Parenting a child born prematurely: comparison of fathers' and mothers' perceptions of vulnerability, child temperament and parenting stress

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Abstract

Differences in the experiences of 24 fathers of premature children in comparison to 24 fathers of children born at term, and to 24 mothers of premature children were investigated with regard to perceptions of their children’s vulnerability to health problems, child temperament and parenting stress. It was hypothesised that (1) fathers of children born prematurely would perceive their currently healthy children to be more vulnerable than fathers of full term children; (2) fathers of children born prematurely would perceive their currently healthy children to be less vulnerable than mothers of the same children; and (3) paternal perceptions of vulnerability regarding their children born prematurely would be related to paternal perception of child temperament and paternal parenting stress.

The results showed no differences between perceptions of vulnerability of fathers of children born prematurely and fathers of children born at term, although significantly more fathers of premature children felt the need to take special care of their children. There were no differences between paternal and maternal perceptions of vulnerability of children born prematurely. There was a relationship between paternal perceptions of vulnerability, parenting stress and perceptions of negative mood in their children. Qualitative information illustrated the impact of premature birth on fathers.

The results were interpreted in relation to (1) the Vulnerable Child Syndrome (Green & Solnit, 1964) which suggests that premature birth may contribute to disturbances in the parent-child relationship; and (2) the transactional model of child development, which suggests that parental perceptions, child temperament and parental stress are interdependent, and that paternal beliefs and anxieties modify and mediate maternal behaviour (Sameroff & Chandler, 1975, Parke & Anderson, 1987)

Identified areas for future research include larger scale research which attempts to disentangle the complex interaction of predisposing factors which contribute to the Vulnerable Child Syndrome. Clinical implications of the study are discussed including recognition of the impact of premature birth on both parents, and the importance of messages given by medical professionals. Neonatal services are encouraged to cater for the needs of fathers, and expanded support/clinical services are recommended.

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1. **INTRODUCTION**

1.1 **Overview**

The present study investigates differences in the experience of fathers of premature children in comparison to fathers of children born at term, and to mothers of premature children with regard to perceptions of their children’s vulnerability, child temperament and parenting stress. The study aims to provide new information in order to complement existing literature, which focuses primarily on mothers.

The introduction reviews relevant literature, beginning with an overview of prematurity which briefly addresses prevalence and definitions of prematurity, aetiology and development of children born prematurely. The review then considers premature birth as a crisis in the family, and outlines the clinical background to the current study.

The next sections outline the transactional model of child development and literature on vulnerability and resilience, including risk and protective factors in the child and in the parent. The Vulnerable Child Syndrome is then introduced and discussed in relation to the transactional model, followed by discussion of maternal perceptions and prematurity.

The following section focuses on the role of fathers in families, fathers and their premature babies and paternal perceptions and prematurity. The clinical importance of understanding fathers’ experiences is discussed and the introduction concludes by highlighting clinical service relevance and raising research questions and hypotheses derived from the literature review.
1.2 Overview of Prematurity

1.2.1 Prevalence and Definitions of Prematurity

Advances in current medical technology and perinatal care continue to have a major impact on the survival and outcome of premature and very low birth weight infants. A majority of infants over 23 weeks gestation and weighing more than 500g now survive (Wolke, 1991). Very low birth weight infants account for 10 percent of all live births in the U.K. (McFadyen, 1994) and in the Trent region up to 2,000 of the approximate 6,000 babies delivered annually are born prematurely, including very low birth weight babies. Premature infants are defined as babies born prior to 37 weeks gestation, or earlier than 3 weeks before the estimated due date. A second criterion commonly used to describe infants as high-risk is birth weight. An infant born at less than 2.5 kg is considered to be at low birth weight (LBW); an infant of less than 1.5 kg is considered at very low birth weight (VLBW), and is usually at least 8 weeks premature; an infant weighing less than 1.0 kg is considered at extremely low birth weight (ELBW) (O'Brien, Soliday & McCluskey-Fawcett, 1995).

1.2.2 Aetiology and Development of Children Born Prematurely

The aetiology of premature birth includes social, environmental and biological factors often acting in combination, but a substantial numbers of premature births have no known cause (Buescher, Meis, Ernest, Moore, Michielutte & Sharp, 1988, cited in O'Brien et al, 1995). As the causes of premature birth, perinatal complications and the nature of treatments provided are so variable, it is hard to generalise about the consequences of
prematurity. There is a prevailing belief that premature infants ‘catch up’ within a few years of life. Although this is often true, more than one in ten children born prematurely will be left with a major impairment in functioning (McFadyen, 1995) and there is an abundant literature on adverse physical, cognitive and behavioural outcomes of prematurity (see Escobar, Littenberg & Petitti, 1991 for a comprehensive review).

Developmental outcome is determined by a complex interaction between the infant’s biological vulnerability and a variety of psychological and environmental factors (Sameroff & Chandler, 1975). Socio-economic status, family discord and parental pathology are among the stressors known to be associated with non optimal development (Greenberg, Carmichael-Olson & Crnic, 1992), whereas a reliable and supportive environment can serve to buffer the child’s susceptibility to stress (Werner & Smith, 1982 cited in Estroff, Yando, Burke & Snyder, 1994).

In summary, advances in medical technology mean that increasing numbers of premature infants survive. A myriad of causes, developmental and treatment pathways interact to make children born prematurely a highly heterogeneous population. Risk and outcome in terms of child development are moderated by appropriately supportive environmental factors.

1.2.3 Premature Birth as a Crisis in the Family

Premature birth comes as a shock and constitutes a crisis for most parents involving emotional, financial and physical strains. (Friedman & Sigman, 1981). With increased survival rates, more infants are hospitalised for longer following birth on Neonatal
Intensive Care Units (NICUs). As a result, parents must delay their transition into full-time parenting roles and adjust to the unfamiliar environment in the NICU where the primary concern of medical personnel is the infant’s health status (O’Brien et al, 1995). Studies suggest that parents often feel like onlookers and find it difficult to feel close to their baby, with the result that bonding may be disrupted and their confidence as a parent may be compromised (Minde & Stewart, 1988 cited in Davies, 1999). Many parents in the current study reported feeling that their infant did not fully belong to them until they were discharged. One mother commented that:

"I dare not touch her and did not bond with her until we were at home, in case she died. She did not feel like my baby until she was home. When she was born I didn't see her for three days – she was nothing to do with me. I hated her at first."

Once the medical situation has stabilised, parents face uncertainty about whether their baby will develop physical, neurological and psychological problems (Friedman & Sigman, 1981). Stress and anxiety are frequently heightened by strong warnings from professionals about the dangers of infection or possible death or disability of their premature infants (McCluskey-Fawcett, et al 1992, cited in O’Brien et al, 1995).

In most cases therefore, premature infants’ early relationships develop in a stressful context. Although impressive advances in technology have improved medical outcomes, the enduring emotional effects of what is often a hazardous start to life remain
a clinical concern. To assure quality of life for infants born prematurely, it is vital to consider long term psychological and social implications. (McFadyen, 1994).

As the future for infants born prematurely is uncertain, some parents continue to feel very protective towards children who seem to have survived against the odds. Uncertainty about the baby's future development means that the family may have to re-adapt at some stage either to mourn or to allow themselves and their child to get on with living (Estroff, Yando, Burke & Snyder, 1994). The biologic risk status of premature infants can therefore be compounded by parents' perceptions about their child's medical status and anxiety felt about their child's future health and development. (McFadyen, 1994). The closeness, nurturing and protectiveness, which have helped the child to survive, may be inappropriate later (Davies, 1999). Therefore, the impact of the special care experience is not only immediate but may have long-term consequences for how parents view their children who were born prematurely.

1.2.4 Clinical Background to the Current Study

The grounding for this study originated from the concern of clinical staff that although pre-school children born prematurely had some minor health problems, their parents were often reluctant to allow them to socialise due to fears of infection. The message given in the NICU that premature babies are at greater risk of infection seemed to remain even though the risk of significant illness was much reduced. Parental perceptions of their children's vulnerability were influencing the extent to which the children were exposed to normal activities involving other children. It is of clinical concern that limited pre-school
socialisation may compromise children’s social development and in turn have implications for transitions to the school environment.

In order to clarify the aims of the study, the researcher attended clinical staff meetings, a parent support group [ADAPT (All Dependent Pre-Term Babies and Children)] meeting, an ADAPT informal social gathering, and spent time observing in the NICUs. Both clinical staff and facilitators of ADAPT were particularly concerned about the attitudes and behaviour of fathers. Fathers themselves expressed concerns not only about the immediate impact of the premature birth of their children, but about longer term implications and worries about their children’s health. As parents are very stressed following premature birth, but only mothers are currently offered appropriate intervention, the Neonatal Units were concerned to identify fathers who may be particularly distressed due to inappropriate worries and/or the impact of sequelae of premature birth on family functioning.
1.3 **The Transactional Model of Child Development**

'The child is not a pilgrim, detached and self-contained, but very much influencing and being influenced'. (Radke-Yarrow, Richters & Wilson, 1988, p.63).

The growth of family systems theories in developmental psychology has strengthened interest in interactional processes within the family as the basis for understanding individual differences in children’s development (Easterbrooks & Emde, 1988). Within the transactional model (Sameroff & Chandler, 1975) development is the outcome of transactions between the child and his/her environment. Thus, development results from ‘the interplay between child and context across time, in which the state of one affects the next state of the other in a continuous dynamic process” (Sameroff, 1993, p. 6, cited in Davies 1999).

As interactions between caregiver and child are ‘bi-directional’, the child responds to adult behaviour that is directed toward them, and the adult responds to the actions and particular characteristics of the child. Parental ability to respond adaptively to the child’s unfolding development is also influenced by immediate circumstantial and more distant social factors that support, or alternatively create stress on the parent (Davies, 1999). The constant unfolding of development requires continuing adaptation by both child and parents, and parents in particular must adjust in how they respond to the child. Sroufe (1990) points out that ‘change... is constrained by prior adaptation’ (p336). There is
therefore a strong argument for early intervention as a means of shifting development in positive directions before the path into potential psychopathology is set (Davies, 1999).

Systemic theorists focus on beliefs in family systems. Thus, the behaviour of each participant in an interaction is influenced by values and beliefs acquired from those around him/her (Hinde & Stevenson-Hinde, 1988). The relationship between the history, the present and the belief systems hold the key to conceptualising each family’s and each member of the family’s ability to cope. Thus beliefs will have evolved in relation to past events and may be confirmed or disconfirmed by current ones (McFadyen, 1994).

Parke & Anderson (1987) explore the role of the father in the development of the premature infant, and refer to the necessity of viewing the family as a dynamic social system, where there is interdependence amongst roles and functions of family members. Parents’ individual schema interact to impact on the child. Paternal beliefs, attitudes, expectations and anxieties modify and mediate the way in which mothers behave toward their children (and vice versa) and therefore have an indirect impact as well as a direct effect (through interaction with the child).

In summary, a circular interplay of parental perceptions and child factors have an impact on the developmental outcome of children born prematurely and early intervention may help to facilitate continuing adaptation by parents.
1.4 **Vulnerability and Resilience**

Children who have good outcomes and adaptive abilities in spite of exposure to risks to development are known as 'resilient' (Davies, 1999). The existence and development of children's resilience in the face of adversity is a transactional process dependent on factors in the environment, especially relationships within the family and later with a wider social network (Davies, 1999). Herbert (1999) states that overall, a combination of biological and social factors differentiate children according to vulnerability/resilience. This is highlighted by a study by Werner & Smith (1977, cited in Herbert, 1999) who found that birth complications consistently related to later physical and psychological development, but only in combination with poor environmental circumstances.

### 1.4.1 Risk and Protective Factors in the Child

Child protective factors that influence vulnerability and resilience include biological conditions, genetic inheritance, and personality or temperament characteristics (Davies, 1999). 'Inherent' protective factors noted in resilience studies have included good-natured temperament and good health. Personality characteristics associated with resilience include ability to elicit positive attention from parents (Werner & Smith, 1992). In long-term studies of high-risk children, Werner & Smith (1992) found that in infancy resilient children were good natured, active and responsive and did not have feeding or sleeping problems. Resilient children also tend to have developed an 'internal locus of control'. This means that they believe they can take active steps to master difficult
situations, as opposed to feeling that external events control them (Lazarus & Folkman, 1983, cited in Davies, 1999).

**Biological Conditions**

Biological vulnerabilities such as prematurity and low birth weight have the potential to affect attachment as premature infants may be harder to relate to, less responsive or may be irritable or constantly distressed (McFadyen, 1994). Parents may not know how to respond to an ill premature infant and, as mentioned above, may initially resist investing emotionally in an infant who may die or be seriously compromised. The behaviour of prematurely born infants following discharge may engender maladaptive patterns of infant-caretaker interaction. Goldberg & DiVitto’s (1995) review concluded that premature infants initiate interactions less, show greater fussiness, less positive affect and less attentiveness. However, there are conflicting reports about the interactive behaviour of premature infants compared to full term infants. Censullo, Lester & Hoffman (1985) found no difference in rhythmic patterns of behaviour between healthy premature and full term infants.

**Temperament**

Temperament constitutes another child-based vulnerability and refers to constitutionally based personality traits that affect the child’s orientation to the world. Thomas, Chess & Birch (1968, cited in Thomas & Chess, 1980) seminal New York Longitudinal study (NYLS) stimulated a large amount of research regarding the importance of temperamental factors in children’s subsequent psychological development. Thomas, Chess & Birch identified three patterns of temperament at age 3 months as ‘easy’,
'difficult', and 'slow to warm up'. Easy children showed positive mood, moderate activity level, adaptability, regular biological patterns, good attention span and persistence, mild to moderate intensity and sensitivity and positive responses to new situations. This type of temperament is seen as a protective factor. Children with difficult temperaments showed the opposite of this pattern. These children had negative mood, were very active, negatively persistent, overly sensitive, intensely reactive and resistant to change. Their biological rhythms were irregular and they tended to withdraw in new situations. Compared to both easy and difficult temperaments, slow to warm children tend to be less reactive, less overtly emotional or intense and less active. They appear inhibited in new situations, although they may begin to participate actively given enough time. Difficult and slow to warm up children are implicated as potential risk as they are less rewarding for parents.

Thomas & Chess (1980) proposed a bi-directional model to explain the interaction between child temperament, parenting temperament and behaviour. Consistent with the transactional model, clinicians and researchers concerned with 'goodness of fit' recognise that the child brings qualities and temperamental dispositions to all interactions with parents, which are reciprocal.

In general, temperament measures have shown few significant differences between premature and full term infants, but they have suggested that premature infants are more difficult, i.e. lower adaptability, rhythmicity and sociability. (Minde, 1992). However, as temperament was measured by parent report these results may have been confounded by parental expectations (O’Brien et al, 1995).
Indeed, research has questioned whether what appears to be temperament is more the result of parental working models and early care-giving interactions (Lyons-Ruth & Zeanah, 1993, cited in Davies, 1999). Given that temperament is assumed to be inherent, it was expected that it would be stable over time. However, in original research by Thomas Chess & Birch (1968, cited in Thomas & Chess, 1980) difficult temperament in infancy did not increase risk for behaviour problems, but difficult temperament at age 3 did predict later problems. This suggests that there is a strong association between caregiving and temperament since the link between difficult temperament and behaviour problems was only evident after the child had been in a caregiving relationship for three years. Many studies have found correlations between the way parents describe themselves and the way they characterise their infants. For example, highly emotional parents describe their infants as like themselves and parents who characterise themselves in negative terms or who have significant depression or anxiety are likely to see their children as ‘difficult’ (Bates 1987, cited in Davies, 1999). Studies of behaviourally inhibited children suggest that parents of these children are highly anxious themselves and reinforce their child’s inhibited behaviour through overprotection and restriction of autonomy (Messer & Beidel, 1994, cited in Davies, 1999).

This raises questions about the usefulness of thinking about temperament in isolation from a transactional context. What is perceived as temperament may also be determined by the parents working models, or parental stress. For example, stressed parents may have difficulty helping their child feel secure. Potentially, the child’s reactions increase parental stress and lead them to perceive the child as difficult.
In summary, factors in the child with potential to influence resilience include the biological vulnerability of prematurity and very low birth weight, and child temperament. Research shows that parental perceptions of child temperament may be partially determined by their own working models and parenting stress.

1.4.2 Risk and Protective Factors in the Parent

The functions of parents are to protect children, promote adaptive development and self-esteem, model and support the child's movement towards self-regulation, provide encouragement and opportunity for growth and convey cultural values to the child (Davies, 1999). 'Good enough' parents are able to see their children realistically, have expectations of the child that are consistent with their actual developmental level and have the capacity to empathise with the child's point of view. Parental protective factors identified by Masten, Best & Garmezy (1990) include modelling of competent behaviour and coping skills and having appropriate expectations of the child. Galdston (1979, cited in Davies, 1999) suggests that 'the parenting process can be described as dysfunctional when the welfare of the child is sacrificed to the needs of the parent' and 'when the parent acts on the basis of a distorted, unrealistic view of the child' (p.582). Other parenting risk factors include poor socio-economic status, depression or a history of insecure attachment which may compound the parents difficulties in relating to their infant (Minde, 1992).
Parenting Stress

Parenting has been found to be a generally stressful life event for both mothers and fathers (e.g. Belsky, Spanier & Rovine, 1983 cited in McBride, 1989), and Lazarus & Folkman (1983, cited in Davies, 1999) acknowledge the appraisal component involved in the experience of stress. Consistent with the transactional model (Sameroff & Chandler, 1975), it is the combination of important child characteristics and parental perception of these that will impact upon interaction (Abidin, 1995). Parke & Anderson (1987) suggest that parental perceptions must be considered in order to understand the degree of stress experienced. This is illustrated below:

<table>
<thead>
<tr>
<th>Child characteristics</th>
<th>Parental perceptions</th>
<th>Stress</th>
<th>Behaviour to child</th>
<th>Child outcome</th>
</tr>
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Abidin (1995) suggests that stress in the parenting system during the first 3 years of life is especially critical in relation to the child’s emotional/behavioural development and to the parent-child relationship. Maternal stress in the child’s first year was a significant predictor of child outcome at age 4 ½ in Abidin, Jenkins & McGaughey’s (1992) study, and a predictor of premature children’s social and emotional functioning at 8 years in another study (Magyary, Brandt, Hammond & Barnard, 1992, cited in Magill-Evans & Harrison, 1999). Darke & Goldberg (1994) reported that higher parental stress when the child was 12 months old was significantly associated with less positive father-child interactions in a sample of chronically ill and healthy infants. Abidin (1995) theorises the
following paths of influence on parenting behaviour, which can be measured using Abidin's (1995) Parenting Stress Index (Short Form):-

\[ \text{Parental Distress} \]
\[ \downarrow \uparrow \downarrow \]
\[ \text{Parent-Child} \]
\[ \text{Dysfunctional} \rightarrow \text{Parenting Behaviours} \rightarrow \text{Child Outcomes} \]
\[ \downarrow \uparrow \uparrow \]
\[ \rightarrow \text{Difficult Child} \]

In summary, parenting factors with potential to influence child outcome include perceptions of child temperament and parenting stress. Both infant behaviours and parental expectations may distort parent-child interaction. For children born prematurely, the environmental risk of being in NICU for an extended period of time may interact with child and parent factors. The theoretical underpinning of these studies is that temperament interacts with the environment and produces a series of matches or mismatches (Abidin, 1995).
1.5 **The Vulnerable Child Syndrome**

Green & Solnit (1964) suggested that early life-threatening illness may contribute to disturbances in the parent-child relationship and in the child’s psychosocial development. This was based on their observations of 25 children whose parents expected them to die due to illness/accident. Various behaviour problems were reported in the children such as difficulties with separation, excessive concern with somatic wellbeing and underachievement in school. They labelled this constellation of difficulties the Vulnerable Child Syndrome (VCS), and listed a number of predisposing factors, including prematurity. This early study has however been criticised as being largely descriptive, not including a matched control group nor distinguishing between children developing normally and those with developmental impairments (Scheiner, Sexton, Rockwood, Sullivan & Davies, 1985).

Perrin, West & Culley (1989) emphasise that parental perception of vulnerability or susceptibility to medical or developmental problems persist despite a lack of objective evidence of any current difficulty. In Thomasgard & Metz (1995) review of the literature, parental perception of vulnerability was hypothesised as ‘a manifestation of disturbance in the parent-child relationship related to the parents’ difficulty in supporting age-appropriate, socioculturally concordant separation and individuation in the child’.
1.5.1 The Vulnerable Child Syndrome in Relation to the Transactional Model of Child Development

The VCS might serve to exacerbate an already difficult parent-infant interaction set into motion by the infant’s biological fragility (Estroff et al, 1994). Often parents have had to monitor constantly the child’s health, and hyper-attentiveness and protectiveness may persist as a generalised style of relating to their child (Davies, 1999). Parents may limit the child’s choices, limiting the acquisition of autonomous skills that are within his/her developmental abilities (Landry, Chapieski, Richardson, Palmer & Hall, 1990). The child may internalise the parents’ view of him/her and begin to restrict him/herself inappropriately. This may evolve into a form of ‘secondary gain’ in which the child begins to use the illness as a means of avoiding responsibilities and expectations (Feinstein & Berger, 1987, cited in Davies, 1999).

1.5.2 Maternal Perceptions and Prematurity

The relationship between prematurity and maternal perceptions has received much attention. Mothers of pre-schoolers born prematurely persisted in viewing them as weak at 3 years, which was unrelated to the children’s current state (Bidder, Crowe & Gray (1974). McCormick, Shapiro & Starfield (1982) found an association between adverse perinatal events and expectations of slower development in mothers of low birth weight infants, compared to mothers of normal birth weight infants. However, the sample used in this study included children with congenital anomalies, making it difficult to conclude that low birth weight alone related to expectations of slower development. Estroff et al (1994) found that mothers of fifty 3 year olds born prematurely, who labelled them as
vulnerable reported more behaviour problems and less developmental competence than mothers who saw their premature infant as non-vulnerable, whilst the children did not actually differ on developmental testing. Mothers of the ‘vulnerable’ children also expressed less sense of parental efficacy and control of their child’s behaviour. However, this study did not include a control group to enable comparison to mothers of children born at term. Perrin et al (1989) studied mothers persistent sense of vulnerability of their healthy 3 year olds who were born prematurely with ‘considerable neonatal morbidity’ and found that they reported more behaviour problems, especially regarding discipline, peer relations and self-control, and in internalising and somatic symptoms. The authors suggest that it is a combination of premature birth and illness in the child that may predispose parents to perceptions of vulnerability. However, the reasons for selecting mothers of children with hyaline membrane disease who had required ventilation or a very low birth weight for the experimental group are unclear, and the health history of children in the control group was not mentioned. Perrin et al (1989) acknowledge that as the study involved small numbers and the association among variables was only moderate, larger studies are necessary to clarify their findings.

Studies by Stern & Hildebrandt (1984, 1986) on ‘prematurity stereotyping’ showed that when mothers interacted with an unfamiliar term infant labelled as premature, they touched it less during play, gave it an immature toy and said they liked it less. In turn the infants labelled as premature were less active during play. Expectations of infant capabilities may therefore influence mothers’ interaction, even when infants’ behaviour is inconsistent with their expectations. Eventually, parental behaviour could lead to the
infant responding as expected. Many other studies highlight the influence of the stereotyping of children born prematurely. For example, Scheye, Teti, Laliberte, Reiner, Meyer, Evans & Viscardi (1998, cited in Stern, Hildebrandt, Meldrum Sopko & Norman, 2000) found mothers with excessively high levels of concern for their objectively low-risk (healthy) premature infants reported more negative affect, and poorer adjustment than did other groups of mothers (including mothers with objectively higher risk infants).

From a theoretical perspective research on prematurity stereotyping (Stern & Hildebrandt, 1984, 1986) derives from general study of expectancy confirmation processes (e.g. Darley & Fazio, 1980; Miller & Turnbull, 1986 cited in Stern et al, 2000). This model describes a process whereby preconceived beliefs held by an observer result in interpretations of target behaviour consistent with the observer's belief. In turn the observer acts toward the target in line with these beliefs, producing over time behaviour in the target that consequently confirms the initial beliefs.

In summary, there is considerable evidence that many mothers have distorted perceptions and negative expectations of premature infants. In general, and notwithstanding methodological differences, these studies have found mothers to hold more negative views about and behave in less positive ways toward infants who are believed to have been born prematurely than infants who are believed to have been born at full term.
1.6 The Role of Fathers in Families

In the 1950s, the primary role of fathers in the family was that of breadwinner, whilst mothers served predominantly as housekeepers and primary child carers. This cultural consensus disintegrated as women moved into the paid labour force, their educational attainment increased, family size decreased and the ideology of gender equality spread (Amato, 1998). It is now common for both parents to work. Amato (1998) states that ‘as women became more like fathers, so men were expected to become more like mothers’ (p.241). The belief that parents should share childcare shifted from a minority opinion in the 1960s to a majority opinion in the 1980s (Thornton, 1989, cited in Amato, 1998). However, some researchers argue that although men have increased their participation in childcare, the amount of change has been small (e.g. Pleck, 1997).

Although breadwinning remains a key component in most families, fathers now play multiple and diverse roles in contemporary families. Fathers have a formative influence on their children by interacting with them directly, although fathers generally have different interaction with their children than mothers, being less involved in caregiving and more in play interactions (Lamb, 1998). Whilst earlier research was concerned with father-child dyads and direct father-child influences, the focus has shifted more recently to considering fathers in the context of family systems and subsystems (Lamb, 1998). An indirect source of the impact of fathers on their children’s well-being stems from paternal roles as sources of emotional support for mothers, which helps to enhance quality of the mother-child relationship. For example, when mothers report high levels of satisfaction with spousal support they tend to be more responsive to their infants (Crnic, Greenberg, Ragozin, Robinson & Basham, 1983).
1.6.1 **Fathers and their Premature Babies**

Traditional descriptions of babies and their developing relationships have focused on the mother-child relationship, seeing the father in a key role supporting mothers. The response of fathers to premature birth and their role in providing support for mothers have only relatively recently become topics of study (McFadyen, 1994). Affleck, Tennen & Rowe (1991) report that fathers indicated less global distress during their infant’s hospitalisation than mothers. But it is possible that fathers are less likely to report distress on the questionnaire measures used to rate depressed mood. During the 18 months following their infant’s hospital discharge, fathers reported experiencing the same kinds and degree of somatic concerns as mothers (Affleck et al, 1991).

Herbert (1999, p.91) states that ‘father-to-infant attachment is actually not so different in kind from maternal attachment, although it often (but not invariably) appears to be less strong’. General responsiveness of the human male to infants tends to be less marked and biological factors are partially involved. Herbert (1999) explains that many, but not all species of primate males are less nurturing to their young than females, although males tend to be protective both towards the females and their young. However, the role of the human male in relation to the young is influenced by culture, custom and convention. Herbert (1999) argues that as men rapidly become more involved in domestic duties including childcare, the similarities of feelings and responses towards their infants may outweigh the differences.
Fathers are no longer the ‘forgotten contributors to child development’ (Lamb, 1975), but a lack of research regarding fathers is a reflection that fathers remain understudied in comparison to mothers. As breadwinning continues to dominate the role of fathers, they are likely to be less involved in caregiving than mothers. Parke (1984, cited in Parke & Anderson, 1987) found that mothers of premature and full term children were consistently more involved in caregiving than fathers throughout the first 12 months. The combination of less caregiving and biological reasons cited by Herbert (1999) suggest that fathers’ feelings and responses to their children who were born prematurely may be less strong than mothers.

1.6.2 Paternal Perceptions and Prematurity

Relatively little is known about fathers’ perceptions and expectations of premature infants. Many studies using the term ‘parent’ refer to mothers only, although some studies have found that both parents tend to treat them as younger, express more anxiety leaving their child with a babysitter and to use one less frequently than parents of full term infants at age 12 months (Jeffcoate, Humphrey & Lloyd, 1979). Patterns of healthcare usage are also affected by parents’ perceptions of their child’s vulnerability. Several studies looking at outcomes of parental perceptions of vulnerability have described increased use of healthcare facilities for children considered exceptionally vulnerable (Forsyth & Canny, 1985, Levy, 1980 cited in Perrin et al, 1989).

It should be noted however that the study by Levy (1980) involving 750 parents did not use standardised measures but defined and measured vulnerability on the basis of parental reports of ‘special worries’ about their child’s health. In addition, Levy (1980) reported
that the sample shared many demographic characteristics of economically disadvantaged inner city populations, which raises the question of whether parental perceptions are embedded, or derived from an economically disadvantaged environment.

In one of the few studies including fathers, Harrison & Macgill-Evans (1996) examined mother and father interactions with 54 term and 49 pre-term infants at 3 and 12 months. Parents were observed interacting individually with infants at home during a structured task. Both parent’s interaction scores decreased with time, while responsiveness and clarity of infants cues increased. This was found to be unrelated to parental age, education, socio-economic status, stress, marital support and level of involvement with the child. Fathers of both term infants and premature infants had lower interaction scores than mothers. The authors suggest that these findings could be explained by parents having lower expectations of their infants, consistent with literature on prematurity stereotyping (Stern & Hildebrandt, 1984, 1986), but emphasise that parental perceptions of vulnerability need to be measured to confirm this explanation.

Fathers of full term children have been found to be more physical in interactions than fathers of premature children (Parke & Anderson, 1987). Fathers of premature children have also been found to engage their children in fewer and shorter games and fewer arousing games (Yogman, 1987). Parke & Anderson (1987) speculate that this is because fathers may assume premature infants are fragile and unable to withstand robust physical stimulation. Again, confirmation of this explanation is required.
In summary, fathers have diverse roles in contemporary families. Although paternal participation in childcare continues to increase, some researchers claim that this change is minimal. Fathers are seen as a protective factor, in terms of their indirect influence on their children via their supportive role to mothers. Limited research findings suggest that fathers may be less affected by the premature birth of their children. This may be partially for biological reasons or because they are less directly involved in caregiving.

1.6.3 Clinical Importance of Understanding Fathers' Experiences

Paternal perception of children born prematurely is a neglected area of research, with the few findings being sparse and contradictory. If fathers also perceive their children to be vulnerable in the absence of current objective evidence, this may influence optimal adjustment to their children. Not only does this have potential to interfere with their own interaction with their children, but it may affect the child indirectly by influencing their ability to fulfill their supportive role to mothers. If fathers also have inappropriate perceptions of vulnerability, they are unlikely to moderate the effects of mothers’ perceptions. Ultimately, stress and anxiety in fathers as a result of misperceptions and non-optimal adjustment may have a negative impact on family functioning and lead to a fragile family.

Thomasgard & Metz (1995) in their review of the VCS literature, call for future research to address risk and protective factors for the development of parental perceptions of child vulnerability (PPCV). Their recommended future research questions include ‘Are there important mother-father differences in PPCV’? McFadyen (1994) also recognises the
need to expand research to include fathers and the wider system in order to take a contextual view of parent-child relationships. Consistent with the transactional model of child development, and fathers direct influence on their children as well as their indirect influence, it is clinically relevant to explore whether fathers have inappropriate perceptions of vulnerability regarding their children born prematurely.

In the context of facilitating family functioning and helping children to reach their full developmental potential, clinical services require further information to facilitate the most useful way of intervening with fathers, and to influence and change any messages of vulnerability which may be inappropriate. Whereas specialised treatment/counselling is offered for mothers of children born prematurely by Adult Mental Health Services in Leicester, there is no comparable service offering psychological support for fathers. ADAPT has also expressed concern that fathers suffer distress, but fail to access the support group, which could mean that they continue to experience distress in isolation.
1.7 Research Questions and Hypotheses

Based on the above review of the literature, the following research questions and hypotheses were generated.

1.7.1 Research Questions:

1. Do fathers perceive their healthy children who were born prematurely to be vulnerable to health problems in the absence of objective evidence of ill health?
2. Are there mother-father differences in perceptions of vulnerability with regard to their children born prematurely?
3. Do fathers' perceptions of vulnerability with regard to their prematurely born children relate to perceptions of their children's temperament and parenting stress?

1.7.2 Research Hypotheses:

1. Fathers of children born prematurely with a very low birth weight, will perceive their children to be significantly more vulnerable than fathers of children born at term with a normal birth weight.
2. Fathers of children born prematurely with a very low birth weight will perceive their children to be significantly less vulnerable than mothers of the same children.
3. There will be significant positive correlations between paternal perceptions of vulnerability, paternal parenting stress and paternal perceptions of child temperament regarding their children born prematurely with a very low birth weight.
2. METHODOLOGY

2.1 Design

A group comparison design involving four groups was used. The groups consisted of fathers of children born with a very low birth weight and mothers of the same children (experimental group), and fathers of children born with a normal birth weight and mothers of the same children (control group). This design made it possible to compare mothers and fathers as well as direct comparison of the very low birth weight and normal birth weight groups.

2.2 Participants

2.2.1 Recruitment

Parents of children born at the Leicester University Hospital Trust were recruited. The Trust has two Neonatal Intensive Care Units, one at the Leicester General Hospital (LGH) (14 cots) and the other at the Leicester Royal Infirmary (LRI) (23 cots). These hospitals serve a population of just under one million in Leicestershire and Rutland.

The participants consisted of: 1.) 24 fathers and mothers of children, aged 12-18 months born with a very low birth weight (<1.5 kg) (<37 weeks gestation) (experimental group); and 2.) 24 fathers and mothers of children, aged 12-18 months born with a normal birth weight (>2.5 kg) (38-42 weeks gestation) (control group).
The research proposal was initially presented to the Consultant Paediatricians serving the Neonatal Intensive Care Units and subsequent to their permission, ethical approval was applied for and granted. Negotiating Consultant Paediatrician and ethical approval, and finding potential participants took approximately six months.

In order to identify potential participants, in the first instance the Units’ discharge letters and books were perused to ascertain preliminary inclusion/exclusion criteria [child’s date of birth, birth weight, discharge date and ethnicity (where obvious from names)]. The files of potential participants were then requested from Medical Records in order to check details not obvious from the first stage of participant identification. This proved a difficult and lengthy process as many files had to be traced and located by the researcher throughout the hospitals in various clinics, wards and outsize records departments.

The files were checked for the children’s current health/developmental status, ethnicity, any identified psychological problems in the parents and whether the child had married or cohabitating parents. A final list of potential participants was presented to the Consultant Paediatricians for consent and confirmation of the children’s current health status. As a final safeguard, immediately prior to sending participant information and invitation letters, the hospitals’ computer filing systems were reviewed in order to ascertain that the children were currently healthy.

Potential participants were sent Letters of Invitation (Appendix 1) and Information sheets about the research (Appendix 2). A reply slip and self-addressed stamped envelope were
enclosed to enable parents to indicate their interest in participating. Due to a very low response rate, reminder telephone calls were made to parents after two weeks. Parents wishing to participate were given the option of meeting the researcher at either hospital or by a home visit. Four sets of parents wished to meet at a hospital venue and the remainder preferred home visits. Home visits were made to parents throughout the large geographical area of Leicestershire and Rutland and with their convenience as a priority, the majority were conducted in the evenings or at weekends.

Availability of eligible participants was affected by a number of factors. Some files could not be traced. Many parents had moved house and new addresses were unavailable. The ethnicity of potential participants (where not obvious from their names) was not always recorded in the files, and these were omitted. Many files did not contain information regarding the presence of children's fathers and therefore had to be excluded. Some now single mothers identified themselves during the following up telephone call.

Some parents not wishing to participate offered reasons such as being too busy, father not interested or away at work, family problems and bad memories of birth/hospital. Three sets of parents dropped out and were not at home for their pre-arranged appointments. Of a total of 115 letters sent to potential participants, 48 families were recruited in total. The overall low rate of recruitment reflects practical constraints and many difficulties specific to conducting research with fathers. Figure i. summarises the data collection procedure.
Figure i.  

**Data Collection Procedure Flow Chart**

**Experimental Group**

- Perusal of discharge letters/books for preliminary inclusion/exclusion criteria
  - No. potential participants:
    - LGH - 27
    - LRI - 42
    - Total - 69

**Control Group**

- Perusal of discharge letters/books for preliminary inclusion/exclusion criteria
  - No. potential participants:
    - LGH - 55
    - LRI - 82
    - Total - 137

- Request, location and perusal of files for remaining inclusion/exclusion criteria
- List of potential participants to Consultant Paediatricians
  - Review of computer filing system
    - Letters sent:
      - LGH - 7
      - LRI - 33
      - Total - 40
      - Reply slips received:
        - LGH - 2
        - LRI - 3
        - Total - 5
      - Reminder telephone calls
      - Number recruited:
        - LGH - 4
        - LRI - 20
        - Total - 24

    - Letters sent:
      - LGH - 24
      - LRI - 51
      - Total - 75
      - Reply slips received:
        - LGH - 3
        - LRI - 2
        - Total - 5
      - Reminder telephone calls
      - Number recruited:
        - LGH - 8
        - LRI - 16
        - Total - 24
2.2.2 Experimental Group

The experimental group consisted of the fathers and mothers of children born prematurely (<37 weeks gestation) with a very low birth weight (<1.5 kg) who had required care on a Neonatal Intensive Care Unit for more than one week subsequent to their birth.

2.2.3 Control Group

The control group consisted of fathers and mothers of children born at term (38-42 weeks gestation) with normal birth weight (>2.5kg), who had spent less than one week on the Neonatal Intensive Care Unit for minor problems such as poor feeding, respiratory or cardiovascular problems. Factors controlled for were therefore prematurity/normal gestation, low birth weight/normal birth weight, illness in the neonatal period and length of time spent in neonatal intensive care (less than one week versus more than one week.)

Inclusion criteria for both groups were as follows: - (1) the children were currently considered to be ‘healthy’ by their Consultant Paediatrician. (i.e. without ‘significant’ illness/chronic disease or disability); and (2) the age range of 12-18 months was chosen as by this age the children’s health needs were considered to have stabilised, and any neurological problems which may develop in the future, would not yet be apparent.

Exclusion criteria for both groups were kept to a minimum but the following criteria were considered essential:

1. Parents of children from ethnic populations: - The measures necessary for the study were standardised on non-ethnic populations and this criteria ensured a
degree of similarity of participants, thus avoiding confounding any research conclusions.

2. Parents who had undergone identified psychological problems:- This was deemed to be a potential confounding factor which may influence parental stress and perceptions. Recent reviews (e.g. Downey & Coyne, 1990) provide evidence for increased risk of child disturbance and parenting difficulty associated with parental psychopathology.

3. Parents not married or cohabiting since the birth of the child:- As the study focused on the family system and was partially concerned with ascertaining gender differences in parental perceptions, it was necessary to recruit matching parents from intact families.

4. Parents of twin or multiple births:- Twin or multiple birth and sequelae were considered to be more stressful and therefore would potentially confound results.

It became apparent from discussions with clinicians and from information revealed in patients files that additional important exclusion criteria were needed:-

- Families where child protection issues or social problems were pertinent or where social services were involved (i.e. care, adoption or fostering issues). These were deemed inappropriate for practical reasons.
• Children identified as 'high risk' by Consultant Paediatricians (e.g. extreme lung disease and history of non-attendance at medical appointments) were considered to be practically and ethically inappropriate.

• Mothers with poor obstetric histories (e.g. miscarriages, stillbirths, multiple termination of pregnancies). It was deemed inappropriate to include these mothers as their medical histories may have influenced their perceptions of their children’s vulnerability and/or feelings of protectiveness towards their children.

• Families whose care had been transferred to hospitals out of region.

• Families with a history of poor relationships with the hospital (e.g. complaints regarding treatment or a record of parents being abusive to staff). It was felt that their likely responses would be compromised.

• Families who had recently been involved in other medical research were deemed unsuitable for ethical reasons.

Demographic data for each group is presented in Table 1. The groups were broadly comparable on demographic characteristics of parent age and socio-economic class based on occupation.
<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Experimental Group - Fathers</th>
<th>Experimental Group - Mothers</th>
<th>Control Group - Fathers</th>
<th>Control Group - Mothers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent age (mean)</td>
<td>33.6 (s.d. 6.3)</td>
<td>30.8 (s.d. 5.9)</td>
<td>32.3 (s.d. 2.7)</td>
<td>30.5 (s.d. 3.2)</td>
</tr>
<tr>
<td>Socio-Economic Class</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional</td>
<td>0% (n = 0)</td>
<td>8% (n = 2)</td>
<td>8% (n = 2)</td>
<td>0% (n = 0)</td>
</tr>
<tr>
<td>Managerial and technical occupations</td>
<td>29% (n = 7)</td>
<td>21% (n = 5)</td>
<td>21% (n = 5)</td>
<td>21% (n = 5)</td>
</tr>
<tr>
<td>Non-manual skilled occupations</td>
<td>8% (n = 2)</td>
<td>25% (n = 6)</td>
<td>8% (n = 2)</td>
<td>29% (n = 7)</td>
</tr>
<tr>
<td>Manual skilled occupations</td>
<td>37.5% (n = 9)</td>
<td>4% (n = 1)</td>
<td>46% (n = 11)</td>
<td>17% (n = 4)</td>
</tr>
<tr>
<td>Partly skilled occupations</td>
<td>17% (n = 4)</td>
<td>8% (n = 2)</td>
<td>17% (n = 4)</td>
<td>8% (n = 2)</td>
</tr>
<tr>
<td>Unskilled occupations</td>
<td>0% (n = 0)</td>
<td>0% (n = 0)</td>
<td>0% (n = 0)</td>
<td>0% (n = 0)</td>
</tr>
<tr>
<td>Army</td>
<td>4% (n = 1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housewife</td>
<td></td>
<td>33% (n=8)</td>
<td></td>
<td>25% (n=6)</td>
</tr>
<tr>
<td>Unemployed</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Based on occupation (HMSO, 1991).
2.3 Ethical Considerations

Ethical approval was given by the Leicestershire Committee on the Ethics of Clinical Research (Appendix 3). Written informed consent was obtained from the Consultant Paediatricians and from all participants prior to data collection. Confidentiality and anonymity was assured according to normal practice and all data was coded. A list of codes was kept separately in accordance with Data Protection guidelines. Participants were made aware of their right to withdraw from the study at any time.

The questionnaires were deemed not to subject participants to any unnecessary stress. However, it was recognised that reflecting on experiences and sequelae to premature birth may be distressing for some parents. Should any participants have been identified as in need of, or have requested professional help they would have been informed of how to access the appropriate Clinical Psychology service.

To make participation ‘user-friendly’, and to maximise participation rates, the measures in this study were chosen to be as short and easy to complete as possible. Convenience of venue to participants was a main priority and the majority chose to be visited in their own homes.
2.4 The Interview Procedure

Parents completed consent forms (Appendix 4), followed by a short semi-structured interview to determine demographic characteristics and to supplement information provided by the questionnaires. Each parent then completed a battery of questionnaires presented in counter-balanced order to minimise order effects. Parents were instructed to complete questionnaires without conferring together to avoid influencing independent responses necessary in order to test the hypotheses. One father in the experimental group required the questionnaires to be read out loud and provided verbal responses as he was unable to read. Upon completion of the questionnaires, parents were offered an opportunity to add comments or ask any questions. The whole procedure lasted for approximately 30-45 minutes.
2.5 Measures

A summary of the measures used in this study is presented in Table 2.

Table 2: Summary of Measures

<table>
<thead>
<tr>
<th>Measure</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semi-Structured Interview (including demographic data)</td>
<td></td>
</tr>
<tr>
<td>Parenting Stress Index (Short Form)</td>
<td>Abidin (1995)</td>
</tr>
<tr>
<td>Toddler Temperament Scale</td>
<td>Fullard, McDevitt and Carey (1984)</td>
</tr>
</tbody>
</table>

2.5.1 Semi-Structured Interview

The semi-structured interview (Appendix 5) was designed to supplement the battery of questionnaires and to provide demographic information. The process of designing the interview involved discussion with clinicians and review of the literature. Information supplementing the battery of questionnaires comprised qualitative comments regarding parents' experiences and their child's medical history. Quantitative information comprised their child's gender, whether the parents worked full-time, part-time or not at all, how many times their child had visited their GP in the last six months (based on Levy, 1980) and whether parents felt they had to take special care of their child. To determine paternal level of caregiving, initially fathers were asked to estimate how often they had participated in caregiving activities in the past week (e.g. feeding, bathing, changing, soothing, putting child to bed, playing) (adapted from a study by Katsch,
1981). As fathers found it impossible to estimate, the question was therefore revised by asking parents if caregiving was carried out mostly by mothers, mostly by fathers or shared.

2.5.2 Vulnerable Child Scale

The Vulnerable Child Scale (VCS) (Appendix 6) was used in this study to measure parents' perceptions of their child's current vulnerability to health problems. The scale contains 16 items reflecting "specific statements of concern about a child's health". In this study for ethical reasons, the word 'punish' was changed to 'control' in item 16.

Responses are scored using a 4-step scale of 0-3 (0 for "Definitely True", 1 for "Mostly True", 2 for "Mostly False", and 3 for "Definitely False"). Items 5 and 9 are worded in the positive direction and are thus reversed before scoring. Scores range from 16-64, with lower scores representing a greater sense of vulnerability.

The VCS was modified by Perrin et al (1989) from Forsyth & Canny's (1985, cited in Perrin et al, 1989) original 12-item Child Vulnerability Scale (CVS), by adding 4 questions and decreasing the response choice of 'neither true or false' to eliminate the possibility of an 'uncertain' response. Forsyth & Canny (1991) administered the CVS to parents of 320 3 ½ year old children. The measure's validity was supported by their finding that mothers of children classified as 'vulnerable' reported more health care visits and phone calls to the paediatrician and more often reported that there had been a time when they feared that their child might die. In a study by Thomasgard, Shonkoff, Metz &
Edelbrock, 1995) the internal reliability of the CVS was .73 and test-retest reliability was .84.

Perrin et al (1989) found the VCS to be a reliable and valid tool when assessing mothers' sense of vulnerability concerning their 3 year old children. Inter-item reliability was .75, with test-retest reliability of .96. The validity of the instrument was supported by a significant correlation with scores on the somatic symptoms subscale of the Personality Inventory for Children (Wirt, Lachar and Klainedienst, 1982, cited in Perrin et al, 1989).

2.5.3 Parenting Stress Index (Short Form)
The Parenting Stress Index (Short Form) (PSI-SF) (Abidin, 1995) contains 36 items and is a direct derivative of the Parenting Stress Index (Long Form), standardised for use with parents of children aged from 1 month to 12 years (Abidin, 1995). The PSI-SF was selected for this study as a valid measure examining parenting stress in the parent-child dyad, which could be administered in less than 10 minutes. The short form captures the primary components of the parent-child system by focusing on the parent, the child and their interactions. These are reflected in the sub-scales of Parental Distress (PD), Parent-Child Dysfunctional Interaction (P-CDI) and Difficult Child (DC). Participants respond to items by circling SA (strongly agree), A (agree), NS (not sure), D (disagree) or SD (strongly disagree).

The PD sub-scale was designed to measure parental distress, experienced in direct relation to the parental role. Components are an impaired sense of parenting competence, stresses associated with restrictions placed on other life roles, conflict with the child’s
other parent, lack of social support, and presence of depression. The P-CDI sub-scale focuses on the parents' perception that their child does not meet their expectations, and that their interactions with their child do not reinforce them as a parent. High scores on this sub-scale would suggest that the parent-child bond is threatened or has never been adequately established. Scores above the 95th percentile suggest potential for child abuse. Finally, the DC sub-scale focuses on basic behavioural characteristics of children that make them easy or difficult to manage. These characteristics often derive from the child's temperament and also learned patterns of behaviour. High scores produced by parents of children below 18 months suggest problems in the child's self-regulation.

The PSI-SF also contains a Total Stress score and a Defensive Responding scale. The Total Stress score indicates overall parenting stress. Abidin (1995) reports that parents obtaining a Total Stress score above a raw score of 90 (at or above the 90th percentile) are experiencing clinically significant levels of stress. The Defensive Responding scale assesses parental biases to presenting the most favourable impression of themselves in the parent-child relationship. This is reflected by extremely low raw scores (of 10 or below).

Abidin (1995) reports test-retest coefficients of .84 for Total Stress, .85 for PD, .68 for P-CDI and .78 for DC. Alpha internal reliability coefficients were .91 for Total Stress, .87 for PD, .80 for P-CDI and .86 for DC. Abidin (1995) claims that as a direct derivative of the full version the PSI-SF shares its validity. Correlates between the PSI-SF and the PSI-LF for a sample of 530 subjects from the long form normative sample were .95 (Total Stress).
2.5.4 Toddler Temperament Scale

The Toddler Temperament Scale (TTS) (Fullard, McDevitt & Carey, 1984) was selected to assess parents' perceptions of their children's temperament, and was developed as an age appropriate version of the Revised Infant Temperament Questionnaire (Carey and McDevitt, 1978). The 97 items consist of six choices ('almost never' to 'almost always') describing the child's current or recent response to everyday situations. Responses collate into nine dimensions of temperament described in Thomas, Chess & Birch (1968, cited in Thomas & Chess, 1980) New York Longitudinal Study (NYLS). Parents also provide general perceptual judgements for each dimension and overall impression of manageability. The directionality of the dimensions is not consistent across them. Therefore, high scores denote high activity, dysrhythmia, withdrawal, slow adaptability, high intensity, negative mood, low persistence, high distractibility, and low threshold.

The TTS was standardised primarily on Euro-American middle class subjects living in the United States. The authors recommend that results be interpreted with caution for special subgroups of individuals or users in specialised settings as standardised norms may not apply. The instrument has satisfactory reliability and validity (Carey & McDevitt, 1989). Reliability of the scales was assessed in the standardisation of the TTS by alpha-internal consistency (.70) and test-retest reliability (.81). Carey & McDevitt (1989) also report coefficients for each sub-scale, which are not cited in the present study.
3. RESULTS

3.1 Method of Analysis

The existing research literature generated research hypotheses, which aimed to explore the experiences of fathers of children born prematurely, in comparison with fathers of children born at term, and in comparison with mothers of premature children. Descriptive and statistical analyses were carried out, but firstly the following preliminary analyses of the research data were made.

Preliminary statistical tests were carried out to establish characteristics of the data and to determine the appropriateness of parametric or non-parametric tests. One sample Kolmogorov-Smirnov tests were carried out on all main outcome variables for each group, to test the assumption of normal distribution of variables in the population from which the samples were drawn (Kinnear and Gray, 1997). The frequency distribution of the children’s age was examined graphically and using a calculation of skewness, found to be negatively skewed, although this analysis was not significant (skewness = -.52, P<.05). Therefore parametric analyses were appropriate for most variables. Levene’s tests used to test the assumption of homogeneity of variances also revealed no significant differences, which suggested that the data were suitable for parametric analysis.
3.2 Descriptive and Explorative Analysis

Having ensured that the data were appropriate for parametric analysis, the next step was to compare the samples in terms of relevant background variables (interval) (see Table 3). Differences between the experimental and control groups were examined using an independent groups t test. There were no significant differences between the ages of fathers between groups ($t = -.94$, d.f. = 46, n.s.), nor between the ages of mothers between groups ($t = -.24$, d.f. = 46, n.s.).

The significant Kolmogorov-Smirnov test for the variable of child age makes the use of the $t$ test to compare groups problematic. However, with numbers of 24 in each group any distortion is likely to be small, and the fact that comparing experimental and control groups for the child’s age using the $t$ test is by no means close to significance, ($t = .47$, d.f. = 46, n.s.) can safely be taken to indicate a lack of significant difference between groups for this variable.

Table 3: Background Variables (Interval) - Means and Standard Deviations

<table>
<thead>
<tr>
<th>Variable</th>
<th>Experimental Group</th>
<th>Control Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
</tr>
<tr>
<td>Age of Fathers (years)</td>
<td>33.70 (6.40)</td>
<td>32.33 (2.71)</td>
</tr>
<tr>
<td>Age of Mothers (years)</td>
<td>30.83 (5.92)</td>
<td>30.50 (3.23)</td>
</tr>
<tr>
<td>Age of Child (months)</td>
<td>15.63 (2.32)</td>
<td>15.92 (1.95)</td>
</tr>
<tr>
<td>Birth weight of Child (Kg)</td>
<td>1.13 (.27)</td>
<td>3.61 (.55)</td>
</tr>
<tr>
<td>Time on NICU (weeks)</td>
<td>8.06 (5.80)</td>
<td>&lt;1.00</td>
</tr>
</tbody>
</table>
Pearson’s chi square tests were used to ascertain any differences between the categorical background data presented in Table 4. Variables showing significant differences according to the chi square test were examined using a measure of association (Cramer’s V). Significant differences were found for two variables only:— Significantly more fathers of children born prematurely felt that they had to take special care of their child ($\chi^2 = 4.55$, d.f. = 1, $P<.05$, 1-tailed test; Cramer’s $V = .31$, $P<.05$) and there were significantly fewer full-time working mothers of children born prematurely ($\chi^2 = 7.53$, d.f. = 2, $P<.05$; Cramer’s $V = .40$, $P<.05$).

Gender of the child in the experimental and control groups was not found to be significantly different ($\chi^2 = .75$, d.f. = 1, n.s.). Research has found that first children are more likely to be perceived as vulnerable (Perrin et al, 1989), therefore in order to complete the analysis birth order was categorised into 2 groups (1st and 2nd-4th child), and no significant differences were found between groups ($\chi^2 = .78$, d.f. = 1, n.s.). There were no significant differences between groups regarding the number of times the child had seen their G.P. in the last six months (0-1 times and 2-8 times) ($\chi^2 = .36$, d.f. = 1, n.s.), and regarding mothers feelings that they had to take special care of their child ($\chi^2 = 3.42$, d.f. = 1, n.s.). Differences between the groups regarding caregiving were not significant ($\chi^2 = 4.33$, d.f. = 2, n.s.), and there were no significant differences between groups regarding number of hours worked by fathers ($\chi^2 = 2.00$, d.f. = 2, n.s.). However, 2 cells regarding caregiving and 4 cells regarding number of hours worked by fathers had expected values of $<5$ and chi square can be unreliable in these circumstances. Further
analysis was therefore carried out on the caregiving variable by combining ‘mostly fathers’ and ‘shared’, as these groups indicate that fathers are at least equally involved in caregiving. The experimental group had significantly more fathers who were at least equally involved in caregiving ($\chi^2 = 20.17$, d.f = 1, P<.001) than the control group. Regarding number of hours worked by fathers, visual inspection of the data would strongly suggest that as most fathers in both groups worked full-time there would be no significant differences between groups.
Table 4: Background Variables (Categorical) – Frequencies

<table>
<thead>
<tr>
<th>Variable</th>
<th>Experimental Group (n=24)</th>
<th>Control (n=24)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>54.17% (n=13)</td>
<td>41.67% (n=10)</td>
</tr>
<tr>
<td>Male</td>
<td>45.83% (n=11)</td>
<td>58.33% (n=14)</td>
</tr>
<tr>
<td>Birth order</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>66.67% (n=16)</td>
<td>54.17% (n=13)</td>
</tr>
<tr>
<td>2</td>
<td>8.33% (n=2)</td>
<td>29.17% (n=7)</td>
</tr>
<tr>
<td>3</td>
<td>16.67% (n=4)</td>
<td>16.67% (n=4)</td>
</tr>
<tr>
<td>4</td>
<td>8.33% (n=2)</td>
<td>0% (n=0)</td>
</tr>
<tr>
<td>Child GP visits in six months</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>8.33% (n=2)</td>
<td>20.83% (n=5)</td>
</tr>
<tr>
<td>1</td>
<td>25% (n=6)</td>
<td>20.83% (n=5)</td>
</tr>
<tr>
<td>2</td>
<td>29.17% (n=7)</td>
<td>25% (n=6)</td>
</tr>
<tr>
<td>3</td>
<td>16.67% (n=4)</td>
<td>12.5% (n=3)</td>
</tr>
<tr>
<td>4</td>
<td>0% (n=0)</td>
<td>4.17% (n=1)</td>
</tr>
<tr>
<td>5</td>
<td>4.17% (n=1)</td>
<td>8.33% (n=2)</td>
</tr>
<tr>
<td>6</td>
<td>12.5% (n=3)</td>
<td>8.33% (n=2)</td>
</tr>
<tr>
<td>8</td>
<td>4.17% (n=1)</td>
<td>0% (n=0)</td>
</tr>
<tr>
<td>Fathers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Special care of child</td>
<td>33.33% (n=8)</td>
<td>8.33% (n=2)</td>
</tr>
<tr>
<td>No special care of child</td>
<td>66.69% (n=16)</td>
<td>91.67% (n=22)</td>
</tr>
<tr>
<td>Mothers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Special care of child</td>
<td>29.17% (n=7)</td>
<td>8.33% (n=2)</td>
</tr>
<tr>
<td>No special care of child</td>
<td>70.83% (n=17)</td>
<td>91.67% (n=22)</td>
</tr>
<tr>
<td>Caregiving</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mostly Mother</td>
<td>16.67% (n=4)</td>
<td>41.67% (n=10)</td>
</tr>
<tr>
<td>Mostly Father</td>
<td>4.17% (n=1)</td>
<td>0% (n=0)</td>
</tr>
<tr>
<td>Share</td>
<td>79.17% (n=19)</td>
<td>58.33% (n=14)</td>
</tr>
<tr>
<td>Paternal working hours</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>4.17% (n=1)</td>
<td>0% (n=0)</td>
</tr>
<tr>
<td>Part-time</td>
<td>0% (n=0)</td>
<td>4.17% (n=1)</td>
</tr>
<tr>
<td>Full-time</td>
<td>95.83% (n=23)</td>
<td>95.83% (n=23)</td>
</tr>
<tr>
<td>Maternal working hours</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>33.33% (n=8)</td>
<td>20.83% (n=5)</td>
</tr>
<tr>
<td>Part-time</td>
<td>33.33% (n=8)</td>
<td>70.83% (n=17)</td>
</tr>
<tr>
<td>Full-time</td>
<td>33.33% (n=8)</td>
<td>8.33% (n=2)</td>
</tr>
</tbody>
</table>
Health Problems Experienced in the Neonatal Period by Children born Prematurely

Health problems experienced in the neonatal period by children born prematurely, as reported by parents are presented in Appendix 7. None of the children in the control group had experienced any significant health problems according to parental report.

3.3 Research Hypotheses

3.3.1 Hypothesis 1:
Fathers of children born prematurely with a very low birth weight will perceive their children to be significantly more vulnerable than fathers of children born at term with a normal birth weight.

An independent samples $t$ test indicated that there was no significant difference between the mean scores of fathers of children born prematurely and fathers of children born at term on the VCS ($t = -1.30$, d.f=46, $P > .05$). However, examination of the power of this statistic indicates that the sample size does not give adequate power to protect against Type II errors. [Effect size (between groups) = .17, power = .31, alpha = 0.05, 1-tailed test]. To achieve power of .8, 90 participants would be required in each group (Clark-Carter, 1997). Table 5 presents mean scores and standard deviations for each group and the results are presented graphically in Figure ii. It should be noted that low scores on the VCS represent a higher perception of vulnerability.

Although there were no significant differences between VCS scores of fathers in the experimental and control groups, the chi square test indicated that significantly more
fathers of children born prematurely felt that they had to take special care of their child
($\chi^2 = 4.55$, d.f. = 1, $P<.05$, 1-tailed test; Cramer’s $V = .31$, $P<.05$).

Table 5: **Vulnerable Child Scale–Mean Scores and Standard Deviations**

for each Group

<table>
<thead>
<tr>
<th>Measure</th>
<th>Experimental Group (n=24)</th>
<th>Control Group (n=24)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vulnerable Child Scale (VCS)</td>
<td>Fathers</td>
<td>Mothers</td>
</tr>
<tr>
<td></td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
</tr>
<tr>
<td>Fathers</td>
<td>51.87 (5.77)</td>
<td>52.96 (7.06)</td>
</tr>
<tr>
<td>Mothers</td>
<td>52.96 (7.06)</td>
<td>54.12 (6.32)</td>
</tr>
</tbody>
</table>

Figure ii: **Graph showing Vulnerable Child Scale Mean Scores for each Group**

NB: Standard Deviations are shown in Table 5 above
3.3.2 **Hypothesis 2:**

Fathers of children born prematurely with a very low birth weight will perceive their children to be significantly less vulnerable than mothers of the same children.

An independent samples $t$ test indicated that there was no significant difference between the mean VCS scores of fathers and mothers of children born prematurely ($t = -.582$, d.f =46, $P > .05$), as can be seen in Table 5 and Figure ii. above. The power of this statistic indicates that the sample size does not give adequate power to protect against Type II errors (Effect size = .17, power =.15). 400 participants would have been required to achieve power of .8 (Clark-Carter, 1997).

For a more detailed analysis, a two-way Analysis of Variance (ANOVA) was conducted which found that neither membership of group nor sex of parent had any significant effect on parents’ ratings of vulnerability [(between groups $F(1,92) = 3.47$, $P = .07$); between parents $F(1,92) = .87$, n.s.), and interaction between groups and between parents $F(1,92) = 0.004$, n.s.]. The power of this statistic indicates that the sample size does not give adequate power to protect against Type II errors [Eta Squared = .036, power = .45, alpha = 0.05]. 300 participants would be required to achieve power of .8 (Clark-Carter, 1997).
3.3.3 **Hypothesis 3:**

There will be significant positive correlations between fathers' perceptions of vulnerability, paternal parenting stress and paternal perception of child temperament regarding their children born prematurely with a very low birth weight.

Pearson correlation coefficients were calculated between VCS scores of fathers in the experimental group and the PSI subscales and between the VCS scores and the TTS subscales. There were significant inverse correlations between scores of fathers of children born prematurely on measures of perceptions of vulnerability, all parenting stress subscales and the toddler temperament subscale of mood, showing that high perceptions of vulnerability correlated with high parenting stress and with negative perceptions of children's mood. There were no significant correlations between VCS scores and any other toddler temperament subscale.

Significant correlations are presented in Table 6. Means and standard deviations for the PSI-SF and the TTS are presented in Appendices 8 and 9.

As a supplementary analysis, correlations were calculated for fathers in the control group and for mothers in the experimental group. For fathers in the control group significant inverse correlations were found between perceptions of vulnerability, parenting stress subscales of parental distress, difficult child, defensive responding and total stress, and
toddler temperament subscales of mood, adaptability and distractibility (see Table 6).

These results show that high perception of vulnerability correlated with high parenting stress (with the exception of stress related to parent-child difficult interaction) and with perception of negative mood, non-adaptability and high distractibility regarding paternal perception of child temperament. There were no significant correlations between the scores of mothers in the experimental group.

Table 6: *Pearson Correlation Coefficients (r) showing Correlations between Parents scores on the Vulnerable Child Scale, Parenting Stress Index (Short Form) and Toddler Temperament Scale*

<table>
<thead>
<tr>
<th>Measure</th>
<th>VSC Score Fathers Experimental Group</th>
<th>VCS Score Fathers Control Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parenting Stress Index-Short Form</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parental Distress (PD)</td>
<td>-.65**</td>
<td>-.41*</td>
</tr>
<tr>
<td>Parent-Child Dysfunctional Interaction (P-CDI)</td>
<td>-.67**</td>
<td>-</td>
</tr>
<tr>
<td>Difficult Child (DC)</td>
<td>-.41*</td>
<td>-.57**</td>
</tr>
<tr>
<td>Defensive Responding (DR)</td>
<td>-.53**</td>
<td>-.41*</td>
</tr>
<tr>
<td>Total Stress</td>
<td>-.70**</td>
<td>-.51*</td>
</tr>
<tr>
<td>Toddler Temperament Scale</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mood</td>
<td>-.40*</td>
<td>-.45*</td>
</tr>
<tr>
<td>Adaptability</td>
<td>-</td>
<td>-.47*</td>
</tr>
<tr>
<td>Distractibility</td>
<td>-</td>
<td>-.42*</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)
Defensive Responding (DR) on the PSI-SF

A score of 10 or below on the PSI-SF may indicate possible bias to present a favourable impression, or to minimise stress in the parent-child relationship. In the experimental group, 3 fathers and 4 mothers had DR scores of 10 or below. In the control group, 3 fathers and 7 mothers had DR scores of 10 or below. Since it was not practical to remove these participants for the purpose of analysis, they were included in all statistical tests. This matter will be addressed further in the discussion.
4. DISCUSSION

4.1 Overview

The early relationship between parents and children born prematurely develops in a stressful context, and anxiety following premature birth is frequently heightened by warnings from professionals about the dangers of infection. This may have a ‘knock-on’ effect on how parents view their child, so that some parents continue to perceive their healthy children who were born prematurely to be excessively vulnerable to health problems. The clinical concern underlying the current study was that parental perception of their children’s vulnerability to infection was influencing the extent to which the children were exposed to normal activities involving other children. As parents are very stressed following premature birth, but only mothers are offered intervention, the NICUs were concerned to identify fathers who may be distressed due to inappropriate worries and/or the impact of sequelae of premature birth on the family.

Child development occurs in a transactional context and requires continuing adaptation by parents (Sameroff, 1993, Sroufe, 1990, cited in Davies, 1999). Interdependence amongst roles and functions in the family system mean that paternal perceptions have a direct effect on the child as well as an indirect effect by modifying and mediating maternal perceptions (Parke & Anderson, 1987). Risk factors with potential to influence children’s resilience include ‘difficult’ temperament (Thomas & Chess, 1980), but consistent with the transactional model, parental perceptions of child temperament may be partially determined by their own working models or stress (Lyon-Ruth & Zeanah, cited in Davies, 1999). Parental perception of vulnerability to health problems which
persists despite a lack of objective evidence may interact with perceptions of child temperament and parenting stress and have a negative impact on child outcome.

There is evidence that many mothers have distorted perceptions and negative expectations of premature infants (e.g. Stern & Hildebrandt, 1984, 1986), but little is known about paternal perceptions, although it has been suggested that their reactions may be similar in kind, but less strong than mothers (Herbert, 1999). If fathers are also inappropriately worried, this may have a direct effect on their own interaction with their children, and an indirect effect by compromising their supportive role to mothers. Therefore, in the context of facilitating family functioning and helping children to fulfil their developmental potential, research hypotheses derived from clinical concerns and the literature were:- (1) fathers of children born prematurely would perceive their currently healthy children to be more vulnerable than fathers of full term children; (2) fathers of children born prematurely would perceive their currently healthy children to be less vulnerable than mothers of the same children; and (3) paternal perceptions of vulnerability regarding their children born prematurely would be related to paternal perception of child temperament and paternal parenting stress.

The following chapter summarises the results in terms of each research hypothesis, considers the research findings in relation to previous literature, discusses qualitative information followed by a critique of the Vulnerable Child Syndrome and discussion of limitations of the present study. Finally, the discussion focuses on suggestions for future research and clinical implications of the current study.
4.2 Summary of Results in Terms of Research Hypotheses

4.2.1 Hypothesis 1

Fathers of children born prematurely with a very low birth weight, will perceive their children to be significantly more vulnerable than fathers of children born at term with a normal birth weight.

The hypothesis that fathers of children born prematurely will perceive their children to be significantly more vulnerable than fathers of children born at term was not confirmed according to scores on the Vulnerable Child Scale (VCS) (Perrin et al, 1989). The results show therefore that this sample of fathers did not perceive their currently healthy children who were born prematurely to be inappropriately vulnerable to health problems. This result is supported by the finding that there were no significant differences between groups regarding the number of times children had seen their GP in the last six months, consistent with previous literature which has found a relationship between increased perceptions of vulnerability and healthcare usage (Levy, 1980). However, rejection of the hypothesis is at variance with the finding that significantly more fathers felt that they had to take special care of their children who were born prematurely. There was also a non-significant trend of fathers in the experimental group having a lower mean score on the VCS (indicating higher perceptions of vulnerability) than fathers in the control group.
4.2.2 Hypothesis 2

Fathers of children born prematurely with a very low birth weight will perceive their children to be significantly less vulnerable than mothers of the same children.

The hypothesis that fathers of children born prematurely with a very low birth weight will perceive their children to be significantly less vulnerable than mothers of the same children was not confirmed. The results indicate that there are no gender differences in terms of parental perception of child vulnerability although there was a non-significant trend of fathers achieving a lower mean score (i.e. showing higher perceptions of vulnerability) than mothers in the experimental group.

4.2.3 Hypothesis 3

There will be significant positive correlations between fathers' perceptions of their children born prematurely with a very low birth weight, paternal parenting stress and perceptions of child temperament.

There were significant inverse correlations between scores of fathers of children born prematurely with a very low birth weight on measures of perceptions of vulnerability, parenting stress and perception of negative mood as measured by the Toddler Temperament Scale. These results show that high perceptions of vulnerability correlate with high parenting stress and with negative perceptions of children's mood. However, vulnerability scores did not correlate with any other toddler temperament dimension.
associated with 'difficult children' (low rhythmicity, approachability, adaptability and high intensity) (Thomas & Chess, 1980).

By means of comparison, for fathers in the control group, there was a significant inverse correlation between perceptions of vulnerability, parenting stress (with the exception of parent-child difficult interaction) and perception of mood, adaptability and distractibility with regards to their children’s temperament. These results indicate that there was a relationship between perception of greater vulnerability, parenting stress (with the exception of parent-child difficult interaction) and perception of negative mood, non-adaptability and high distractibility regarding child temperament. No significant correlations were found for mothers in the experimental group. This is contrary to research findings that maternal perceptions of vulnerability may be exacerbated in the context of family stress (Levy, 1980, Perrin et al, 1989). The results suggest that overall, fathers have different perceptions from mothers of their children’s temperament in relation to stress and perceptions of vulnerability.
4.3 Research Findings in Relation to Previous Literature

Hypothesis 1

Fathers of children born prematurely with a very low birth weight, will perceive their children to be significantly more vulnerable than fathers of children born at term with a normal birth weight.

The results of this study show that fathers of children born prematurely do not have greater perceptions of their children's vulnerability than fathers of controls. This may not only be a partial indication of optimal adjustment which would influence direct interaction with their children, but may enable fathers to fulfill their supportive role to mothers. Consistent with the transactional model, lack of paternal worries would serve as a protective factor by enabling fathers to modify and mediate any distorted maternal beliefs. However, visual analysis of the data shows a trend of fathers of premature children having higher perceptions of vulnerability, and failure to find significant effects may reflect the limited power of the study. This is discussed later with regards to limitations of the study.

The null hypothesis was not rejected by the finding that there were no significant differences between the experimental and control groups regarding the number of times children had visited their GP in the last six months. The results do not confirm suggestions that paternal perceptions of vulnerability explain fathers' lower interaction with premature infants, and that fathers of premature infants engaged them in fewer, shorter and less arousing games (Harrison & Magill-Evans, 1996; Yogman, 1987).
Hypothesis 2

Fathers of children born prematurely with a very low birth weight will perceive their children to be significantly less vulnerable than mothers of the same children.

The finding that there were significantly more working mothers in the experimental group than in the control group is interesting when considered in combination with the lack of significant gender differences in terms of perceptions of vulnerability. It is possible that as argued by Herbert (1999), as parental roles become more homogeneous, similarities of fathers’ and mothers’ feelings and responses may outweigh differences. However, clinical observations and reports from parents met informally at an ADAPT social gathering suggest that following premature birth and sequelae, fathers cope in different ways to mothers. These coping styles appear to mirror gender stereotypes where mothers seek to communicate with their partners, and fathers immerse themselves more practically in the role of breadwinner. Their style of coping is often not compatible with maternal needs. The fact that more of the mothers worked in the experimental group may suggest that some mothers also immerse themselves in the world of work in order to cope.

Previous research has found that fathers may be less affected by the premature birth of their children (Affleck et al, 1991), explained partially by less paternal involvement in care-giving (Parke, 1984, cited in Parke & Anderson, 1987). However, the present research suggests that when fathers share caregiving, their perceptions become more
similar to the views of their partners. Obviously, the present research is based on too small a sample for this observation to be anything more than tentative but if confirmed, then there are considerable clinical implications that stem from this observation.

**Hypothesis 3**

*There will be significant positive correlations between fathers' perceptions of their children born prematurely with a very low birth weight, paternal parenting stress and perceptions of child temperament.*

The interpretation that lower paternal perceptions of vulnerability may enable them to fulfill their supportive role to mothers is supported by the finding that there was no relationship between maternal perceptions of vulnerability, stress and toddler temperament in the experimental group. However, there was a relationship between these three factors for fathers in the experimental group. The results show that more fathers in the experimental group are at least equally involved in caregiving, whilst 95.83% of fathers work full-time in comparison to 33.33% of mothers. Therefore, fathers share caregiving as well as sustaining full-time employment. There were also significantly more full-time working mothers in the experimental group than in the control group. A significant relationship has been found between maternal employment status and paternal stress (McBride, 1989). McBride (1989) suggested that this could be due in part to increased role demands placed on fathers as mothers enter the work force. Mothers have always been subject to the stresses associated with multiple role demands, and McBride (1989) claims that the roles of fathers have been changing as the societal expectations for paternal involvement have increased. It is likely that societal changes
explain why at least equal caregiving was found in the current study, in contrast to Parke's (1984, cited in Parke & Anderson, 1987) finding that mothers of premature and full term children were consistently more involved in caregiving than fathers throughout the first 12 months.

The finding that there was a correlation between paternal perceptions of vulnerability of children born prematurely and parenting stress scores, but not between paternal perceptions of vulnerability and the majority of characteristics associated with 'difficult temperament' indicate that negative perceptions of child temperament may be independent of parenting stress. This is inconsistent with research that shows parental perceptions of child temperament may be partially determined by parents own working models and stress (Parke & Anderson, 1987). Although the results show a relationship between paternal perceptions of vulnerability and parenting stress, they do not differentiate between cause and effect with regards to stress. Parents may be stressed because they have higher perceptions of vulnerability or on the other hand may have higher perceptions of vulnerability because they are stressed.
4.4 Qualitative Information

The process of conducting this research project involved the researcher initially meeting informally with parents of children born prematurely, to ascertain issues pertinent to them and to help generate hypotheses. At a social gathering organised by ADAPT, and attended by some thirty parents, the researcher spoke directly with eight fathers. Fathers expressed concern with the enormous impact of the premature birth of their child on family life and marital relationships. Fathers felt expected to cope, reassure and support their partners and other family members. They explained that stress was intensified by feelings of isolation, jealousy, loss of control and lack of a clear role. Practical issues related to maintaining employment whilst travelling to and from and spending huge amounts of time on the Neonatal Units were also prominent, and many fathers felt that paternity leave was wholly inadequate. These informal comments indicate that the impact of premature birth affects both parents.

In a qualitative study of parents of premature infants, Tracey (2000) states that ‘A father with an infant in neonatal intensive care lives in fear of his infant’s death: his baby in a machine instead of the protection of his partner’s womb; he has no sensory contact with his infant; and he has a seriously distressed partner to hold and support. The father of a premature infant has no space for his own feelings and needs, everything being focused on his partner and baby. He has to communicate with the staff about his infant. He may also have to sustain his position in the workforce. Rarely is his role seen as anything more than an adjunct to that of his partner’ (p.140).
The semi-structured interview provided an opportunity for fathers to comment on the impact of the premature birth of their children. Some of their comments illustrate the stressful context of development of early relationships with their children:

"I took a month off for stress at the time"

"I found the whole situation very stressful and took it worse than (my wife) ... working full time, worrying about (my wife) and child, travelling to NICU; I was all over the place".

"There were so many stresses ... fitting in hospital visits after work, paying for fuel, getting back and forth, dealing with the rest of the family".

In addition, some fathers indicated that they felt unsupported whilst their child was on the NICU:

"I felt like a spare part and was not talked to by staff".

"I asked to talk to someone and no-one came. We didn’t know how to talk to each other or anyone. We blamed each other. I felt helpless".

The following narrative, whilst not analysed rigorously, is included in full as it provides a poignant illustration of the longer-term impact of premature birth on both parents:
Background: This child was born weighing just .65 kg. She had heart problems, and was resuscitated following a cardiac arrest at 3 days old. This child had a lung infection, streptococcus b., and an eye operation at 3 months. She has chronic lung disease, received oxygen and oscillation for 2 weeks and was ventilated for 6-7 weeks. On one occasion her parents were told that life support machines would have to be turned off, but her health then improved. Her parents describe her as a ‘miracle baby’.

Father – “I’m still paranoid. I’m ultra careful that she is okay and check her frequently for the smallest change. I’m much more worried than (mother)”.

Mother – “We’ve been too frightened to hand her over to day-care until recently. Because of her lungs we were told by the nurse that if she caught anything or got a lung infection she would have to be readmitted to NICU”.

Father – “I have a lot of ‘baggage’ because of her birth and our experience in hospital. I’ve had to learn to cope with strong emotions. I don’t think I will get over it for a long time. It’s hard to think back to it. I can’t look at photos. My outlook to life has changed. I don’t want to be away from my family or do my own thing. I’m not interested in other people as I used to be. We have been out twice since her birth and we missed her. We so nearly lost her”.

Mother – “I resented going back to work and can’t stand being away from her”.
Father - “I desperately wanted to get back to work – I had ‘cabin fever’. I’m now less worried because she has been well. My main worry is about her development and that something will be wrong with her. I brought a book about premature babies and potential problems. I feel wary about talking about it in front of (mother). My awareness of potential threats – I’ve been worried and proven wrong. There was a stage where I was worried about brain damage. I know it is too early to tell because of what I have read. I don’t see her as being totally perfect – that assurance will come nearer school age. I have learnt to accept, wait and see and enjoy her as she is – not expecting problems but being ready for them if they come. It has caused some tension between us. We’ve had arguments about the right to say what we feel. One of us feels something and the other person doesn’t – it’s just emotional. It’s always about expression of concern about the baby, and about how we perceive each other. When I say how I feel I feel like the villain – horrible, when all I’m saying is that I’m worried”.

Mother - “In hospital I went to pieces and (father) was really strong. I can’t bear him to acknowledge that she might be ill. I want to put it behind me”.

Father – “But I think it’s dangerous to ignore illness and get angry with (mother). Having a counsellor to explain feelings to might help. I wouldn’t go though because I believe you have to live through these experiences. Go through the pain – you’ll still feel it – you can’t talk it out, the pain just dies over time. You survive. I was off work for three months and am only now adjusting. The whole experience has had a profound effect on me”.

65
This family welcomed the opportunity to talk about their experiences and both parents were exceptionally articulate in expressing their emotions. The interview illustrates paternal perceptions of vulnerability and their impact on this father’s behaviour regarding his own separation from his child. The interview further illustrates the impact of premature birth on the parental dyad. Differences between the parent’s feelings are a source of friction in their relationship as the father ‘feels like a villain’ for expressing concern and becomes angry as he thinks it is ‘dangerous to ignore illness’ whilst the mother ‘wants to put (it) behind her’. It seems unlikely that this father supports his partner by moderating her own perceptions of vulnerability.

The experiences of this family highlight the variation in severity of neonatal illness (see Appendix 7). Whilst some children born prematurely were admitted to the NICU for feeding/growth, others experienced life-threatening events. During the semi-structured interview, parents of children who had undergone relatively minor problems expressed less concern than parents of children who had experienced major problems. This issue is addressed further in the next section, which focuses on limitations of the study.

These qualitative comments support trends in the results, which suggest that both fathers and mothers perceive their children born prematurely to be vulnerable to health problems. The comments add depth to the results and suggest that only a portion of parental experiences, particularly regarding interpersonal/transactional factors can be captured quantitatively. This issue is addressed in the section regarding suggestions for future research.
4.5 Critique of the Vulnerable Child Syndrome

Any theoretical analysis has to assume that parental perceptions of vulnerability/attitudes translate directly into specific types of child-rearing behaviour (Scheiner et al, 1985), and this section reviews evidence which suggests that inappropriate perceptions of vulnerability (parental beliefs) may be independent of overprotective parental behaviour.

In a critical review of the literature, Thomasgard & Metz (1995) recognise that the mechanisms by which parental perceptions are translated into behaviours that mediate child development are poorly understood. In Thomasgard et al's (1995) study of 892 parents, only 20% of those parents who considered their child vulnerable were also considered overprotective. The authors conclude that parental overprotection is independent of parental perception of child vulnerability to illness or injury despite their presumed inter-changeability. Heightened concerns about a child's vulnerability to illness are not automatically associated with the separation difficulties, excessive control and interference with emerging independence that characterise the overprotective parent (Thomasgard et al, 1995). Similarly, not all over-protective parents are excessively anxious about vulnerability to illness. The roots of overprotective parenting have been traced to the parent's own childhood rather than to the child's medical history. Parental overprotection, which is viewed as a risk factor for anxiety disorders and depression, may be passed from one generation to the next (Parker, 1983, cited in Thomasgard et al, 1995).
Research by Scheiner et al (1985) also suggests a need to reassess the relationship between prematurity and psychological sequelae associated with the Vulnerable Child Syndrome. Scheiner et al, 1985 criticises early studies (e.g Green & Solnit, 1964) as being largely descriptive, not including control groups and not being clear about how subjects were chosen. Scheiner et al (1985) found that mothers of low birth weight infants were neither more depressed nor more overprotective than a matched group of mothers of normal birth weight infants. Scheiner et al’s (1985) findings are consistent with a study by Trause & Kramer (1983) which showed that parents were appropriately most distressed shortly after the birth of their premature infant (at one month) but the majority went on to recover without emotional sequelae (at seven months). Both Scheiner et al (1985) and Trause & Kramer (1983)’s research designs included control groups and excluded children manifesting developmental impairments. These studies are further supported by McCormick, Brooks-Gunn, Workman-Daniels & Peckham’s (1993) prospective cohort study of 1877 children aged 8-10 years. McCormick et al (1993) concluded that parental rating of current child health and resistance or susceptibility to illness were associated with current child health problems, not events in infancy including low birth weight. These studies are not consistent with Green & Solnit’s early emphasis on the persistence of emotional symptomatology in mothers, which altered how she subsequently related to her child.

It seems plausible that the VCS goes beyond having a child with a life-threatening illness or parents receiving misinformation regarding the survival of their children (Scheiner et al, 1985). Various hypotheses have been postulated in an attempt to disentangle the
complex interactions amongst child and parent variables that may lead to perceptions of vulnerability and/or overprotectiveness. These include the following:- Thomasgard et al (1995) suggested that a history of previous salient losses or threats to important attachments may be a contributory factor. This hypothesis was supported by their finding that parents who experienced the death of a relative or close friend around the time of pregnancy or birth of the sample child were more likely to view their child as vulnerable. Thomasgard et al (1995) also recognised that the child’s contribution to the parent-child relationship includes his temperament, developmental competencies, past health history and present health status. Consistent with the transactional model (Sameroff & Chandler, 1975), parents contribute their own temperamental style as well as values regarding the parenting role, and memories of their own childhood experiences.

Culley, Perrin & Chaberski, (1989) describe a similar process involved in the development of the VCS (illustrated below), and recognise the contribution of factors such as parental personality and family characteristics. Their model is presented as a heuristic to aid understanding, and further detail regarding the relevant factors is not provided here.

Real or imagined life threatening event

Parental personality ↓ Family characteristics

Altered perception by parent of child’s health and development

Disturbance in parent-child relationship and altered psychosocial development of child

Vulnerable Child Syndrome
A final significant criticism of the VCS literature is that if parental over-protection is independent of perceptions of vulnerability of children born prematurely, then such perceptions may in fact be adaptive as infants born prematurely are at risk of later health or developmental problems. Estroff et al (1994) stress the distinction between real and imaginary outcomes. They argue that ‘a basic tenet of the VCS is that distorted perceptions of a child’s vulnerability will lead to actual maladaptive behaviour change in the parent-child relationship (p.711). Given this assumption, at some point in time the parents concern about their child’s wellbeing may become an accurate reflection of reality, or distortions may persist without any negative change in behaviour.

In summary, Green (1986), (one of the authors of the original 1964 VCS research) discusses the VCS and its variants and concludes that ‘the complex conditions encompassed by the term VCS cannot be characterised simply, because of the many factors that influence its manifestations and the variability of its symptomatology’ (p.75).
4.6 **Limitations of the Current Study**

The following section discusses limitations of the study, which may help to provide explanations for some of the unexpected results. Improvements to the study are suggested in view of some of the limitations.

4.6.1 **Sample**

It is possible that parents who agreed to participate in the study felt able to do so because they were not experiencing inappropriate perceptions of their children’s vulnerability and were not excessively stressed. Many parents who agreed to participate referred to past successful interactions with medical professionals and commented that they ‘wanted to give something back’ because of how helpful NICU staff had been. Parents who did not agree to participate may have already been stressed and therefore declined to participate because of the further demand on their time. Indeed this was highlighted by some parents’ comments that they declined to participate because of family problems, bad memories of NICU or the birth of their child. Families with child protection issues or social problems, a history of repeated non-attendance for their children’s medical follow-ups or a history of poor relationships with the hospitals had to be excluded and are likely to be the very families who are stressed or considered at risk.

Children born prematurely form a highly heterogeneous population in terms of health problems and treatment in the neonatal period. The results of this study show that there was huge variation in the sample, ranging from feeding/growth to life-threatening conditions. Corresponding time spent on NICUs ranged from two to eight weeks, with
birth weights ranging from a mere .65 kg to 1.5 kg. It is therefore highly likely that perceptions of vulnerability may correlate with severity of neonatal problems, as found by Perrin et al (1989). The current study could be improved by considering degree of severity of neonatal illness (low, medium and high) and corresponding time spent on the NICU.

Overall, the sample used in this study had relatively high socio-economic status, and a mean age of over 30. Research has found families of lower socio-economic status have more perceptions of their children's vulnerability than families in upper socio-economic status groups as do younger parents (Thomasgard, 1995). Research has shown that many premature babies are born to young, often single mothers with low socio-economic status (O'Brien et al, 1995). As this study aimed to explore the experiences of fathers, intact families were selected but it is recognised that substantial numbers of children are brought up in families without a biological father. It is recognised that due to practical constraints, the sample size in the study was relatively small and therefore the results should be interpreted with caution as they may not be representative of a larger population of parents of children born prematurely.

It is further recognised that excluding ethnic minorities was prudent in terms of design of the current study, but this omission does not reflect the reality of Leicester's multi-ethnic population.
4.6.2 Measures

4.6.2.1 Semi-Structured Interview

Parents completed the questionnaires independently without conferring with each other, and in the presence of the researcher. The semi-structured interview was conducted with both parents present to ascertain demographic data pertinent to the family as a whole, and to gather information supplementary to the questionnaires. It is possible that the answers to two questions addressed to each parent independently, may have been influenced by the presence of the other. Answers to the question regarding care-giving (mostly mother, father or share) may have been different had parents answered on their own, as may have answers regarding feelings about taking special care of their children. It is also possible that parents’ qualitative comments were influenced by the presence of the other parent. Fathers for example, may have felt inhibited from articulating any worries about their children in the presence of their partners. The study could have been improved by interviewing parents separately, but this would have further restricted the small sample size and was deemed impractical due to the time-limited nature of the study and difficulties encountered recruiting fathers.

Regarding the ‘special care’ question, the researcher had the impression that parents may have had different interpretations of the meaning of this question. For example, some parents seemed surprised by the question, indicating that their positive answer was obvious and favourable since ‘all parents (should) take special care of their children’. Others appeared to grasp the intended meaning of the question as ‘extra special care, over
and above the norm’. On hindsight, this question would be re-worded to avoid any potential confusion.

4.6.2.2 Vulnerable Child Scale (VCS)

The VCS has been validated on American mothers of 3-3 ½ year old children (Forsyth and Canny, 1991, Perrin et al, 1989), (it was deemed appropriate for a British sample as the measure was anglicised). It was assumed that the measure would be suitable for fathers as it reflects ‘specific statements of concern about a child’s health’ which would be equally applicable to fathers. This assumption was supported by the finding that fathers in this study indicated that they were equally involved in caregiving. However, although the VCS has face validity for use with fathers, it has not been formally validated for use with fathers and the results should therefore be interpreted with caution. This issue is addressed in the next section, which focuses on directions for future research.

4.6.2.3 The Parenting Stress Index (Short Form) (PSI-SF)

The PSI-SF has been recognised as a reliable and valid measure. However, the results show that although parents mean scores in all groups did not fall within the range of defensive scoring, the scores of 3 fathers and 4 mothers in the experimental group and 3 fathers and 7 mothers in the control group fell within the range of defensive scoring. Low defensive responding scores may indicate parental bias to presenting a less stressed (and more favourable) impression, or alternatively may indicate that the parent is very competent in handling parental responsibilities (Abidin, 1995). The small sample size
made it impractical to exclude parents with low defensive responding scores, and the results should therefore be interpreted with caution.

4.6.2.4 Toddler Temperament Scale (TTS)

Parents' scores on the TTS did not enable a clear cut designation of children into 'easy', 'difficult' and 'slow to warm up' categories of temperament (Thomas, Chess & Birch, 1968, cited in Thomas & Chess, 1980) as many scores fell less than one standard deviation above or below the mean. It was deemed appropriate to focus on correlations between VCS, PSI and TTS scores on dimensions associated with the 'difficult' temperament category (low rhythmicity, approachability, adaptability, high intensity and negative mood) (Thomas, Chess & Birch, 1968, cited in Thomas, Chess & Birch, 1980). The results for fathers in the experimental group showed a correlation between VCS and PSI but only between VCS and negative mood. The authors caution that standardised norms may not apply for special subgroups of individuals. On hindsight, the suitability of this measure can be questioned for use with parents of children born prematurely. The children were chosen according to chronological age as opposed to adjusted age, and therefore may have been developmentally behind in relation to their age. This was highlighted by a few parental comments regarding the non-applicability of certain questions (for example, questions about walking/running when their child was still crawling). The study could therefore be improved by using parents of children with adjusted ages of 12-18 months.
4.6.3 **Methodological Limitations**

The issue of heterogeneity of the sample in terms of neonatal health problems has already been addressed. The researcher endeavoured to ensure that the children in this study were currently healthy, whilst recognising that individual definitions of 'healthy' may be somewhat subjective. Discharge letters were checked to ascertain that the children were considered by their Consultant Paediatrician to be developing appropriately, given their neonatal problems. To avoid the potential confounding factor of uniformity of Consultant opinion regarding the judgement of current health, parents of children under the care of five different Consultants were recruited. The Consultants considered the children to be currently healthy (i.e. developing appropriately without significant illness, chronic disease or disability). An improvement to the study would be to determine that the children were developing normally by using a formal assessment measure such as the Denver Pre-screening Questionnaire (Frankenburg, Doorninck, Leddell & Dick, 1976, cited in Scheiner, et al, 1985).

It is recognised that first born children are more likely to be perceived as vulnerable than subsequent children (Perrin et al, 1989). Whilst ideally the researcher would have controlled for prior parental experience by focusing on first time parents, this would have further restricted the small sample size. Therefore, the number of older siblings was measured and the results showed that there were no significant differences between birth order between the experimental and control groups. Visual analysis showed that the majority of children were first born in both groups. It is recommended that a larger sample would enable first born children only to be included.
4.6.4 **Problems Encountered whilst Conducting the Current Study**

Problems identifying potential participants, recruiting participants and collecting data have been addressed in the Methodology. Further practical difficulties were encountered gaining Consultant Paediatrician approval. Approval to recruit from both hospitals was initially granted by the Clinical Director serving both hospitals, and acting as Consultant Paediatrician at the LGH. However, the LRI were initially reluctant to allow the researcher to recruit. Following discussion between Consultant Paediatricians from the two hospitals and formal presentation of the research proposal, approval from all Consultant Paediatricians was finally granted. In terms of the time-scale of the current study, ethical approval was granted in September 2000 and data collection completed by the beginning of April 2001. The researcher was made aware of further administrative constraints, which may interfere with completion of clinical research.
4.7 **Directions for Future Research**

A repeat study is recommended to determine paternal perceptions of vulnerability using a larger sample, which may be more representative of the target population. The above discussion of limitations of the current study suggests that this would allow a wider variety of parental ages and socio-economic status to be included. A larger study should control for first time parents, adjusted ages of children, formal assessment of normal development, degree of severity of neonatal illness and corresponding time spent on the NICU.

The findings of the current study are also limited by homogeneity of the sample with regards to ethnicity. This is particularly pertinent to the clinical population in Leicester, and excluding parents of children from different ethnic backgrounds further restricted the sample size. It is recommended that future research include a more ethnically diverse sample to enable comparison of parental perceptions and provide valuable additional information.

It is recommended that future research address validation of the Vulnerable Child Scale for use with fathers. The validity of the instrument for use with mothers was supported by a significant correlation between VCS scores and scores on the somatic symptoms sub-scale of the Personality Inventory for Children (Wirt, Lachar and Klinedienst, 1982, cited in Perrin et al, 1989). This measure should be used in a repeat study, which focuses on fathers.
The critique of the Vulnerable Child Syndrome suggests that perceptions of vulnerability may be independent of parental overprotection. It is therefore recommended that paternal perceptions of vulnerability be investigated further in relation to paternal over-protection using for example, the Parent Protection Scale (Thomasgard, Metz, Edelbrock & Shonkoff, 1995). In addition, the relationship between perceptions of vulnerability, coping and support remains unclear and it is recommended that future research address these issues to help provide information regarding the needs of fathers.

It has been identified that the VCS may be influenced by a complex interaction of predisposing parental and family factors. Disentangling the complexities of separation-individuation and the evolving parent-child relationship has been identified as an important theoretical and clinical challenge (Thomasgard et al, 1995). Future research focusing on fathers’ experience of their own separation-individuation as children, previous salient losses and paternal temperament would provide a useful contribution in clarifying contributing factors to the VCS. It is recommended that quantitative studies be extended and complemented by qualitative studies, which might be more suitable for disentangling the complexities of transactional issues. Qualitative studies would in turn help to generate new hypotheses, which could be explored using quantitative methodologies.
4.8 **Clinical Implications**

Sroufe (1990, cited in Davies, 1999) stated that ‘change is constrained by prior adaptation’ which highlights that there is a strong argument for early intervention to facilitate continuing adaptation by parents to shift child development in a positive direction. The most important contribution of Green and Solnit’s (1964) research therefore is the extent to which it highlights the critical importance of early messages given by medical professionals to both parents. Paediatric care has changed profoundly since the publication of Green and Solnit’s (1964) paper, but the paper contains a timeless message that the art of communication must remain at the heart of high-quality health care (Shonkoff, 1998). Preventive interventions which would serve as a protective factor include thoughtful explanations of the infants’ health status by medical staff communicated as optimistically as possible, and repeated opportunities for both parents to articulate their fears, worries and feelings (Green, 1986).

The current study highlights that premature birth has the potential to have a profound impact on both mothers and fathers, and neonatal services could be improved by catering for both parents. Many fathers reported feeling that they lacked a clear role, therefore rather than approaching fathers as an adjunct to mothers, it is recommended that attention be given to including fathers and giving them a role on the NICU. For example, involving them more in the practical care of their infants. At a simple level, the existence of fathers would be acknowledged by inclusion of their details in medical records. This would also help researchers attempting to recruit fathers to future studies.
Fathers are often prevented from being fully involved in the healthcare of their infants as clinics are generally held during working hours. The wider availability of evening clinics and home visits would enable fathers to be included, to become better educated in relation to their children's health and to have their worries and concerns listened to by medical staff.

The results of this study show that fathers in this sample appear to have an active role in caregiving, alongside maintaining a place in the workforce, whilst more mothers of children born prematurely than controls are involved in full-time work. The results also suggest that fathers are at least as stressed as mothers. Whilst fathers have been identified as a protective factor by providing a supportive role to mothers, support for fathers is less clear. If fathers have different styles of coping, where do they seek support and what form of support would they find helpful?

Healthcare is typically female-dominated and NICUs are staffed predominantly by female staff. Thought might be given to whether male staff might be considered as a potential source of emotional support for fathers. As neonatal care has developed substantially since Green & Solnit's (1964) study, so have expanded support programmes for parents, which might serve as a protective factor (Scheiner et al, 1985). However, in Leicestershire, fathers have been reported as failing to access the parent support group, despite suffering distress. Yogman (1987) emphasises that fathers especially need permission to express their feelings during the perinatal period because it violates their
stereotypes of masculinity. In service planning, consideration might be given to how to make support accessible and useful for fathers.

The current study has implications for Clinical Psychology services, in terms of staff consultation as well as direct intervention with families. In terms of consultation with NICU staff, Clinical Psychology can provide a significant contribution by highlighting the importance of fathers and sensitive staff-patient communication in relation to problems associated with the VCS. In terms of direct intervention, Clinical Psychology should help to ameliorate risk by providing post-trauma support to both parents following premature birth, and by addressing parental health related anxiety regarding their children born prematurely. Both parents may require psychological support to achieve the delicate balance between providing appropriate supervision and treating their currently healthy children as normal.
4.9 **Conclusions**

Prematurity is a risk factor, but it is not a fate and when protective processes are present across time children’s development is guarded and resilience grows (Davies, 1999). Awareness of the presence of risk factors calls attention to the need for intervention, including preventive intervention if the effects of risk are not yet manifest.

In a transactional context, the interplay between inappropriate parental perceptions of vulnerability, child temperament and parenting stress has potential to influence family functioning. Trends, qualitative data and constraints of the present study regarding sample size suggest that some fathers have perceptions of vulnerability regarding their children who were born prematurely, which are similar to mothers. Significant results suggest that paternal perceptions of vulnerability relate to perception of negative mood regarding child temperament and parenting stress. A recognition of inappropriate perceptions of vulnerability and timely intervention can facilitate continuing adaptation by both parents and result in successful outcomes for both parents and children.

This study highlights the absence of fathers in the literature, clinically and administratively. The clinical system currently negates fathers by offering support to mothers but not fathers, and early intervention is necessary to ensure that fathers are considered *equally* from the outset.
APPENDIX 1

Letter of Invitation to Research Participants

Re: Fathers’ perceptions of their pre-schoolers born prematurely.

A research study is being carried out at the Leicester General Hospital/Leicester Royal Infirmary by Catherine Duckworth, Clinical Psychologist in Training.

The study aims to investigate fathers’ perceptions of their pre-schoolers who were born prematurely, and how this may relate to paternal stress and child temperament. In order to complete the study it will be necessary to compare fathers of pre-schoolers born prematurely to mothers of the same pre-schoolers, and to a comparison group of parents of pre-schoolers born full term.

Your responses would be very valuable. It is hoped that results of this study will help to improve the service by identifying the needs of fathers.

If you would like to take part in the study, details of which are given in the Patient Information Sheet enclosed, please complete the reply slip enclosed with this letter and return it (in the pre-paid envelope) to Catherine Duckworth. The investigator will then contact you to arrange a convenient time to obtain your consent, ask you a few questions in an informal interview and ask you to complete three short questionnaires. This should last no more than 30-45 minutes.

I would like to thank you for taking time to read this letter and hope to hear from you soon. If you have any queries, please feel free to contact us on (0116) 252 2466 or (0116) 258 4831.

Yours sincerely

Catherine Duckworth
Clinical Psychologist in Training

Dr Alun Elias-Jones
Consultant Paediatrician
APPENDIX 2

Research Participant Information Sheet

Title of Study: - Fathers' perceptions of their pre-schoolers born prematurely.

Principle Investigator:- Catherine Duckworth, Clinical Psychologist in Training

You may contact Catherine at:- Department of Applied Psychology
University of Leicester
New Building
University Road
Leicester LE1 7RH
Tel: (0116) 252 2466

You are invited to participate in the above study.

1. What is the purpose of the study?

The study aims to identify whether fathers of healthy pre-schoolers born prematurely currently perceive their children to be vulnerable to health problems, and whether fathers perceptions are linked to stress and child temperament.

The service recognises the important role that fathers play in the family. Information regarding their perceptions and how they relate to stress and child temperament would be particularly valuable in helping to improve the service by identifying the needs of fathers.

In order to complete the study, it will be necessary to compare fathers of healthy pre-schoolers born prematurely to mothers of the same pre-schoolers, and to a comparison group of parents of pre-schoolers born full term.

2. What will be involved if I take part?

Participants will be required to complete three short questionnaires and answer a few questions in an informal interview. This should take no longer than 30-45 minutes and would occur at a time and place convenient to participants i.e. at their next clinic appointment or during a home visit by the researcher if preferred.
3. **Will information obtained in the study be confidential?**

Confidentiality and anonymity will be assured according to normal practice and all data will be coded. A list of codes will be kept separately in accordance with Data Protection guidelines. Participants will not be identified in any documents relating to the study.

The Consultant Paediatrician has been fully briefed as to the nature of the study and will provide written informed consent to participation.

4. **What if I am harmed by the study?**

It is highly unlikely that any harm will come to you as a result of participating in the study. However, if you wish to complain about any aspect of the way you have been approached or treated during the course of the study the normal NHS complaints mechanism is available to you.

Medical research is covered for mishaps in the same way as for patients undergoing treatment in the NHS i.e. compensation is only available if negligence occurs.

5. **What happens if I do not wish to participate in the study or wish to withdraw from the study**

Your participation is entirely voluntary. If you do not wish to participate in the study, or if you wish to withdraw from the study you may do so without justifying your decision and you or your child’s future treatment will not be affected.

Thank you very much for your attention.
Dear

"Parental Perceptions of pre-school children (toddlers) born prematurely" - our ref no 6086

I have received your letter dated 30 October 2000 and enclosures responding to the points raised by the Ethics Committee concerning the above study.

On behalf of the Leicestershire Research Ethics Committee, and by Chairman’s action, final approval is given for you to undertake the above-mentioned study.

Your attention is drawn to the attached paper which reminds the researcher of information that needs to be observed when ethics committee approval is given.

Yours sincerely

M Swirsham

Rev P Harbord
Chairman
Leicestershire Research Ethics Committee
(Signed under delegated authority)
Research Participant Consent Form

Title of Study: Father's perceptions of their pre-schoolers born prematurely

This form should be read in conjunction with the Research Participant Information Sheet.

I agree to take part in the above study as described in the Research Participant Information Sheet.

I understand that I may withdraw from the study at any time without justifying my decision and without affecting my or my child’s normal care and medical management.

I understand that medical research is covered for mishaps in the same way as for patients undergoing treatment in the NHS i.e. compensation is only available if negligence occurs.

I have read the Research Participant Information Sheet on the above study and have had the opportunity to discuss the details with Catherine Duckworth and ask any questions. The nature and the purpose of the study have been explained to me and I understand what will be required if I take part in the study.

Signature of the patient:__________________________________________________________

Date:________________________________________________________________________

(Name in block letters):_________________________________________________________

For office use only:-

I confirm that I have explained the nature of the study, as detailed in the Patient Information Sheet, in terms which in my judgement are suited to the understanding of the patient.

Signature of Investigator:________________________________________________________

Date:...............................Name in block letters:______________________________
APPENDIX 5

Semi-Structured Interview Schedule

This schedule is a framework for the questions asked in order to obtain the necessary data. This will be modified and extended according to the characteristics of individual interviewees.

1. What is your date of birth?
2. What is your occupation?
3. What is your child’s gender?
4. Have you been married or living together since the birth of your child?
5. Do you have any other children? If so, how many and what are their ages?
6. Have you had any contact with Psychology Services?
7. Does father work full time or part time?
8. Does mother work full time or part time?
9. Has your child had any significant illnesses? If so, what?
10. Approximately how many times has your child visited your G.P in the last six months?
11. Do you feel you have to take special care of your child?
12. Is caregiving carried out mostly by mother, mostly by father or shared?
13. Would you like to ask any questions or add any comments?
APPENDIX 6

Vulnerable Child Scale (Perrin, West & Culley, 1989)

0 = Definitely True; 1 = Mostly True; 2 = Mostly False; and 3 = Definitely False.

1. In general, ________ seems less healthy than other children of the same age.
2. I often think about calling the doctor about ________.
3. When there is something going around, ________ usually catches it.
4. ________ seems to have more accidents and injuries than other children.
5. ________ usually has a healthy appetite.
6. Sometimes I get concerned that ________ doesn't look as healthy as he/she could.
7. ________ usually gets stomach pains or others sorts of pains.
8. I often have to keep ________ indoors because of health reasons.
9. ________ seems to have as much energy as other children of the same age.
10. ________ gets more colds than other children of the same age.
11. I get concerned about circles under ________'s eyes.
12. I often check on ________ at night to make sure he/she is ok.
13. I sometimes worry that ________ will die.
14. I feel anxious about leaving ________ with a babysitter or at day care.
15. I am sometimes unsure about my ability to care for ________ as well as I should.
16. I feel guilty when I have to control ________'s behaviour.
APPENDIX 7

Health Problems Experienced in the Neonatal Period by Children born Prematurely

Seven children were reported by parents to have stayed on the NICU for feeding and growth only. Parents of the remaining children reported a combination of health problems, as follows:

4. Thyroid problems. Feeding/growth.
6. Oxygen for nearly 3 months. Chronic lung disease (controlled with inhalers).
12. 3 bowel operations.
14. Temperature, lacking iron and blood transfusion.
15. Chronic lung disease. Lost central vision in right eye.
16. Born with hole in heart – currently taking medication.
17. Acid reflux at 2/3 months. Bowel infection in incubator.
APPELLIX 8

Parental Stress Index (Short Form) – Mean Scores and Standard Deviations for each Group

<table>
<thead>
<tr>
<th>Measure</th>
<th>Experimental Group (n=24)</th>
<th>Control Group (n=24)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fathers Mean (SD)</td>
<td>Mothers Mean (SD)</td>
</tr>
<tr>
<td>Parental Stress Index – Short Form (PSI-SF)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parental Distress (PD)</td>
<td>27.75 (7.66)</td>
<td>24.50 (6.90)</td>
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<tr>
<td>Parent-Child Dysfunctional Interaction (P-CDI)</td>
<td>20.17 (5.46)</td>
<td>17.54 (5.33)</td>
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<td>Difficult Child (DC)</td>
<td>24.46 (6.67)</td>
<td>22.83 (5.67)</td>
</tr>
<tr>
<td>Defensive Responding</td>
<td>16.04 (5.04)</td>
<td>14.58 (3.87)</td>
</tr>
<tr>
<td>Total Stress</td>
<td>72.46 (16.42)</td>
<td>64.88 (12.77)</td>
</tr>
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</table>

N.B High scores denote higher parenting stress.
APPENDIX 9

Toddler Temperament Scale – Mean Scores and Standard Deviation for each Group

<table>
<thead>
<tr>
<th>Measure</th>
<th>Experimental Group (n = 24)</th>
<th>Control Group (n = 24)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fathers Mean (SD)</td>
<td>Mothers Mean (SD)</td>
</tr>
<tr>
<td>Toddler Temperament Scale (TTS)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity</td>
<td>3.87 (.82)</td>
<td>3.72 (.83)</td>
</tr>
<tr>
<td>Rhythmicity</td>
<td>2.79 (.56)</td>
<td>2.74 (.74)</td>
</tr>
<tr>
<td>Approach</td>
<td>2.75 (.66)</td>
<td>2.60 (.57)</td>
</tr>
<tr>
<td>Adaptability</td>
<td>3.38 (.69)</td>
<td>3.41 (.76)</td>
</tr>
<tr>
<td>Intensity</td>
<td>3.73 (.54)</td>
<td>3.91 (.57)</td>
</tr>
<tr>
<td>Mood</td>
<td>2.95 (.48)</td>
<td>2.90 (.58)</td>
</tr>
<tr>
<td>Persistence</td>
<td>3.44 (.68)</td>
<td>3.63 (.74)</td>
</tr>
<tr>
<td>Distractibility</td>
<td>4.08 (.73)</td>
<td>4.35 (.74)</td>
</tr>
<tr>
<td>Threshold</td>
<td>3.58 (.71)</td>
<td>3.60 (.73)</td>
</tr>
<tr>
<td>Overall Manageability</td>
<td>2.29 (1.16)</td>
<td>2.58 (.88)</td>
</tr>
</tbody>
</table>

N.B. High scores denote high activity, low rhythmicity, withdrawal, slow adaptability, high intensity, negative mood, low persistence, high distractibility and low threshold.
References


