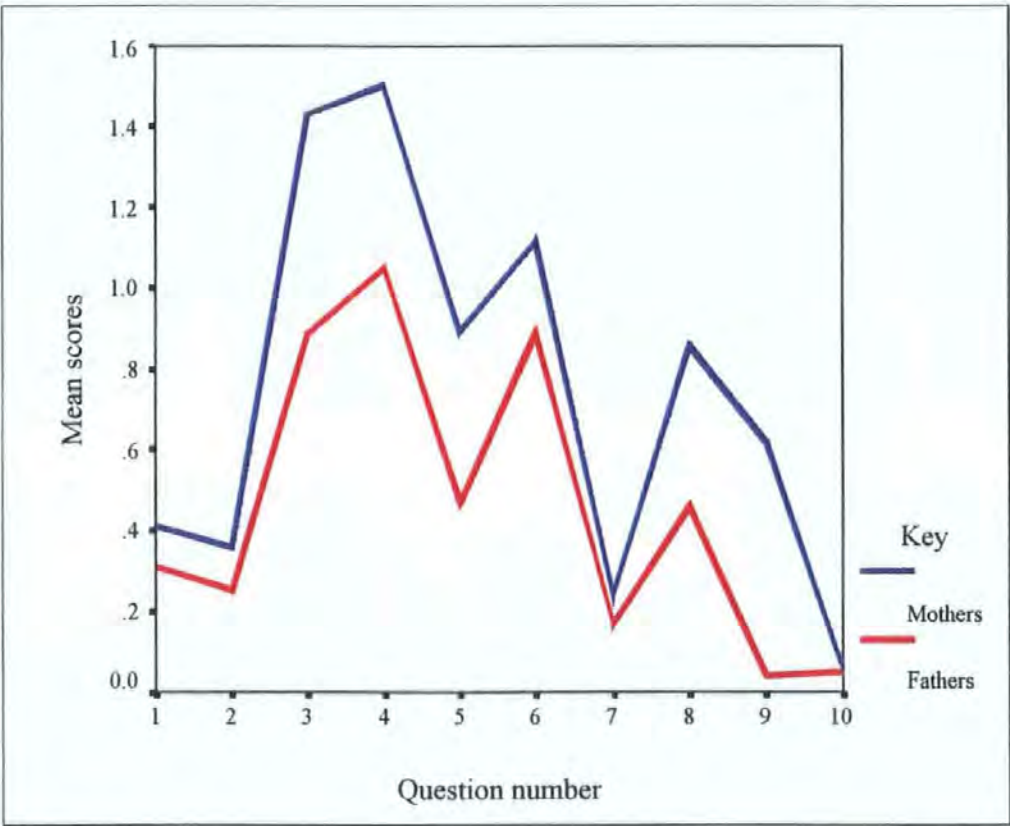


Figure 4. Profile of mothers and fathers mean scores on each EPDS question

The point where the profiles differed most was on question nine (which asks about crying) and where they differed least was on was question 10 (which asks about suicidal thoughts). Very few fathers indicated they had been so unhappy they had cried and very few mothers or fathers marked they had had suicidal thoughts.

Semi-structured interview questions

There were four questions asked of parents at interview regarding (a) their feelings about their baby before the birth, (b) the delivery experience itself, (c) their feelings at first sight of their baby and (d) their feelings about their baby currently (see Appendix 8). Each response was rated to indicate the extent to which this experience had been positive or negative. Scores range from 0 (extremely negative) to 10 (extremely positive) for each question and a score of five indicated relatively neutral feelings. The mean, standard deviation and range of the rating scores can be seen in Appendix 17. Table 13 shows the number of parents rating their feelings as negative (i.e. score < 5).

| Feelings | Mothers (score < 5) | Fathers (score < 5) |
|--|-----------------------------------|-----------------------------------|
| About the baby during pregnancy | 5 | 1 |
| The delivery experience | 7 | 7 |
| At first sight of the baby | 3 | 2 |
| About the baby currently | 0 | 0 |

Table 13. Number of parents giving a negative rating to the semi-structured questions

From the table it appears that the question which elicited the most frequent number of negative responses asked about the delivery experience itself. All the mothers who gave a negative score on any of the four questions were in the study group and thus scoring above threshold on the EPDS. The fathers who rated their feelings as negative were not necessarily from the same couple, e.g. only three out of the seven fathers rating the delivery experience as negative had a partner who also rated it negatively. In addition, there did not appear to be an association between fathers scoring above threshold on the EPDS and those who rated their feelings negatively, e.g. five out of the seven fathers rating

the delivery experience as negative scored below the threshold for depression. The numbers falling into each category were too small to carry out any formal statistical analysis.

3.6 Summary

1. Mothers are more likely to experience post-natal depression at six weeks than fathers.
2. Fathers are significantly more likely to experience signs of depression if their partners do.
3. The psychological factors of social support, infant temperament and the perception of own parenting all show an association with depression scores in fathers. Perceived current practical support showed the highest association.
4. EPDS scores and GHQ scores in fathers show a positive significant association.
5. Fathers who have experienced an episode of depression in the past were more likely to experience depression at six weeks post-partum.
6. Fathers with a family history of depression were more likely to experience depression at six weeks post-partum.
7. The profile of mean scores on individual questions of the EPDS is similar for mothers and fathers. Mothers show a consistently higher mean score on all questions of the EPDS except the question about suicidal thoughts, where both mothers and fathers mean score is very low.

Chapter 4: Discussion

This chapter is divided into four sections. A discussion of the results will be covered and the findings will be placed in the context of the current literature. This will be followed by suggestions of how the methodology used in this study could be improved. The clinical implications of the findings will then be discussed and finally recommendations for future research will be presented.

4.1 Discussion of results in relation to the hypotheses

This study aimed to investigate the existence of post-natal depression in a sample of first time parents and to examine whether comorbidity is an issue. The psychological variables of social support, infant temperament and own parental care were investigated in two groups of fathers to consider the associations with post-natal depression.

The screened population

This study found prevalence figures for depression in mothers and fathers at six weeks post-partum of 31 per cent and 12 per cent respectively. These figures are slightly higher but in proportion to Ballard *et al's* (1994) prevalence rates of 28 per cent and 9 per cent. Both these studies used the EPDS screening tool and compared to other studies using clinical interviews or diagnostic criteria the rate of depression found is much higher. It was acknowledged in Chapter 1 that the nature of the assessment method can greatly affect these estimates and in the current study the lower EPDS cut-off point for depression was used to reduce the number of false negatives. The use of the EPDS does not replace a more formal assessment, but does define a population that needs further evaluation; hence one needs to be careful not to label an individual with an above threshold EPDS score as clinically depressed. As mentioned in Chapter 1, difficulties in subsequent child functioning can arise if a mother experiences mild to moderate depression and so it is

important that screening is not only confined to identifying those who are clinically depressed.

Hypotheses 1 of this study was confirmed; mothers have a higher prevalence of depression than fathers at six weeks post-partum. Again this is consistent with the findings of Ballard *et al.* (1994) and supports their comparison to non-puerperal samples where a similar difference between men and women has been identified. The prevalence of depression found for fathers in this study also lends support to Ballard & Davies' (1996) indication that this rate is higher than would be expected in a control sample of males. Some of the reasons why a higher prevalence of post-natal depression in mothers is found are considered later on in this section (see post-hoc analysis).

Hypothesis 2 was also confirmed; fathers were significantly more likely to be depressed if their partners were also depressed. The proportions found in this study are compared with Ballard *et al.*'s (1994) findings in Table 14.

| | Father depressed and partner depressed | Father depressed and partner not depressed |
|------------------------------|--|--|
| Current study | 26% | 6% |
| Ballard <i>et al.</i> (1994) | 16% | 6% |

Table 14. Comorbidity figures from current study compared to Ballard *et al.* (1994)

Both studies show that comorbidity is an issue in the early post-natal period, but the current study suggests an even greater likelihood. There are no obvious reasons why this should be so as both studies used the same screening tool and similar selection criteria.

Since the present study only considered one time point, no direction of causality can be identified. It is therefore difficult to identify whether a mother's depression promotes depression in her partner, vice versa, or whether a third factor e.g. little social support leads both parents to become depressed. It may be a combination of all these that together make comorbidity more likely. Another possibility is that parents may have completed the EPDS together and their answers may have been influenced by one another.

The interviewed sample

The findings from the screened population show that post-natal depression does occur in fatherhood. Three psychological factors were investigated in an interviewed sample to see if they were associated with the experience of depression and hence could provide an empirical basis from which to inform service provision and delivery.

The results supported Hypothesis 3 that a father who perceives he has a high level of current support and ideally would change very little tended to have a lower depression score. In particular, the level of practical support currently available to a father appeared to be very important and accounted for 29 per cent of the variance in the depression score. This provides some support for the systemic ideas raised in Chapter 1 that perceived support from others can have a major influence on coping with life changes such as having a baby. There were several couples interviewed who were new to the Bristol area and some of these fathers found it difficult to identify seven significant people by whom they felt supported, it may be that such fathers are at a greater risk of developing symptoms of depression.

Hypothesis 4 considered a father's own parenting and the results suggest that a father's perception of the care he received from his own father was associated with his depression

score. It is interesting to note that in the maternal post-natal literature it is the perceived care by a mother's own mother that appears relevant to her depression score. The finding provides some support for the psychodynamic ideas considered in Chapter 1; the memories of a father's own parenting may be re-awakened and become increasingly prominent when he becomes a father and issues of loss may begin to surface. There were several fathers whose parents had separated whilst they were a child and as such they had subsequently seen less of their own father which may in turn have influenced the amount of care and protection they felt they received.

It is relevant at this point to introduce the reader to an alternative interpretation. Is it that men who have poor relationships with their own fathers have more problems in becoming a father themselves and hence report dissatisfaction in their relationship with their infant? Or do men who experience difficulties at this time tend to report, in retrospect, their own father in a worse light? The latter cognitive interpretation is relevant when considering the causal link of any psychological variable to depression.

The psychological variable of perceived infant temperament was considered in Hypothesis 5 and the results provided some support for its association with depression in fathers. A father's perception of how much difficulty, both his own baby and the 'average' baby, present in terms of basic functions and routine appeared to be relevant. This links into both the cognitive and psychodynamic interpretations proposed in Chapter 1. The former suggests that a father may evaluate events associated with the care of his infant in a way that makes such situations more stressful. Alternatively, a father may have prior expectations of what the 'average' baby is like and may have difficulty in accommodating to his own infant's temperament. From a psychodynamic perspective it has been argued that unresolved issues of loss, associated with a father's own parenting, may be replayed in

the relationship with his infant. Again one needs to be cautious when interpreting these findings, as it may be that a father's interpretations of his infant's behaviour are affected by his depression.

Hypothesis 6 looked at the relationship between fathers' depression scores and GHQ₂₈ scores of psychological distress and the results provided support for a significant positive association. Fathers with high depression scores on the EPDS were more likely to indicate that they had been experiencing somatic, anxiety and depression symptoms on the subscales of the GHQ₂₈. This provides concurrent validity for the use of the EPDS with men and it also suggests that anxiety may co-exist with depression in fathers at this time. It is interesting that somatic symptoms showed an association with depression scores, perhaps this is a more acceptable way for men to express their distress. One means of attempting to verify this would be to establish whether fathers' visits to their GP increased during this time.

Fathers' personal and family history of depression were investigated for an association with post-natal depression in Hypotheses 7 and 8 respectively. The results indicate that a father with a prior history of depression is more likely to be depressed post-natally, however from the interviews a 'prior history' often amounted to only one specific episode of depression (in reaction to a stressful event). The findings also suggest that if a first-degree relative of a father had experienced depression he is more likely to experience post-natal depression. Several fathers, however, who reported a parent had experienced depression in the past identified it as a response to either the death of their spouse or following the break up of their marriage. It is difficult to conclude from these findings that either a biological or cognitive model is wholly relevant here, as it did not appear that those fathers who were depressed, or their first degree relative, had experienced this as a

recurring disorder. An alternative explanation might be that fathers who had experienced an episode of depression in the past, or who had seen it in their relative, were more able to identify the symptoms in themselves in the post-natal period and indicated so on the EPDS.

Post hoc analysis

From the post-hoc analysis of individual EPDS scores, mothers appeared to have more symptoms than fathers, though the type of symptoms were very similar. This is consistent with the finding of *Ballard et al.* (1994) which used the Present State Examination (PSE). It is debatable whether this is because fathers have less severe depression than mothers, or they are much less likely to self-report symptoms, or their distress is expressed in different ways that were not examined in this study. It was striking to notice that the only point where fathers' profiles differed concerned the expression of distress through crying. It may be more valid to include a question about anger or frustration when screening fathers.

From the semi-structured interview questions all the mothers who indicated they had negative feelings associated with the pregnancy, the delivery experience, seeing their infant after the delivery or the early post-natal period, scored above threshold on the EPDS. These questions may aid the potential identification of at-risk mothers prior to the birth of their baby. Although, as already indicated, one needs to be cautious, as it may be that a mother's subsequent mood affects the memory of her experiences. The results were not so clear cut for fathers and a trend was not identified between negative feelings and subsequent depression scores. Hence this does not support the systemic idea raised in Chapter 1 that a father who perceives the events related to having a baby as stressful is more likely to experience depression. One reason for this finding may be that fathers were more reluctant to identify their experiences as negative at interview. An alternative

possibility could be that the psychological variables already identified are more relevant to the experience of post-natal depression in fathers than the perception of the events associated with becoming a father. The numbers in each category by this stage were relatively small and it could be argued that it is difficult to draw any firm conclusions.

The actual delivery experience was reported negatively by seven fathers. Common themes included a sense of feeling helpless and useless, feeling in the way, feeling frightened and shocked at the amount of pain their partner went through, and a strong sense of responsibility for the partner and the baby. It appeared as if several fathers were able to use the research interview as a time to de-brief from this traumatic experience. One father actually described attempting to block the memory from his mind and was quite anxious prior to the interview, as he knew he would be asked to talk about it.

Summary of the results

The results obtained in this study give specific support for the existence of post-natal depression in first time fatherhood. The findings demonstrate that the issue of comorbidity is important and potentially poses significant clinical implications for the subsequent development of the child. Several psychological variables were identified as relevant to a father's psychological well-being in the early post-natal period, although the direction of causality is unclear at this stage. This study is amongst the first to investigate the above in a community sample of parents, using a post-natally sensitive screening tool. It must be stressed that these findings concern a community population and the scope of this study does not allow any inferences to a clinical population to be drawn.

4.2 Critique

The design of this study enabled a relatively broad sample of both mothers and fathers to be assessed after the birth of their baby. The high response rate to the screening questionnaires at six weeks and the high participation rate at interview demonstrates that parents found the study interesting, relevant and user-friendly. Despite these strengths the results found need to be interpreted with caution for a number of reasons.

Firstly, the recruitment of participants took place on the post-natal wards by the ward administrator. Approximately 300 information sheets and consent forms were given out over the course of the recruitment period, but only 108 were returned, an initial uptake rate of 36 per cent. No information was gathered regarding the reasons for not responding. Non-respondents rarely form a random sample and this may have introduced some bias into the results (Goldberg & Williams, 1988). It could be speculated however, that one of the reasons parents opted not to take part was because they were distressed or overwhelmed after the birth. This may mean that the actual prevalence rate obtained from the sample who were screened, represents an underestimate of post-natal depression in first-time parents, although this is purely conjecture. Alternatively, some parents may have been so elated and consumed by the arrival of their baby that they chose not to participate in the study; hence the result could actually represent an overestimate.

Another aspect of recruitment was the exclusion criteria used in this study, which meant that parents were selected from a physically healthy baby population. As such the prevalence figure obtained for post-natal depression may be an underestimate of the actual figure for parents with a baby who is physically unwell due to prematurity, neonatal illness or disability in the baby. It is also relevant to comment on the fact that the interviewed sample was both older and from higher social classes than the national average and this

may have also affected the prevalence figure found. It is already known that unemployment is associated with post-natal depression in fathers (Ballard *et al.*, 1994), although the effect of age is less clear.

Recruitment was heavily reliant on the good will of the administrators and as they only worked during the week, potential participants may have been missed over the weekend period and during annual leave. An attempt was made to involve midwifery staff in the recruitment process but this was not successful due to their work demands and priorities. Despite missing some potential participants there was no reason to believe this biased the sample selected in any way.

Secondly, the allocation of couples to either the study or the control group was based upon whether the mother, not the father, scored above threshold for depression. This meant that fathers in the two groups could not be compared for significant differences on the independent variables and so a correlational analysis was used instead. This design was chosen because neither the response rate to recruitment nor the prevalence figure for depression in fathers was known prior to starting the data collection phase. It may have been that only one father was identified as depressed and sufficient numbers for the study group would not have been achieved.

No control group was used for comparison with the screened population. It would have been valuable to have screened a group of cohabiting couples (who were not parents) of similar ages and social class background for depression. The prevalence figures of this group and the screened group of parents could then have been compared directly.

Thirdly, there is a need for some caution when interpreting the results of any study using questionnaires. Such tools are dependent on the willingness of respondents to admit their experiences on a pen and paper test. The responses given are evaluations based on a snapshot in time and may be affected by the mood of the participant.

In this study the 10-item EPDS was used which, unlike the 13-item EPDS, has not been tested for sensitivity and specificity in men. It is important that this psychometric limitation is addressed before the 10-item EPDS is used in future studies. It should also be acknowledged that the GHQ was administered two weeks after the EPDS was completed and hence measured a slightly later time frame, although there did appear to be a strong consistency in the scores of these two questionnaires.

The NPI has only been validated with mothers and standardised for use when the infant is one month old. This study used the questionnaire with fathers when their infants were two months old and so one needs to be cautious in interpretation. The NPI literature does, however, claim that parental perception of temperament is predictive of the child's subsequent development from one month onwards and so assessment at two months is still appropriate. In addition, there was also no other suitable measure available to tap into parental perceptions so early in the post-natal period and fathers appeared to be able to use the NPI appropriately.

A number of fathers stated that their parents had divorced or separated before they were 16 years old and this may have influenced their scores on the PBI. They reported it was hard to remember how their father had parented them, as they had not been present in the family home, hence some of the answers given may have been guesses rather than clear

memories. Several fathers also commented that some of the statements on the PBI, when used with the rating scale, read as double negatives and this could be confusing.

The SOS was clinically interesting to complete with fathers, some appeared to identify seven significant others quite easily whereas others struggled. There was some confusion over rating the ideal questions although it became clearer once fathers had completed sets of questions on the first few people. Fathers frequently included people who were not from the local area in this scale, particularly if they were new to the area themselves. Practical support would often be indicated as more limited in such cases.

It is useful to look at variables across a group of individuals, but this does not reveal the personal experiences of fathers. This study attempted to partly address this using a semi-structured interview with a scale to quantify these experiences. Parents appeared able to follow this structure and could use the associated scales, although several commented that it was difficult to choose one point on the scale to illustrate their experience. At a later date it would be interesting to analyse the qualitative comments further and to develop specific categories around the experiences of men during this transitional period.

Fourthly, in common with other cross-sectional designs this study does not permit any causal inference to be drawn between the dependent variable of depression and the three independent variables examined. At best only an association between them can be reported, ideally, a longitudinal study is required to investigate the aetiology of post-natal depression in fathers and would thus require measures to be taken both before and after the birth.

A fifth point worth considering is that participants in both the screened and interviewed sample were not matched on a number of potentially confounding variables, e.g. the nature of the delivery or experience of a previous miscarriage. Such factors are known to influence a mother's susceptibility to depression and it is possible to argue that this could contribute to depression in fathers. In order to address this issue it may have been possible to extend the exclusion criteria at recruitment, thus making the sample more homogenous or to increase the sample size at the interview stage so that these variables could have been examined statistically. Obtaining data about previous miscarriage experience would have been a very sensitive task for the ward administrator and may have reduced the acceptability of the study. It seems there is trade off between the stringent control of certain variables and making the study acceptable, with a high recruitment rate.

Another important point to raise concerns the parametric statistics used in this study. One needs to be careful when using multiple significance tests on the same data set because of the increased likelihood that by chance a significant result is found. When a p-value of 0.05 is used to test a hypothesis the probability that by chance a significant result will be obtained is one in 20. It is arguable then in this study that the results with a $p < 0.01$ were more important and reliable.

Finally, the issue of potential interviewer bias needs to be highlighted because the researcher responsible for co-ordinating the study was also responsible for conducting the interviews. The interviewer knew, therefore, which couples were in the study or the control group and this may have subtly influenced the interview. The effect of a female researcher interviewing male subjects is unclear in this study; it could be that it made it easier for some fathers to discuss emotional issues. For further consideration of this issue

the reader is directed to Mishler (1986) and Silverman's (1993) work regarding potential interviewer bias.

4.3 Implications for clinical practice

Several important clinical implications are raised by the findings of this study. The profile of fathers and their mental health has been highlighted and links have been made to the literature on child development. At a time when the present government is reviewing its policy on paternity leave and society is beginning to promote the role of fathers as 'active parents' such research evidence is vital. Given that the early post-natal period has been identified as a time of distress for perhaps 36 000 fathers per year (using the lower prevalence figure of 5 per cent), change in policy and service provision is needed to address this issue.

Ballard & Davies (1996) raised the need for routine screening of fathers with partners known to be depressed. The evidence from the current study suggests that one in four fathers may be depressed if their partner is depressed, thus providing further support for this argument. In the future, longitudinal studies may help to identify couples who are potentially 'at-risk' of post-natal depression and preventative work may then be of value.

Given that fathers are already biologically separated from the pregnancy process, the orientation of services has an important role in helping fathers in their preparation for the birth, and afterwards as a parent. Many of the fathers in this study commented they would have liked to have been more involved in antenatal classes. The timing of these sessions often resulted in working fathers being excluded and it was then up to the partner to relay relevant information. Several fathers stated they would have valued a session specifically for men where their ideas about becoming a parent could have been discussed. Some

consideration of what to expect in the first few weeks back at home and how they, and their partners, might feel after the birth was also raised as important. The relevance of the internal image that a father holds of the 'average baby' has already been discussed in this chapter and it may be that some exploration around this could be incorporated into antenatal class preparation.

The need for early post-natal interventions is beginning to be recognised, particularly in the case of both partners being depressed. Emotional support and practical assistance are both relevant, but as shown in this study the latter may be more significant to a father's mental health. The use of the Significant Others Scale may provide health professionals with a useful framework for discussing such issues with couples.

Mothers often have the opportunity to reflect on and talk about their delivery experience at a post-natal follow up class. Given that more fathers are now present at the birth of their child there may be a case for providing them with a similar outlet. Several fathers in this study talked about the delivery as being traumatic and described their role as a 'witness'. From post-traumatic stress literature it is recognised that being provided with a chance to talk about such an experience can be beneficial.

Finally, there is a distinct role for health visitor and specialist services, such as clinical psychology, in developing early parent-infant interventions. This could include extending the provision of behavioural therapy focusing on the interactions between parents and their infant. There is also a role for psychodynamic counselling with parents who are depressed. In the case of the latter the Parental Bonding Instrument and the Adult Attachment Interview (George, Kaplan & Main, 1986) may be useful assessment or therapeutic tools.

4.4 Directions for future research

Little work has been carried out in the area of paternal mental health and many aspects remain that could fruitfully be investigated. Longitudinal work would be valuable in overcoming the methodological constraints of cross-sectional studies and would enable the aetiology of post-natal depression in fathers to be examined. Such a study would make it possible to identify fathers who were depressed prior to the birth of their baby and to either include them as a distinct group or to exclude them on the basis of controlling for a confounding variable.

It would be interesting to carry out a qualitative study to explore the experiences and expectations of fathers in the early post-natal period. Such a study would tap into the emotional, social and sexual changes that occur for fathers and how this affects the relationship they have with their partner. In the current study several fathers actually reported they would have welcomed the chance to talk about such issues in more detail. Qualitative work is essentially inductive and would thus allow for the consideration of a variety of reactions in becoming a father. A comment from one particular father in the current study illustrates the importance of this point: *'depression is not the only reaction to upsetting circumstances, a man can feel anger and annoyance when he knows others are upset'*.

Further investigation would be useful to clarify the extent of post-natal depression in fathers when the infant is not healthy, due to prematurity, neonatal illness or disability. Prevalence figures in this group may be much higher than identified in the current study because of the obvious source of the feelings of loss or sorrow. Such research would add to the growing literature on the psychological consequences of such 'at-risk' infants.

There have been very few attempts to investigate the impact of post-natal depression in both parents on subsequent child development. Given that comorbidity has been identified as an issue it seems important to specifically investigate its clinical implications. If such children were identified as 'at risk' in terms of behavioural problems or compromised emotional and cognitive development then the need for early, targeted interventions with parents is paramount.

4.5 Conclusions

The results of this study lend further support to the existence of post-natal depression in fathers and highlights the issues of comorbidity in parents. Evidence that a father's social support network, own paternal care and the temperament of his infant may be relevant to the experience of depression was provided by the sample investigated. Although the data was gathered from one point in time, the findings provide a useful starting point in raising the profile of paternal mental health and in providing some specific information for screening and clinical interventions. The need for further investigation, using different research methodologies, has been emphasised. To conclude, as our knowledge of this area increases it is hoped that 'a more family orientated approach to child care could be developed where fathers are welcomed as active participants' (Ballard & Davies, 1996, p.70).

Appendices

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Appendix 1

A STUDY LOOKING AT THE EXPERIENCES OF FIRST TIME PARENTS

Southmead Hospital NHS Trust

Child and Family Psychology Services in conjunction with the Maternity Unit

Please could you hand these information sheets to **every** primiparous couple whom:

1. are cohabiting, and
2. have a healthy singleton infant.

Please **do not** give the information sheets to parents who's infant:

1. has severe medical complications or congenital abnormality
2. is a twin
3. is pre-term (<37 weeks)

(Please note: the father does not need to be the biological father, but there should be the perception by the parents that he will function as the father)

Please ask parents to glance at the information sheet **before** leaving the maternity ward and to return the consent form either to a midwife or to the blue box in reception.

Many thanks for your help

Appendix 2

A STUDY LOOKING AT THE EXPERIENCES OF FIRST TIME PARENTS

Southmead Hospital NHS Trust

Child and Family Psychology Services in conjunction with the Maternity Unit

Introduction

We would like to invite you to help us in a research project looking at the early experiences of first time parents. There has been much research concerning the experiences of mothers and how their mood can be affected in the first few months after childbirth, but very little looking at fathers. Hence we want to look at how the changes that happen with the birth of a child can affect both parents, but with a particular focus on the father.

What does it involve?

If you agree to take part, we will send you a short questionnaire about your current mood. You will receive this in six weeks' time and once returned it will remain anonymous. 100 couples will be involved at this stage and a sample of 30 will be invited to take part in a further stage.

If you are selected for this next stage, and with your consent, a home visit will be arranged by the researcher to interview each parent separately. This should last no longer than ½ hour with the mother and 1-hour with the father and can be done on separate occasions if necessary. During this time the mother will be asked some questions about the pregnancy and birth of their child and asked to complete a questionnaire. The father will be asked to complete questionnaires looking at their child's temperament, their own experience of being parented and the support they feel they have currently. All this information will again be anonymous.

Potential benefits

We hope this study will better inform us about the effect of having a child and will also help to identify what support might be appropriately provided in the future.

Contact person

If you have any questions or would like further information about the study please contact Emma Worwood, Child and Family Psychology Services on 0117 9595360.

A STUDY LOOKING AT THE EXPERIENCES OF FIRST TIME PARENTS

Southmead Hospital NHS Trust

Child and Family Psychology Services in conjunction with the Maternity Unit

CONSENT FORM

Please ensure that both of you sign this form, as both parents are needed to take part in the study.

- We have understood the outline of the research project and we are happy to participate;
- We understand we will be contacted by post in six weeks' time and we are aware we can withdraw from the study at any time:

Mother's name:

Signature:

Date:

Father's name:

Signature:

Date:

Address:

Telephone number:

Baby's name:

Baby's birth date:

THANK YOU FOR YOUR HELP AND INTEREST

(Please hand this form back to a midwife or place it in the green box in reception)

Appendix 3

EDINBURGH POSTNATAL DEPRESSION SCALE (EPDS)

J.L. Cox, J.M. Holden, R. Sagovsky

Department of Psychiatry, University of Edinburgh

As you and your partner have recently had a baby, we would like to know how you are feeling. Please *circle the number* corresponding to the answer which comes closest to how you have felt in *the past seven days*, not just how you feel today.

Here is an example, already completed.

I have felt happy

| | |
|-----------------------|---|
| Yes, all the time | 0 |
| Yes, most of the time | 1 |
| No, not very often | 2 |
| No, not at all | 3 |

This would mean: "I have felt happy most of the time" during the past week. Please complete the other questions in the same way.

In the past 7 days:

1. I have been able to laugh and see the funny side of things

| | |
|----------------------------|---|
| As much as I always could | 0 |
| Not quite so much now | 1 |
| Definitely not so much now | 2 |
| Not at all | 3 |

2. I have looked forward with enjoyment to things

| | |
|--------------------------------|---|
| As much as I ever did | 0 |
| Rather less than I used to | 1 |
| Definitely less than I used to | 2 |
| Hardly at all | 3 |

3. I have blamed myself unnecessarily when things went wrong

| | |
|-----------------------|---|
| Yes, most of the time | 3 |
| Yes, some of the time | 2 |
| Not very often | 1 |
| No, never | 0 |

4. I have been anxious or worried for no good reason

| | |
|-----------------|---|
| No, not at all | 0 |
| Hardly ever | 1 |
| Yes, sometimes | 2 |
| Yes, very often | 3 |

continued overleaf

5. I have felt scared or panicky for no very good reason

| | |
|------------------|---|
| Yes, quite a lot | 3 |
| Yes, sometimes | 2 |
| No, not much | 1 |
| No, not at all | 0 |

6. Things have been getting on top of me

| | |
|--|---|
| Yes, most of the time I haven't been able to cope at all | 3 |
| Yes, sometimes I haven't been coping as well as usual | 2 |
| No, most of the time I have coped quite well | 1 |
| No, I have been coping as well as ever | 0 |

7. I have been so unhappy that I have had difficulty sleeping

| | |
|-----------------------|---|
| Yes, most of the time | 3 |
| Yes, sometimes | 2 |
| Not very often | 1 |
| No, not at all | 0 |

8. I have felt sad or miserable

| | |
|-----------------------|---|
| Yes, most of the time | 3 |
| Yes, quite often | 2 |
| Not very often | 1 |
| No, not at all | 0 |

9. I have been so unhappy that I have been crying

| | |
|-----------------------|---|
| Yes, most of the time | 3 |
| Yes, quite often | 2 |
| Only occasionally | 1 |
| No, never | 0 |

10. The thought of harming myself has occurred to me

| | |
|------------------|---|
| Yes, quite often | 3 |
| Sometimes | 2 |
| Hardly ever | 1 |
| Never | 0 |

Taken from Detection of Postnatal Depression: Development of the 10-item Edinburgh Postnatal Depression Scale. British Journal of Psychiatry (1987), 150, 782-786.

I do not wish to participate any further in this research project..... ☐ (tick if appropriate)

THE GENERAL HEALTH QUESTIONNAIRE

GHQ 28

David Goldberg

Please read this carefully.

We should like to know if you have had any medical complaints and how your health has been in general, *over the past few weeks*. Please answer ALL the questions on the following pages simply by underlining the answer which you think most nearly applies to you. Remember that we want to know about present and recent complaints, not those that you had in the past.

It is important that you try to answer ALL the questions.

Thank you very much for your co-operation.

Have you recently

| | | | | |
|--|-------------------|--------------------|------------------------|-----------------------|
| A1 – been feeling perfectly well and in good health? | Better than usual | Same as usual | Worse than usual | Much worse than usual |
| A2 – been feeling in need of a good tonic? | Not at all | No more than usual | Rather more than usual | Much more than usual |
| A3 – been feeling run down and out of sorts? | Not at all | No more than usual | Rather more than usual | Much more than usual |
| A4 – felt that you are ill? | Not at all | No more than usual | Rather more than usual | Much more than usual |
| A5 – been getting any pains in your head? | Not at all | No more than usual | Rather more than usual | Much more than usual |
| A6 – been getting a feeling of tightness or pressure in your head? | Not at all | No more than usual | Rather more than usual | Much more than usual |
| A7 – been having hot or cold spells? | Not at all | No more than usual | Rather more than usual | Much more than usual |
| B1 – lost much sleep over worry? | Not at all | No more than usual | Rather more than usual | Much more than usual |
| B2 – had difficulty in staying asleep once you are off? | Not at all | No more than usual | Rather more than usual | Much more than usual |
| B3 – felt constantly under strain? | Not at all | No more than usual | Rather more than usual | Much more than usual |
| B4 – been getting edgy and bad-tempered? | Not at all | No more than usual | Rather more than usual | Much more than usual |
| B5 – been getting scared or panicky for no good reason? | Not at all | No more than usual | Rather more than usual | Much more than usual |
| B6 – found everything getting on top of you? | Not at all | No more than usual | Rather more than usual | Much more than usual |
| B7 – been feeling nervous and strung-up all the time? | Not at all | No more than usual | Rather more than usual | Much more than usual |

| | | | | |
|---|--------------------|---------------------|---------------------------|------------------------|
| C1 – been managing to keep yourself busy and occupied? | More so than usual | Same as usual | Rather less than usual | Much less than usual |
| C2 – been taking longer over the things you do? | Quicker than usual | Same as usual | Longer than usual | Much longer than usual |
| C3 – felt on the whole you were doing things well? | Better than usual | About the same | Less well than usual | Much less well |
| C4 – been satisfied with the way you've carried out your task? | More satisfied | About same as usual | Less satisfied than usual | Much less satisfied |
| C5 – felt that you are playing a useful part in things? | More so than usual | Same as usual | Less useful than usual | Much less useful |
| C6 – felt capable of making decisions about things? | More so than usual | Same as usual | Less so than usual | Much less capable |
| C7 – been able to enjoy your normal day-to-day activities? | More so than usual | Same as usual | Less so than usual | Much less than usual |

| | | | | |
|---|----------------|--------------------|------------------------|----------------------|
| D1 – been thinking of yourself as a worthless person? | Not at all | No more than usual | Rather more than usual | Much more than usual |
| D2 – felt that life is entirely hopeless? | Not at all | No more than usual | Rather more than usual | Much more than usual |
| D3 – felt that life isn't worth living? | Not at all | No more than usual | Rather more than usual | Much more than usual |
| D4 – thought of the possibility that you might make away with yourself? | Definitely not | I don't think so | Has crossed my mind | Definitely have |
| D5 – found at times you couldn't do anything because your nerves were too bad? | Not at all | No more than usual | Rather more than usual | Much more than usual |
| D6 – found yourself wishing you were dead and away from it all? | Not at all | No more than usual | Rather more than usual | Much more than usual |
| D7 – found that the idea of taking your own life kept coming into your mind? | Definitely not | I don't think so | Has crossed my mind | Definitely has |

A

B

C

D

TOTAL

Appendix 5

NEONATAL PERCEPTION INVENTORY (NPI)

E.R. Broussard & M.S.S Hartner

School of Medicine, University of Pittsburgh

AVERAGE BABY

Although this is your first baby, you probably have some ideas of what most babies are like. Please circle the number corresponding to the answer you *think* best describes the *average* baby.

1. How much crying do you think the average baby does?

- | | |
|-----------------|---|
| A great deal | 5 |
| A good bit | 4 |
| Moderate amount | 3 |
| Very little | 2 |
| None | 1 |

2. How much trouble do you think the average baby has in feeding?

- | | |
|-----------------|---|
| A great deal | 5 |
| A good bit | 4 |
| Moderate amount | 3 |
| Very little | 2 |
| None | 1 |

3. How much spitting up or vomiting do you think the average baby does?

- | | |
|-----------------|---|
| A great deal | 5 |
| A good bit | 4 |
| Moderate amount | 3 |
| Very little | 2 |
| None | 1 |

4. How much difficulty do you think the average baby has in sleeping?

- | | |
|-----------------|---|
| A great deal | 5 |
| A good bit | 4 |
| Moderate amount | 3 |
| Very little | 2 |
| None | 1 |

5. How much difficulty does the average baby have with bowel movements?

- | | |
|-----------------|---|
| A great deal | 5 |
| A good bit | 4 |
| Moderate amount | 3 |
| Very little | 2 |
| None | 1 |

6. How much trouble do you think the average baby has in settling down to a predictable pattern of eating and sleeping?

- | | |
|-----------------|---|
| A great deal | 5 |
| A good bit | 4 |
| Moderate amount | 3 |

continued overleaf

| | |
|-------------|---|
| Very little | 2 |
| None | 1 |

YOUR BABY

You have had a chance to live with your baby for over a month now. Please circle the number corresponding to the answer you *think* best describes *your* baby.

1. How much crying has your baby done?

| | |
|-----------------|---|
| A great deal | 5 |
| A good bit | 4 |
| Moderate amount | 3 |
| Very little | 2 |
| None | 1 |

2. How much trouble has your baby had feeding?

| | |
|-----------------|---|
| A great deal | 5 |
| A good bit | 4 |
| Moderate amount | 3 |
| Very little | 2 |
| None | 1 |

3. How much spitting up or vomiting has your baby done?

| | |
|-----------------|---|
| A great deal | 5 |
| A good bit | 4 |
| Moderate amount | 3 |
| Very little | 2 |
| None | 1 |

4. How much difficulty has your baby had in sleeping?

| | |
|-----------------|---|
| A great deal | 5 |
| A good bit | 4 |
| Moderate amount | 3 |
| Very little | 2 |
| None | 1 |

5. How much difficulty has your baby had with bowel movements?

| | |
|-----------------|---|
| A great deal | 5 |
| A good bit | 4 |
| Moderate amount | 3 |
| Very little | 2 |
| None | 1 |

6. How much trouble has your baby had in settling down to a predictable pattern of eating and sleeping?

| | |
|-----------------|---|
| A great deal | 5 |
| A good bit | 4 |
| Moderate amount | 3 |
| Very little | 2 |
| None | 1 |

Appendix 6
PARENTAL BONDING INSTRUMENT (PBI)
Parker. G, Tupling. H, Brown, L

This questionnaire lists various attitudes and behaviours of parents. As you remember your Mother/ Father in your first 16 years would you place a tick in the most appropriate brackets next to each question.

| | Very like | Moderately like | Moderately unlike | Very unlike |
|--|----------------------|----------------------------|------------------------------|------------------------|
| 1. Spoke to me with a warm and friendly voice | () | () | () | () |
| 2. Did not help me as much as I needed | () | () | () | () |
| 3. Let me do those things I liked doing | () | () | () | () |
| 4. Seemed emotionally cold to me | () | () | () | () |
| 5. Appeared to understand my problems/worries | () | () | () | () |
| 6. Was affectionate to me | () | () | () | () |
| 7. Liked me to make my own decisions | () | () | () | () |
| 8. Did not want me to grow up | () | () | () | () |
| 9. Tried to control everything I did | () | () | () | () |
| 10. Invaded my privacy | () | () | () | () |
| 11. Enjoyed talking things over with me | () | () | () | () |
| 12. Frequently smiled at me | () | () | () | () |
| 13. Tended to baby me | () | () | () | () |
| 14. Did not seem to understand what I needed or wanted | () | () | () | () |
| 15. Let me decide things for myself | () | () | () | () |
| 16. Made me feel I wasn't wanted | () | () | () | () |
| 17. Could make me feel better when I was upset | () | () | () | () |
| 18. Did not talk with me very much | () | () | () | () |
| 19. Tried to make me dependent on her/him | () | () | () | () |
| 20. Felt I could not look after myself unless she/he was around | () | () | () | () |
| 21. Gave me as much freedom as I wanted | () | () | () | () |
| 22. Let me go out as often as I wanted | () | () | () | () |
| 23. Was overprotective of me | () | () | () | () |
| 24. Did not praise me | () | () | () | () |
| 25. Let me dress in any way I pleased | () | () | () | () |

SIGNIFICANT OTHERS SCALE (B)



Name:

Date: Record Number:

Instructions

Please list below up to seven people who may be important in the individual's life. Typical relationships include partner, mother, father, child, sibling, close friends, plus keyworker. For each person please circle a number from 1 to 7 to show how well he or she provides the type of help that is listed.

The second part of each question asks you to rate how individuals would like things to be if they were exactly as they hoped for. As before, please put a circle around one number between 1 and 7 to show what the rating is.

| Person 1 – | | Never | | Sometimes | | | Always | |
|------------------|--|-------|---|-----------|---|---|--------|---|
| 1 | a) Can you trust, talk to frankly and share your feelings with this person?..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | b) What rating would your ideal be?..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2 | a) Can you lean on and turn to this person in times of difficulty? .. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | b) What rating would your ideal be?..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3 | a) Does he/she give you practical help?..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | b) What rating would your ideal be?..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4 | a) Can you spend time with him/her socially? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | b) What rating would your ideal be?..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Person 2 –

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | a) Can you trust, talk to frankly and share your feelings with this person? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | b) What rating would your ideal be? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2 | a) Can you lean on and turn to this person in times of difficulty? .. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | b) What rating would your ideal be? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3 | a) Does he/she give you practical help? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | b) What rating would your ideal be? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4 | a) Can you spend time with him/her socially? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | b) What rating would your ideal be? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Person 3 –

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | a) Can you trust, talk to frankly and share your feelings with this person? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | b) What rating would your ideal be? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2 | a) Can you lean on and turn to this person in times of difficulty? .. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | b) What rating would your ideal be? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3 | a) Does he/she give you practical help? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | b) What rating would your ideal be? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4 | a) Can you spend time with him/her socially? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | b) What rating would your ideal be? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

PLEASE CIRCLE ONE NUMBER ONLY FOR EACH QUESTION



| Person 4 – | | Never | | Sometimes | | | Always | |
|------------------|---|-------|---|-----------|---|---|--------|---|
| 1 | a) Can you trust, talk to frankly and share your feelings with this person? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | b) What rating would your ideal be? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2 | a) Can you lean on and turn to this person in times of difficulty? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | b) What rating would your ideal be? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3 | a) Does he/she give you practical help? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | b) What rating would your ideal be? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4 | a) Can you spend time with him/her socially? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | b) What rating would your ideal be? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

| Person 5 – | | Never | | Sometimes | | | Always | |
|------------------|---|-------|---|-----------|---|---|--------|---|
| 1 | a) Can you trust, talk to frankly and share your feelings with this person? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | b) What rating would your ideal be? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2 | a) Can you lean on and turn to this person in times of difficulty? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | b) What rating would your ideal be? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3 | a) Does he/she give you practical help? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | b) What rating would your ideal be? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4 | a) Can you spend time with him/her socially? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | b) What rating would your ideal be? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

| Person 6 – | | Never | | Sometimes | | | Always | |
|------------------|---|-------|---|-----------|---|---|--------|---|
| 1 | a) Can you trust, talk to frankly and share your feelings with this person? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | b) What rating would your ideal be? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2 | a) Can you lean on and turn to this person in times of difficulty? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | b) What rating would your ideal be? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3 | a) Does he/she give you practical help? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | b) What rating would your ideal be? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4 | a) Can you spend time with him/her socially? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | b) What rating would your ideal be? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

| Person 7 – | | Never | | Sometimes | | | Always | |
|------------------|---|-------|---|-----------|---|---|--------|---|
| 1 | a) Can you trust, talk to frankly and share your feelings with this person? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | b) What rating would your ideal be? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2 | a) Can you lean on and turn to this person in times of difficulty? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | b) What rating would your ideal be? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3 | a) Does he/she give you practical help? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | b) What rating would your ideal be? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4 | a) Can you spend time with him/her socially? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | b) What rating would your ideal be? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

PLEASE CIRCLE ONE NUMBER ONLY FOR EACH QUESTION

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Code 4920 05 4



Appendix 8

MATERNAL INFORMATION

Demographic data

1. Age:

2. Occupation (if applicable)

(indicate if this involves being self-employed or in a managerial supervisory position, PT or FT):

3. Length of time lived together/ married:

Pregnancy and birth history

4. Planned or unplanned pregnancy:

5. Major changes in your life during the pregnancy or since the birth (give an e.g.):

6. Did you go to antenatal classes?

7. Pregnancy history/ complications:

8. How would you describe your feelings about your baby before the birth?

Would you say these feelings were:

| | | | | | | | | | | |
|-----------------------|---|---|---|---|---|---|---|---|---|-----------------------|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| extremely negative | | | | | | | | | | extremely positive |

9. Method of delivery:

(normal vaginal delivery/instrumental delivery/emergency or elective Caesarean section)

10. Delivery complications:

11. Birth weight:

12. How would you describe your experience of the delivery?

Would you say it was:

| | | | | | | | | | | |
|-----------|---|---|---|---|---|---|---|---|---|-----------|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| extremely | | | | | | | | | | extremely |
| negative | | | | | | | | | | positive |

13. How would you describe your feelings about your baby at first sight? (e.g. gender, weight, appearance)

Would you say these feelings were:

| | | | | | | | | | | |
|-----------|---|---|---|---|---|---|---|---|---|-----------|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| extremely | | | | | | | | | | extremely |
| negative | | | | | | | | | | positive |

14. How would you describe your feelings about your baby now?

Would you say these feelings are:

| | | | | | | | | | | |
|-----------|---|---|---|---|---|---|---|---|---|-----------|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| extremely | | | | | | | | | | extremely |
| negative | | | | | | | | | | positive |

15. Can you rate how things have changed since the birth of your baby?

| | | | | | | | | | | |
|-----------|---|---|---|---|-------------|---|---|---|---|-----------------|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| no change | | | | | some change | | | | | a lot of change |

Other factors

16. Have you ever been pregnant, but lost the baby?

17. Have there been any terminations of pregnancy?

18. Have you ever suffered from depression*? *(including during pregnancy)*

19. Have any of your first-degree relatives ever suffered/are currently suffering from depression? *(if known)*

*(*Defined as depressed mood and loss of interest which persists for at least 2 weeks and is severe enough to interfere with social or occupational functioning)*

PATERNAL INFORMATION

Demographic data

1. Age:

2. Occupation (if applicable)

(indicate if this involves being self-employed or in a managerial/ supervisory position, PT or FT):

3. Length of time lived together/ married:

Pregnancy and birth history

4. Planned or unplanned pregnancy:

5. Major changes in your life during the pregnancy or since the birth (give an e.g.):

6. Did you go to antenatal classes?

7. How would you describe your feelings about your baby before the birth?

Would you say these feelings were:

| | | | | | | | | | | |
|-----------------------|---|---|---|---|---|---|---|---|---|-----------------------|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| extremely negative | | | | | | | | | | extremely positive |

8. Were you present at the birth?

9. How would you describe your experience of the birth?

Would you say it was:

| | | | | | | | | | | |
|-----------|---|---|---|---|---|---|---|---|---|-----------|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| extremely | | | | | | | | | | extremely |
| negative | | | | | | | | | | positive |

10. How would you describe your feelings about your baby at first sight? (e.g. gender, weight, appearance)

Would you say these feelings were:

| | | | | | | | | | | |
|-----------|---|---|---|---|---|---|---|---|---|-----------|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| extremely | | | | | | | | | | extremely |
| negative | | | | | | | | | | positive |

11. How would you describe your feelings about your baby now?

Would you say these feelings are:

| | | | | | | | | | | |
|-----------|---|---|---|---|---|---|---|---|---|-----------|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| extremely | | | | | | | | | | extremely |
| negative | | | | | | | | | | positive |

12. Can you rate how things have changed since the birth of your baby?

| | | | | | | | | | | |
|-----------|---|---|---|---|---|-------------|---|---|---|-----------------|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| no change | | | | | | some change | | | | a lot of change |

Other factors

13. Have you ever suffered from depression*? *(including during pregnancy)*

14. Have any of your first-degree relatives ever suffered/are currently suffering from depression? *(if known)*

*(*Defined as depressed mood and loss of interest which persists for at least 2 weeks and is severe enough to interfere with social or occupational functioning)*

6 April 1998

Administration Department
Trust Headquarters
Southmead Hospital
Bristol BS10 5NB

Tel: (0117) 959 5207 (direct line)
Fax: (0117) 959 0902

Dear Miss Worwood

PROJECT No. 15/98: PSYCHOLOGICAL DISTRESS IN THE EARLY POSTNATAL PERIOD - WHAT HAPPENS TO THE PARTNERS OF DISTRESSED WOMEN?

I am pleased to inform you that at its meeting on 6 April 1998, the Medical Research Ethics Committee approved your application in respect of the above project. Members did however ask me to send you the enclosed comments for your information and consideration.

Approval is given on the understanding that:-

- a) Any ethical problems arising in the course of the project will be reported to the Ethics Committee;
- b) Any change in protocol will be reported to the Ethics Committee;
- c) An annual progress report will be submitted and a brief final report on completion.

Yours sincerely



Mrs S B Bowman
Secretary
Southmead Medical Research Ethics Committee

Appendix 10

Child and Family Psychology Services
in conjunction with the Maternity Unit
Westgate House
Southmead Hospital
Westbury-on-Trym
Bristol
BS10 5ZZ
0117 9595360

Date

Dear Mr & Mrs

I understand it is about six weeks after the birth of your baby at Southmead Hospital. During your time on the ward you may remember agreeing to take part in a research project looking at the early experiences of first time parents. To help aid your memory I enclose the information sheet that you may remember was given to you by one of the midwives.

I am writing to both of you now enclosing a short questionnaire about how you feel at the moment, as mentioned in the information sheet. If you are both still happy to take part in the study, please complete the questionnaires on your own and return them in the appropriate SAEs provided (these are marked either mother or father). This information will remain anonymous.

When we have received the questionnaires you may both be contacted to participate in the interview part of the study, as mentioned on the information sheet. Please note that participation is voluntary and if, at this stage, you do not wish to be contacted further please indicate so at the end of the questionnaire enclosed.

Attached is a photograph of the main researcher involved in this project (Emma Worwood) and should you require any further information or wish to discuss the project further please contact her at the above address or by telephone on 0117 9595360.

Yours sincerely



On behalf of the Child and Family Psychology Services

Appendix 11

Child and Family Psychology Services
in conjunction with the Maternity Unit
Westgate House
Southmead Hospital
Westbury-on-Trym
Bristol
BS10 5ZZ
0117 9595360

Date

Dear Mr & Mrs

Sorry to trouble you again, but this is just a note to jog your memory about filling in the questionnaire recently sent to you. Enclosed are two extra copies just in case you cannot locate the originals! If you no longer have the SAEs please just return them to the above address. If you have any queries about filling it out or a more general question about the project please do not hesitate to contact the main researcher (Emma Worwood) at the above address.

Thank you for your time.

Yours sincerely

On behalf of the Child and Family Psychology Services

Appendix 12

**Child and Family Psychology Services
in conjunction with the Maternity Unit
Westgate House
Southmead Hospital
Westbury-on-Trym
Bristol
BS10 5ZZ
0117 9595360**

Date

Dear

Following our telephone conversation today I wanted to confirm that we arranged a research interview for...at.... If you have any queries before this time please do not hesitate to contact me at the above address, otherwise I look forward to meeting you both then.

Yours sincerely

On behalf of the Child and Family Psychology Services

Appendix 13

Clinical Psychology Services
for Children, Adolescents
and families
Westgate House
Southmead Hospital
Bristol BS10 5NB
Tel: (0117) 9595360

Date

Dear Dr

Re:

I am sending this out as a matter of courtesy. The above couple are registered with you and have agreed to take part in a research project looking at psychological distress in first time parents. This project has been approved by Southmead Medical Research Ethics Committee. If you would like further information please do not hesitate to contact me at the above address.

Yours sincerely

Emma Worwood
Clinical Psychologist in Training

Appendix 14

| Significant Others Scale (SOS) | Mean score | Standard deviation | Range | |
|-----------------------------------|------------|-----------------------|----------|----------|
| | | | Obtained | Possible |
| Actual practical support | 73.30 | 10.91 | 49-97 | 14-98 |
| Actual emotional support | 76.97 | 9.02 | 55-91 | 14-98 |
| Ideal practical support | 80.10 | 10.45 | 56-98 | 14-98 |
| Ideal emotional support | 84.53 | 8.17 | 68-98 | 14-98 |
| Discrepancy score | 15.13 | 10.78 | 0-44 | 0-168 |

Table 15. Mean, standard deviation and range of scores for the SOS

| Parental Bonding Instrument (PBI) | Mean score | Standard deviation | Range | |
|--------------------------------------|------------|-----------------------|----------|----------|
| | | | Obtained | Possible |
| Care by own father | 24.57 | 7.39 | 9-35 | 0-36 |
| Overprotection by father | 8.50 | 4.73 | 2-23 | 0-36 |
| Care by own mother | 28.97 | 6.78 | 12-36 | 0-39 |
| Overprotection by mother | 12.83 | 7.84 | 3-32 | 0-39 |

Table 16. Mean, standard deviation and range of scores for the PBI

| Neonatal Perception Inventory (NPI) | Mean score | Standard deviation | Range | |
|--|------------|-----------------------|----------|----------|
| | | | Obtained | Possible |
| 'Average' baby score | 19.93 | 2.05 | 16-26 | 6-30 |
| 'Own' baby score | 14.63 | 3.35 | 7-22 | 6-30 |
| Discrepancy | 5.23 | 3.60 | -3-+11 | -24-+24 |

Table 17. Mean, standard deviation and range of scores for the NPI

Appendix 15

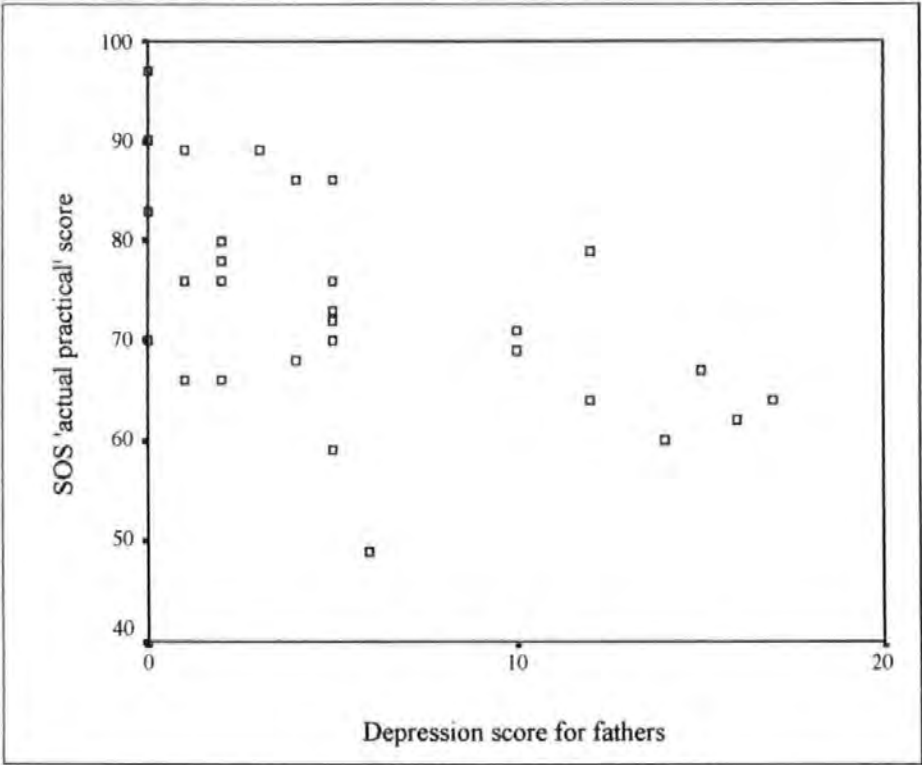


Figure 5. Scatter plot of depression and SOS 'actual practical' scores

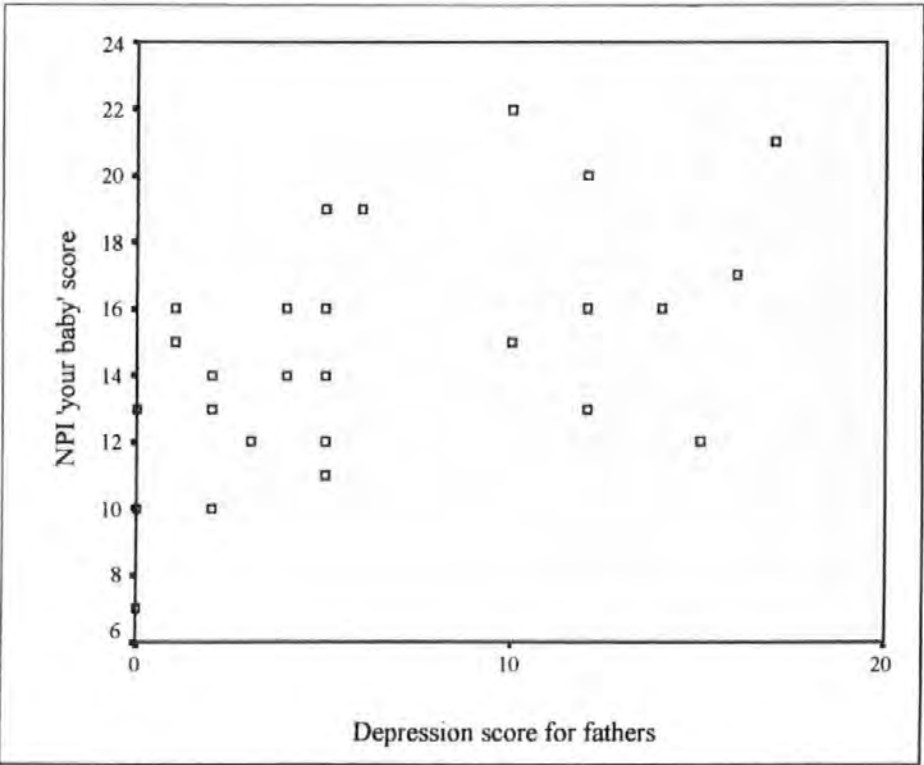


Figure 6. Scatter plot of depression and NPI 'your baby' scores for fathers

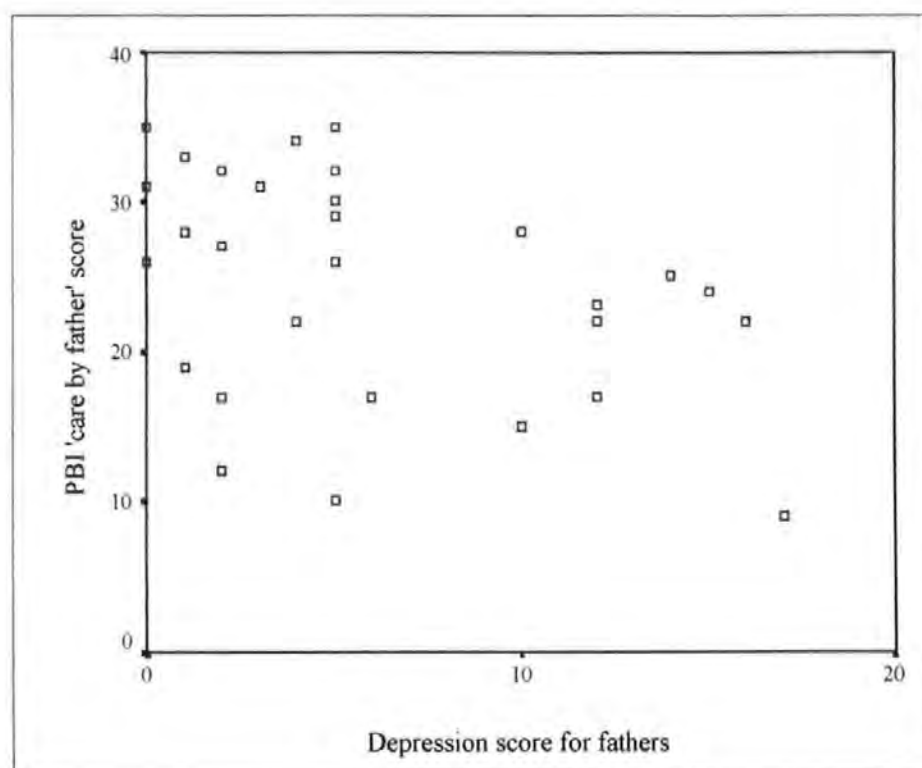


Figure 7. Scatter plot of depression and PBI 'care by father' scores

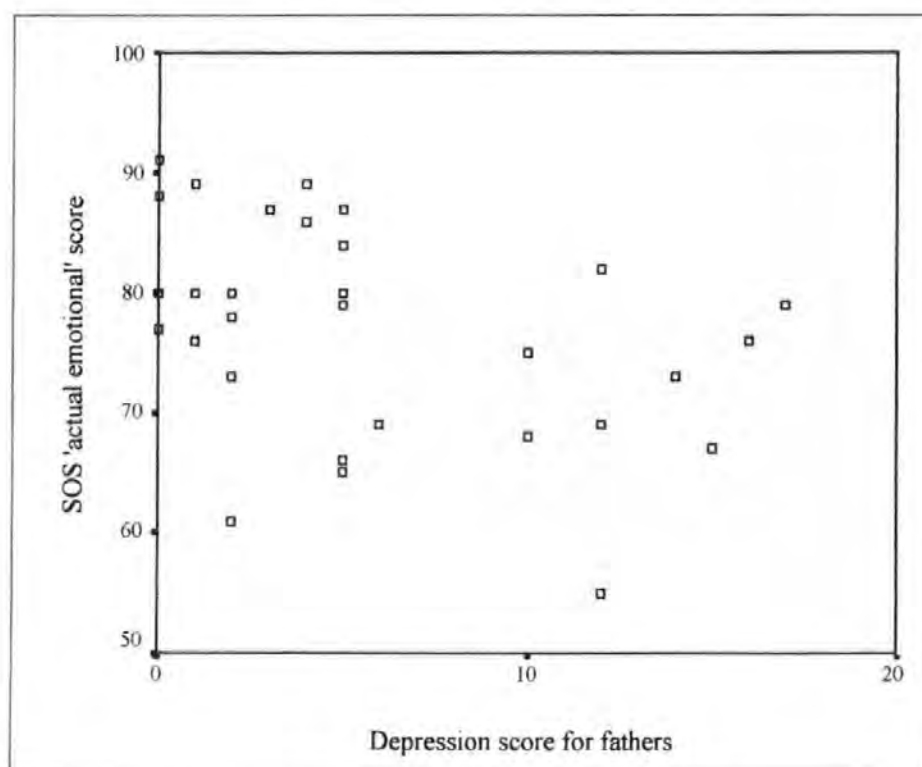


Figure 8. Scatter plot of depression and SOS 'actual emotional' scores

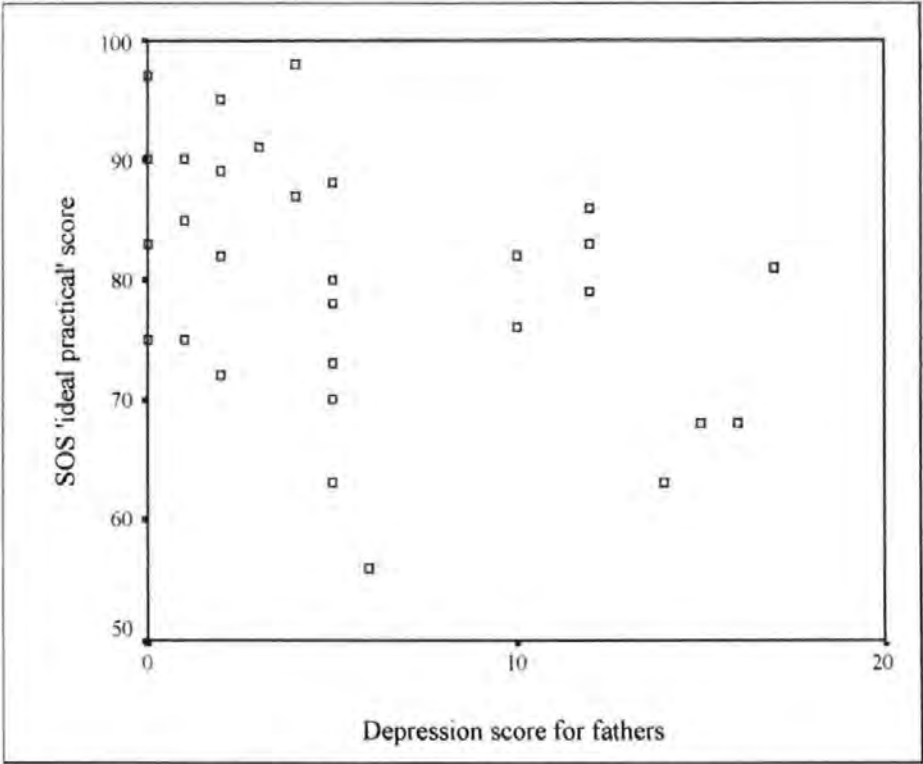


Figure 9. Scatter plot of depression and SOS 'ideal practical' scores

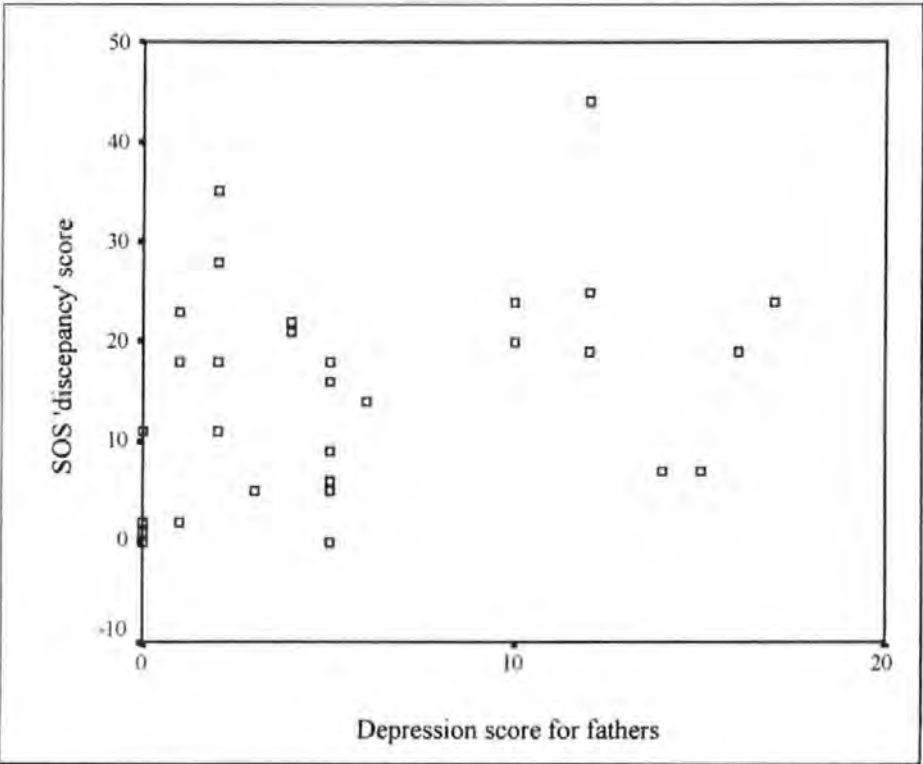


Figure 10. Scatter plot of depression and SOS 'discrepancy' scores

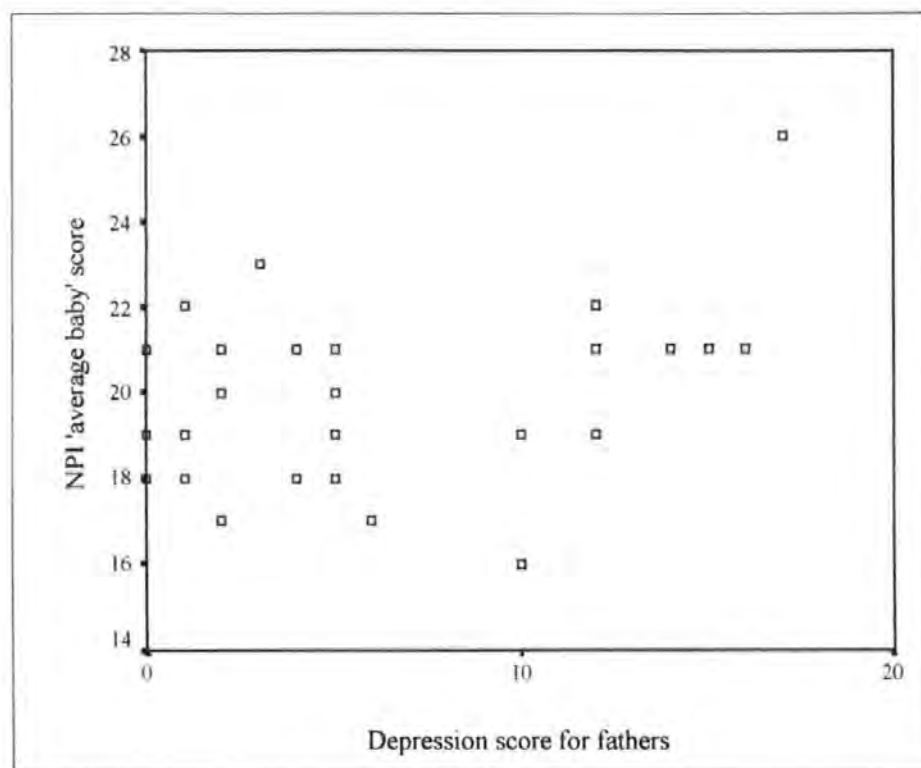


Figure 11. Scatter plot of depression and NPI 'average baby' scores for fathers

| | NPI average baby score | NPI difference score | NPI your baby score | SOS actual emotional score | SOS actual emotional score | SOS discrepa- ncy score | SOS ideal emotional score | SOS ideal practical score | PBI care by father score | PBI care by mother score | PBI overprot- ection by father score | PBI overprote- ction by mother score |
|------------------------------------|---------------------------------|----------------------------|---------------------------|-------------------------------------|-------------------------------------|-------------------------------|------------------------------------|------------------------------------|-----------------------------------|-----------------------------------|--|--|
| NPI average baby score | 1.000 | | | | | | | | | | | |
| NPI difference score | .400* | 1.000 | | | | | | | | | | |
| NPI your baby score | .172 | -.829** | 1.000 | | | | | | | | | |
| SOS actual emotional score | .004 | .337 | -.324 | 1.000 | | | | | | | | |
| SOS actual emotional score | -.156 | .452* | -.568** | .561** | 1.000 | | | | | | | |
| SOS discrepancy score | -.046 | .391* | .387* | -.471** | -.343 | 1.000 | | | | | | |
| SOS ideal emotional score | -.109 | .112 | -.155 | .731** | .489** | .180 | 1.000 | | | | | |
| SOS ideal practical score | -.090 | .308 | -.370* | .460* | .853** | .137 | .647** | 1.000 | | | | |
| PBI care by father score | -.120 | .271 | -.344 | .315 | .503** | -.476** | .048 | .284 | 1.000 | | | |
| PBI care by mother score | .364* | .297 | -.069 | .505** | .145 | -.469** | .198 | -.005 | .508** | 1.000 | | |
| PBI overprotect by father score | -.171 | -.078 | -.023 | -.189 | -.092 | .420* | .215 | .046 | -.427* | -.411* | 1.000 | |
| PBI overprotect by mother score | -.172 | -.083 | -.001 | -.350 | -.315 | .113 | -.277 | -.357 | -.339 | -.439* | -.415* | 1.000 |

Table 18. Correlational analysis between the three independent variables

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Appendix 17

| Rating score of feelings | Mean | Standard deviation | Range |
|---------------------------------|------|--------------------|-------|
| Mothers | | | |
| About the baby during pregnancy | 6.97 | 2.47 | 0-10 |
| The delivery experience | 6.67 | 2.78 | 1-10 |
| At first sight of the baby | 7.8 | 2.17 | 2-10 |
| About the baby currently | 9.2 | 0.66 | 8-10 |
| Fathers | | | |
| About the baby during pregnancy | 7.8 | 1.67 | 4-10 |
| The delivery experience | 6.83 | 2.64 | 0-10 |
| At first sight of the baby | 8.67 | 2.04 | 2-10 |
| About the baby currently | 9.0 | 1.02 | 6-10 |

Table 19. Feelings before, during and after the birth rated by parents interviewed

Note: Scores range from 0 (extremely negative) to 10 (extremely positive) for each question. A score of 5 indicates relatively neutral feelings.

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