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Maternal and Infant Factors Influencing Infant Feeding – A Longitudinal Study

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ABSTRACT

Introduction: There has been a lack of longitudinal studies on maternal and infant factors associated with feeding difficulties. Feeding difficulties are common, cause much anxiety for parents, and are associated with a range of child health and behavioural outcomes. This study aims to gain an understanding of the prevalence and type of feeding difficulties found in a community sample, the prevalence of maternal mental ill-health and identify maternal and infant factors predictive of feeding difficulties. A final aim is to identify factors associated with successful and unsuccessful feeding experiences from a maternal perspective.

Method: A short questionnaire with questions about support and help-seeking was compiled, and several standardised measures were included in the pack; a measure of maternal mood (DASS-21), social support (SOS-S), and eating disorder symptomatology (EAT-26). Questionnaires were given to mothers in pregnancy, and again when infants were around 3 and 7 months old. An adapted version of the Child Feeding Assessment Questionnaire, and the food fussiness subscale from the Children's Eating Behaviour Questionnaire examined feeding behaviour and maternal response. The Infant Temperament Questionnaire examined maternal perception of infant temperament. Content analysis was used to identify themes in mother's narrative about factors which help feeding and barriers to a successful feeding experience. A within subjects design was employed to examine predictors of infant feeding difficulties.

Results: 23% of mothers of 3 to 5 month old infants, and 13% of mothers of 7 to 10 month olds reported their child as having one or more feeding difficulties. Levels of stress remained stable across the length of the study, but prevalence of maternal anxiety and depression reduced. 47% of those mothers who breast fed found breast feeding difficult or very difficult. Maternally identified barriers to successful feeding with feeding were child illness, and painful or difficult breastfeeding. Mothers wanted an improvement in support and knowledge of health professionals, and a reduction in pressure from health professionals in relation to feeding method. Maternal depression and stress were correlated with severity of food refusal in infants, as well as maternal anxiety and food fussiness, prior to post-hoc analyses. Following post-hoc analyses these relationships were no longer significant.

Discussion: Relationships between infant behaviour, maternal health and feeding difficulties are explored. The low prevalence of feeding difficulties and reasons for negative findings in relation to predictors of feeding difficulties are discussed. Implications for health services are presented in the light of maternal views about support and barriers to successfully feeding their child.

1. INTRODUCTION

1.1 Overview

A search for images of mothers feeding on the internet provides over 5 million results. A mother feeding her infant is an image used to represent closeness and ease of the mother-child relationship. There is a large push from international, national bodies and consequently on the ground level, by midwives and health visitors to promote and provide parental education on infant feeding, particularly breastfeeding. The Scottish Government, for example in their publication 'Improving Infant and Maternal Nutrition: A Framework for Action' (2011) indicate that the main desirable outcomes of parent and health professional education on infant diet are optimal maternal and infant nutrition, a reduction in obesity, and the promotion of breastfeeding and healthy eating habits. However, there is less acknowledgement of the frequency of feeding difficulties, the impact of these are on parents or information about factors that may contribute to these difficulties. Feeding difficulties, along with sleep difficulties, are the most common reasons for medical consultation for children under 3 years (Herve *et al.*, 2009). However, little is known about feeding difficulties in children in the general population rather than those attending clinics (Jacobi *et al.*, 2008). Feeding difficulties in children are often accompanied by other difficulties such as poor regulation of emotion or sleep, and behavioural difficulties (McDermott *et al.*, 2008). Children with multiple regulatory difficulties are at risk of mood difficulties and a diagnosis of ADHD (Hemmi *et al.*, 2011), particularly those families with multiple psychosocial risk factors. Whilst a number of maternal and infant factors have been identified as being associated with feeding difficulties such as maternal mood, dysfunctional

eating attitudes and difficult infant temperament, an absence of prospective studies means that the temporal relationship between factors and causal factors remain unclear. This thesis aims to contribute to the knowledge about early feeding difficulties and infant and maternal (including pre-natal) factors predictive of feeding difficulties in a longitudinal study with a birth cohort.

This chapter provides a review of the research and policy context for the present thesis and will cover the following topics:

- Infant feeding difficulties – aetiology and outcome
- Parental factors
- Infant Factors
- Parental help-seeking
- National and local context

1.2 Feeding Difficulties

1.2.1 Definition of Infant Feeding Difficulties

The terminology of feeding difficulties incorporates a wide set of sequelae from clearly medically related problems such as oral-motor problems (resulting in difficulties in chewing or tongue movement for example) and swallowing difficulties, to more general descriptors that occur more frequently in the general population such as food selectivity (eating a narrow range of foods), food refusal (refusal to eat some or many foods) and texture selectivity (Field *et al.*, 2003). The most frequent feeding problem for preschool children and their parents is refusal to eat (Harris & Booth, 1992). The research literature on food refusal ranges in its inclusion from milder food selectivity to failure to eat most or all foods, thus requiring tube feeding (Williams *et al.*, 2010).

Feeding difficulties is an umbrella term that may incorporate, but is wider than the concept of 'failure to thrive' (FFT) or 'infantile anorexia' (Chatoor *et al.*, 1998), which is a widely researched subject. The non-organic failure to thrive (NOFTT) concept has been applied where the child has weight faltering or poor growth. Difficulties with feeding are relatively uncommon in FTT (Puntis, 2008). Equally, children with feeding difficulties do not always show weight faltering. Feeding difficulties and failure to thrive are not necessarily co-morbid. Children with FTT often lack the communicative skills to express their needs and fail to learn to recognise hunger signals (Chatoor *et al.*, 1997). NOFTT has traditionally been associated with a difficulty in the mother-child relationship, as differences in the amounts of positive interaction between parent and child when feeding of weight faltering children have been found (Robertson *et al.*, 2010). However failure to thrive is considered to result

from a wide range of aetiologies (Kerwin, 1999) and to be a heterogeneous category (Puntis, 2008).

Feeding difficulties can also be distinguished from eating disorders. School children who are selective eaters do not differ from non-selective eaters on worries about body shape, dieting and binge eating (Jacobi *et al.*, 2008). Similarly, Agras *et al.* (2007) in a longitudinal study found that selective eating in children was negatively correlated with disturbed eating attitudes. For infants specifically, they do not yet have the awareness or ability to cognize about or evaluate desirable weight or shape.

The Diagnostic and Statistical Manual of Mental Disorders (DSM) 4th Edition – Text Revision (DSM-IV-TR) (American Psychiatric Association, 2000) specifies that "a persistent failure to eat adequately with significant failure to gain weight or significant loss of weight over at least 1 month" must be present, onset before the age of six years and medical conditions and mental disorder must be ruled out to fulfil the criteria for diagnosis of 'Feeding disorder of infancy or early childhood.' The proposals for the upcoming DSM (DSM-V, planned publication 2013) specify as well as weight or growth faltering that one of: a nutritional deficiency, dependence on enteral feeding, or marked interference with psychosocial functioning should be present. There is also a description planned of three main subtypes: individuals who do not eat enough/show little interest in feeding; individuals who only accept a limited diet in relation to sensory features; and, individuals whose food refusal is related to aversive experience. The International Classification of Diseases, 9th Revision (ICD-10) specifies similar criteria to DSM-IV-TR and persistent failure to gain weight is required for diagnosis of Feeding Disorder of Infancy and Childhood (F98.2).

The Zero to Three Diagnostic Classification of Mental Health and Developmental Disorders of Infancy and Early Childhood (DC0-3R; Zero to Three, 2005) provides a developmental understanding of mental health and developmental disorders. The Zero to Three classification system proposes a multi-axial classification based on Chatoor's (2002) work which incorporates medical, psychological and systemic factors. The Axes I through to V are: Feeding Disorder of State Regulation, Feeding Disorder Associated with Concurrent Medical Condition, Sensory Food Aversion, Feeding Disorder Associated with Insults to the Gastrointestinal Tract, Feeding Disorder of Caregiver-Infant Reciprocity, and Infantile Anorexia. This classification provides scope to include parental factors unlike the DSM and ICD criteria, although inclusion of aetiological factors in diagnostic criteria are considered a complex and poorly evidenced area (Task force on research diagnostic criteria: infancy and preschool, 2003).

1.2.2 Problems with classification

The DSM and ICD classification systems have been criticised for their limited representation of the variety of feeding difficulties encountered and for inconsistencies between the two classifications (Piazza, 2008). The diagnosis of Feeding Disorder of Infancy and Early Childhood (307.59) in the DSM-IV-TR specifies there must be a growth failure and no medical condition accounting for the feeding disorder, as does the equivalent ICD-10 definition. The classifications may fail to capture children who have deficiencies in their dietary intake but who are growing adequately (Chatoor & Ganiban, 2003) or have an additional physical cause for difficulties (Bryant-Waugh *et al.*, 2010). Williams *et al.* (2009) found that only 19 out of 234 children referred to a feeding clinic met DSM-IV-TR criteria and none of the 36 of those children who had Autism met the criteria. The diagnostic

criteria are therefore incomplete for some groups of children but there are plans for a more inclusive set of criteria for DSM-V (Sieverling *et al.* 2010).

Confusion in diagnostic criteria means that clinicians and researchers are free to define feeding difficulties according to their purposes. Feeding difficulties can be considered problematic when the child shows poor growth or weight gain, the child's diet is nutritionally deficient, or when there are high levels of distress in the child or the parents (Piazza, 2008). Transient feeding difficulties are very common in the general population and therefore definitions often incorporate a minimum time for eating difficulties to be present e.g. food refusal for one month (Chatoor *et al.*, 1998) or selective eating for two years (Bryant-Waugh, 1999) but this is often studied in the absence of poor growth.

Diagnostic systems have also been criticised for their failure to capture the interactional and systemic factors involved in the feeding relationship, for example the child may be offered inadequate support due to various psychosocial stressors in the parents' lives. Davies *et al.* (2006) argue that contextual psychosocial factors such as interactional difficulties or a high level of caregiver anxiety, rather than being used as exclusionary criteria, should be part of a diagnostic system. Inclusion of these factors provides a more detailed description of the problem, and is helpful for planning treatment and developing therapies (Davies *et al.*, 2006). Davies' proposed category of "Feeding Disorder between Parent and Child" seems the most helpful in identifying the multi-directional relational aspect to infant feeding difficulties, and therefore assessment and treatment. This category may however have some of the stigmatising qualities of the Failure to Thrive diagnosis. Diagnostic criteria of feeding difficulties in the research differ; relational feeding problem categories being

particularly rare in the research literature. Alteration of clinical categories or diagnoses of feeding difficulties may make comparisons between studies more difficult.

1.2.3 Clinical Presentation

Common presentations of feeding difficulties in clinical settings include: delayed development of feeding skills; difficulties in tolerating foodstuffs; reluctance to eat based on sensory factors; lack of appetite/interest in foods and use of feeding behaviours to self-soothe (Bryant-Waugh *et al.*, 2010). Maldonado-Duran *et al.* (2008) characterised infants in a community sample according to their overall functioning and by observing both feeding and non feeding parent-child interactions. The infants were categorised into four groups. The first group were 'under aroused infants with sucking difficulties' who showed inefficient sucking and difficulty regulating sleep cycles. The second and most commonly found difficulties were 'difficulty to concentrate on feeding and sensory integration problems'; infants who belonged to this group were hypersensitive to stimuli and showed motor disorganisation. A third group identified were 'lack of progression in ability to eat and excessive selectivity', who often had poor chewing skills. The last group - 'mixed feeding difficulties' included difficulties with gagging and disorganised eating patterns (e.g. 'stuffing food' into their mouths). Poor regulation of emotion and sleep was also found to be common in children with feeding difficulties. There have been inconsistent results in studies looking at the effects of restricted eating and growth, however a recent study of children under 36 months found that picky eaters attending a feeding clinic were more likely to be underweight than healthy controls (Ekstein *et al.*, 2010).

Presentation of feeding difficulties will depend in part on the presence of structural and neurological, as well as other physiological difficulties (Burklow *et al.*, 1998). There are often multiple components to children's presentation (Bryant-Waugh *et al.*, 2010) depending on physical and cognitive deficits, impacting on skills and emotional development which are not just restricted to eating. Regardless of initial cause however, infant feeding difficulties are sometimes experienced by parents as wilful or persistent refusal and negative interactions may ensue through behavioural processes (Hagekull *et al.,* 1997).

The research has neglected feeding difficulties in community samples (Jacobi *et al.*, 2008) and more research is needed on the type of feeding problems in the general population and association with the developmental level of the child (Lewinsohn *et al*., 2005).

1.2.4 Prevalence

Estimates of prevalence of preschool feeding difficulties are typically based on parents seeking help from healthcare professionals. Feeding difficulties have been reported as occurring in 25-45% of typically developing children and up to 80% of children with developmental disabilities (Linscheid *et al.*, 2003). Dahl and Sundelin (1986) found that refusal to eat was the most common problem in the child's first year, followed by colic and vomiting. UK data suggests that 2.6/1000 infants are reported as having persistent problems from birth to 15 months (Motion *et al.*, 2001) and in a large UK study, 40% of mothers reported feeding difficulties in their child by 15 months of age (Northstone *et al*., 2001). Occurrence of feeding difficulties is higher among premature or sick babies who have required intensive care: around half of these children have immature feeding patterns and these difficulties continue through to the end of the child's first year of life (Hawdon *et al*.,

2000). The reported prevalence of feeding difficulties depends on whether sequelae are reported by parents or healthcare professionals, with parental prevalence reports being around 14 times higher (Lindberg *et al.*, 1994). Carruth *et al.* (2004) found that 19% of 4 month olds and 50% of 24 month olds were reported by parents as being picky eaters. Between 2 and 11 years, picky eating is reported in 13-22 % of children, with 40% of those having a problem duration of more than 2 years (Mascola *et al.*, 2010).

Prevalence across childhood will depend on the measure and criteria around what constitutes feeding difficulties. Use of formal criteria to diagnose a feeding disorder will mean a lower prevalence rate than self-report of parents regarding more minor difficulties. Chatoor *et al.* (2001) found that for routine paediatric clinic appointments, one in four parents were concerned about their child's feeding. Feeding problems assessed in a neonatal care unit by paediatricians were less common, at around 10% of 5 months olds and 9% at 20 months (Carruth *et al.*, 2004). More minor feeding difficulties may not be reported to health-care professionals. Where feeding difficulties occur in the context of other health needs, feeding difficulties may seem normative in the context of delayed development and they may not meet diagnostic thresholds. With less severe feeding problems it is difficult to define distinct homogenous descriptive categories, as problems reported by parents are subjective. Harris and Booth (1992) describe for example how one parent's perception of their infant's 'slow feeding' may be viewed as acceptable by another parent.

1.2.5 Onset

The development of a feeding problem will vary with infant, familial and situational characteristics. In the early stages of a child's life, weak sucking, colic and choking are

common problems among 'difficult feeders' whereas after 6 months, problems such as refusal of solids and poor appetite are the most common problems (Lindberg *et al.*, 1991; Motion *et al.*, 2001). 'Chronic' food refusal often becomes a problem after the introduction of solid foods (a process called weaning; Harris & Booth, 1992) with weaning depending on the parent's interpretation of the infants' hunger/satiation cues and the child's readiness to accept foods. Problems may begin after the introduction of solid food before a child is ready, typically around 4-6 months of age (Satter, 1990). Infants who are perceived as having a 'fussy' temperament are more likely to be given solid foods before the recommended age (Wasser *et al.*, 2010). Another potentially problematic transition is that from spoon to self-feeding, from 6 months old (Chatoor & Ganiban, 2003). Onset will also depend on whether there are any medical issues impacting on the child's feeding, psychosocial stressors for the parents, and family dynamics (Satter, 1990).

Chatoor and colleagues differentiate between food refusal that begins as the result of a feeding related trauma (Chatoor *et al.*, 1988), refusal associated with a developmental process – specifically the infant's struggle for independence (Chatoor & Egan, 1983), and refusal of specific foods due to 'sensory sensitivity' (Chatoor *et al.*, 2000) i.e. a dislike of particular tastes or textures. Children's experiences of a traumatic insult to the oropharynx or oesophagus (e.g. choking, gagging, reflux, or force feeding) leading to anticipatory anxiety about feeding lead to a proposed diagnostic category of Posttraumatic Feeding Disorder (Chatoor *et al.*, 2001). Chatoor and colleagues (2001) highlight that only a small number of children who have had these experiences develop this fearful behaviour. It is likely that these categories are not mutually exclusive and it is difficult to disentangle exactly which factors have contributed in individual cases without detailed longitudinal case study.

1.3 Aetiology

1.3.1 Organic factors

Feeding disorders have been found to co-exist with a variety of medical conditions or interventions, for example oral-motor problems such as difficulties chewing and swallowing, or gastro-oesophageal reflux disease (GORD). Other organic causes include structural problems such as cleft palate, poor motility of the gut, and problems following externally aided feeding such as naso-gastric tube feeding. Children referred for feeding difficulties are more likely to have developmental disabilities (Field *et al.*, 2003) including neurodevelopmental disorders such as cerebral palsy, as a result of which there may be a delay in the infant's sucking response when milk feeding, or a difficulty in tolerating the transition to solid foods or a particular texture of food (Piazza, 2008). Autism is another developmental disorder where infants are more likely to develop feeding difficulties alongside other sensory sensitivities (Emond *et al*., 2010). However reports of feeding difficulties do not exceed those of parents of children with developmental delay until the age of nearly two years old (Werner *et al.*, 2005). Children's feeding is particularly affected by conditions that affect co-ordination, sensory or motor skills, or cause fatigue (Rudolph, 1994).

In addition to problems caused directly by organic disorders, high levels of distress and poor physical health are present among mothers of children with physical difficulties (McDermott *et al*., 2008) thus placing additional pressures on the family which may be hypothesised to affect parent-child feeding interactions. Research has shown however that the mealtime behaviours for children with organic and non-organic feeding difficulties do not differ (Crist

& Napier-Phillips, 2001) and therefore physical difficulties are not in themselves associated with an observed increase in difficult infant mealtime behaviours.

1.3.2 Learning models

Experience of a trauma during feeding is likely to lead to a reduction in confidence, or increased anxiety about food (Satter, 1995). Piazza (2008) argues that pain, nausea or fatigue during feeding leads to food refusal which limits opportunities for learning necessary oral-motor skills. A number of children with medical problems are subjected to invasive oral diagnostic tests and procedures, and are at risk of transferring the association of pain or discomfort to eating (Piazza, 2008). Chatoor (e.g. Chatoor *et al*., 2001; Chatoor & Ganiban, 2003) has argued for a diagnostic category of Post-traumatic Feeding Disorder or Fear-based Food Refusal for those children who refuse foods as a result of choking, repeated vomiting or surgical interventions.

Reinforcement of unhelpful eating behaviours may take place as a result of parental responses towards foods, eating and mealtime behaviour (Manikam & Perman, 2000). Parental responses to inappropriate behaviour during meals (such as allowing a break, coaxing or giving a preferred food) may increase the child's likelihood of engaging in that behaviour (Field *et al.*, 2003). Dovey *et al.* (2009) argues that feeding difficulties among the general population, are largely caused as a result of learning, and that social facilitation including learning from peers is crucial in encouraging the child to eat a variety of foods.

1.3.3 Individual Differences

Individual physiological differences within children are predictive of feeding difficulties. A constitutionally 'low growth potential' means that some children do not have a high calorific need (Lindberg *et al*., 1994). A longer sucking duration at 2-4 weeks old has been linked with vomiting after overeating in pre-schoolers (Stice *et al.*, 1999) suggesting there may be the possibility of early dysfunction in physical mechanisms for controlling dietary intake. A higher newborn sucking rate has been observed in daughters of mothers with eating disorder symptoms despite them being provided with the same number of feeds (Agras *et al.*, 1999), which may indicate a genetic component to dietary control. Other support for a constitutional dietary control hypothesis comes from research which shows that selective eaters at four and five years old had a lower newborn sucking rate than non selective eaters (Jacobi *et al.*, 2003).

It has been suggested that there is a physiological basis for insensitivity to hunger and satiety among a small number of children showing Failure to Thrive. Kasese-Hara *et al.* (2002) found that these children did not alter their energy intake according to their previous meal as other children would. Very early differences in dietary control have therefore been associated with both children who go on to show minor selective eating and children with growth deficiencies resulting from poor intake. The evidence is limited and does not confirm with certainty whether there is a genetic or inborn physiological basis for feeding difficulties, as environmental factors cannot be completely excluded.

Individual differences do not just apply to physiological constitution. Harris and Booth (1992) suggest that preschool children vary on temperamental factors that impact on feeding; their need for autonomy and their sensitivity to stimuli (i.e. a child may be easily distressed by new stimuli). When temperament is implicated in feeding difficulties it is likely that other behavioural or regulation difficulties will also be present.

1.3.4 Developmental stage models

In terms of response to infant behaviour, parents face the difficult task of responding to their child's individual developmental stage which may be different to peers of his/her age. In families where there is more than one child, parents also have to adapt to differences in rates of development and communication style. Satter (1990) describes infants as moving through stages of development and the key parental responses required for successful feeding. Typically at age 1-3 months the infant attempts to regulate its state, requiring calm responsiveness from parents. Problems could occur if the infant becomes over aroused at feeding time, if the child is often fed past satiety or if solid food is introduced too early. At age 2-6 months the task is attachment, requiring reciprocal interactions and modulation of arousal. Feeding difficulties may arise where parental interactions are not sensitive and the baby fails to learn that s(he) can communicate and his/her needs will be met. The developmental task at 6 to 36 months is separation, when parents should support the child's autonomy while providing structure and limits. Problems may arise at this stage where a battle develops between the infant's need to assert control over food and the parent's wishes.

Some research has also highlighted particular 'sensitive periods' for skills development and feeding experiences. Omission of a crucial stage of feeding development may prevent the child from acquiring the skill at a later stage in development. Infants who do not feed naturally in the first few months of life often do not acquire adequate sucking skills (Rudolph, 1994). Experience with particular foods must also be tailored to the infant's stage of development. Research has suggested that food preferences are acquired between three and four months (Harris *et al.*, 1990). Neophobia, or fear of new foods and textures, is thought to peak between the ages of 2 and 6 and therefore continuing to introduce many new foods at this stage is likely to elicit more refusal behaviours (Dovey *et al.*, 2009). Evidence for sensitive periods in feeding development is limited however and requires further validation.

In this view, problems with feeding can occur as a result of a mismatch between the infant's stage of development and parental response. The ultimate aim is the selection of 'stage appropriate' environmental contingencies in accordance with temperamental and physiological needs.

1.3.5 Social norms

Social and cultural norms have an impact on parents from the beginning of their child's life, and impact on the choices such as breast versus bottle feeding. Mothers have been found to be struggling with competing societal ideas about feeding such as "I should breastfeed, it makes me a better mother", versus "I am not *just* a mother; breastfeeding would make the baby too dependent on me." (Chabrol *et al.*, 2004).

There may be conflict between the infant's ideal intake and parental expectations (Harris & Booth, 1992). These expectations may be based on professional advice, literature from baby food manufacturers, parents or siblings' intake, or intake of peers. There may also be conflicting messages between sources of information, professionals or between mother's experiences and advice. Olson *et al.* (2010), in a study of healthcare provider experiences, found that staff felt that mother's beliefs (e.g. introducing solids early will help my baby sleep longer) often conflicts with professional guidelines about weaning, and that different professionals often give different messages regarding how to deal with feeding issues, for example paediatricians and health visitors giving differing advice. Healthcare staff also reported that parents felt pressured by family held beliefs and looked for information in written form to 'prove' to the older generation of the family how advice had changed.

Attitudes about what is 'acceptable' weight also have an impact on the child's food intake and how they are encouraged to feed. Musher-Eizenman and Holub (2007) found that the use of restriction of children's diet depended on the parent's concerns about their child's weight. Parents worried about their child being overweight reported more restriction of their child's diet. When worries are about children being underweight, there is less parental restriction and more pressure for the child to eat more. Blissett (2008) reported that restriction of children's diet at one year of age predicts lower weight one year later, which may reinforce mother's use of this strategy, despite the fact that such control over diet predicts later disinhibition and obesity.

1.3.6 Child and parent interactional models

It has been argued that children can be predisposed to feeding difficulties, which are maintained by difficulties in the child-parent interaction or social context (Sameroff, 1993). Illness, disability, dietary restrictions or a difficult temperament may increase anxiety for parents and thus affect their interactions with the child during feeding.

Parental response is key in shaping the child's expectations and behaviours in the feeding environment. In the case of food refusal, it is thought that the anxiety resulting from the refusal leads to a struggle for autonomy between parent and child and unhelpful feeding strategies (Harris & Booth, 1992). For example, Lindberg *et al.* (1994) found that parents of children with food refusal were given more meals than children who did not refuse food. Higher intensity of feeding may reflect anxiety for the parents about their children's weight or nutritional intake, but may inadvertently increase refusal in the child and anxiety in the parent. Similarly, Musher-Eizenman and Holub (2007) found that parents' feelings of responsibility had an effect on their feeding practices. When parents felt a high level of responsibility about their children's eating habits there was more monitoring of food intake, pressure to eat, restriction and allowing children less control over their eating. A high degree of struggles for control in feeding interactions may explain why general behavioural difficulties are often present in children with feeding difficulties (Lewinsohn *et al*., 2005).

Research into specific diseases causing feeding difficulties has demonstrated the presence of both parental and child factors. Mathisen *et al.* (1999) found that infants with Gastro-oesophageal reflux disease (GORD), where stomach acid leaks up into the oesophagus (characterised by coughing/gagging and dysphagia) had delayed feeding skills, showed more

negative emotion and that mothers had more negative emotion with regards to feeding their infant. Davies *et al.* (2006) highlight that parents often find themselves coping with children's medical issues, as well as a difficult temperament which may arise through parental control or lack of support, secondary to psychosocial demands or a lack of knowledge. Parents of children who have had medical issues or are developmentally delayed may put pressure on children to eat because of their concerns, which may lead to decreased food intake in the child and increased anxiety for the parent (Davies *et al.*, 2006).

Feeding problems are associated with difficulties in the child-parent attachment relationship (Benoit *et al.*, 2001). Poor attachment has been linked with a lower capacity for 'maternal sensitivity', i.e. ability and/or motivation to attend to and respond to the baby's signals. Psychodynamic theories of adult eating difficulties such as obesity have been linked with lack of early parental validation of inner experience, leading to a lack of differentiation between internal cues such as hunger and outside objects (Bruch, 1961). Disorganised attachment in children with feeding problems has been linked to parental trauma or loss. Sensitivity shown by parents including during mealtimes, has been linked with later attachment quality (Ainsworth *et al.*, 1978). A prospective study of low risk premature babies found that less maternal affectionate touch and lower maternal adaptation in the neonatal period, poor infant psychomotor skills, with higher maternal intrusiveness and lower infant involvement at 1 year predicted feeding difficulties (Silberstein *et al.*, 2009).

Studies of mother and infant interaction in children with feeding problems indicate that both infant and maternal characteristics have a role in the quality of interaction. Lindberg *et*

al. (1996) observed in a sample of food refusers, that infants had less clear communication signals, and that mothers were less sensitive, co-operative and displayed a higher number of control behaviours than a control group. These differences were observed in both feeding and in play. Both the emotional functioning of the mother and difficult child temperament have been found to play a role in maladaptive feeding interactions (Ammaniti *et al*., 2010).

Factors such as feeding choice may also have an impact on the parent-child feeding relationship, as mother's restriction of their one year old children's eating reduces incrementally with each month of early breast feeding (Taveras *et al*., 2004). It is thought that parents who breast feed become more sensitive to the baby's cues of satiety or distress during feeding.

Harris and Booth (1992) note that whilst the reaction of parents to their child's behaviours may reinforce or diminish those behaviours, research observations have shown that sometimes the most sensitive of parent-child interactions can do nothing to allay problems such as food refusal. Relatively little research has acknowledged the impact of social factors such as social support, family conflict, perceptions of parenting and financial difficulty on feeding problems. However, Lindberg *et al.* (1994) reported that parents of children with feeding difficulties at the age of two were more likely to have psychosocial problems and a poorer perception of their parenting in the year previous than parents of children with no feeding problems, suggesting a role for these factors.

1.3.7 Biopsychosocial model

It is thought that a distinction between organic and non-organic causes of feeding difficulties is generally unhelpful, as this creates a false dichotomy. Piazza (2008) describes a vicious circle of food refusal, where negative associations with food lead to refusal of foods, resulting in lack of development of oral/swallowing skills which further undermines the child's feeding ability and confidence. Feeding difficulties occur both in children with physiological disorders and in those without, and both groups often exhibit behavioural difficulties (Crist & Napier-Phillips, 2001).

It is now generally accepted that there is an interaction between physiological, behavioural and social factors and that all these influence the onset and maintenance of feeding difficulties (Crist & Napier-Phillips, 2001). Heffer and Kelley (1994) argue that various key biopsychosocial factors act as 'setting events' which influence the interaction between parent and child over time through classical and operant conditioning. The biopsychosocial model does not help however to elicit which factors at which particular systems level (e.g. biological, family, community) are important at any particular point in time (Sadler & Hulgus, 1990).

1.3.8 Section Summary

The previous sections (1.2.3-1.3.7) outlined the clinical presentation, prevalence, onset and aetiology of feeding difficulties. The evidence provided suggests that feeding difficulties comprise a wide range of phenomena, and occur both in the presence and absence of

medical issues. A variety of factors related to both the infant and parent have been implicated in the onset, aetiology and maintenance of feeding difficulties. Many researchers advocate an interactional model, where infant and parental factors are mutually influential. Biopsychosocial models can also take account of interactional processes as in Heffer and Kelly's 'setting events' model. Studies are often cross-sectional and it is not possible to establish which factors are causal or interacting at any point in the child's development. With a variety of environmental and contextual factors it may be difficult using purely quantitative research to establish which of these are key in maintaining difficulties and which build resilience.

This chapter will go on to discuss infant outcomes in relation to feeding difficulties, and then focus on specific factors which have been suggested as being predictors of infant feeding difficulties, namely maternal anxiety and depression, maternal eating disorders, poor social support and infant temperament.

1.4 Infant Outcome

There are mixed parental reports on stability of feeding difficulties across the child's infancy. Around half of parents reporting that their child had a feeding problem at six months of age said their child 'sometimes' or 'often' had a problem aged 2 to 4 years of age (McDermott *et al.*, 2008). Motion *et al.* (2001) found that problems such as weak sucking (18%), and choking (55%) were commonly reported by parents at 4 weeks of age whereas only 3.3% of parents reported substantial difficulties feeding their 15 month old infants. In an at risk sample (babies born preterm, or having birth complications), paediatrician assessed sleep,

feeding or crying problems at 5 months predicted feeding problems in the same children at 20 months (Schmid *et al.*, 2009). In older children, there is a stable rate of picky eating from 2.5 years to 4.5 years, with some increase in prevalence, falling to low levels when children are six years old (Mascola *et al.*, 2010).

Feeding difficulties are associated with a range of health and behavioural outcomes. Pre-school infants who have had persistent early feeding difficulties are more likely to have difficulties with motor development and communication (Motion *et al.*, 2001) and adaptive and social difficulties (Schmid *et al*., 2009). Such difficulties interfere with developmental milestones and the child's ability to relay their needs to parents.

Infant feeding problems tend to present as one among other regulatory or behavioural issues. Almost 40% of parents of children with feeding difficulties report sleep problems in their children (Tauman *et al*., 2011) and other difficulties often found include mood difficulties and behavioural issues. Children with multiple regulatory difficulties e.g. sleep, feeding or excessive crying have been shown in a large prospective study to be more at risk of internalising and externalising symptoms as well as ADHD (Hemmi *et al.*, 2011). Other studies have found that children showing food refusal as infants were at increased risk of hyperactivity and behavioural problems at age four, compared to controls (Dahl & Sundelin, 1992).

Excepting behavioural outcomes, children with food refusal have been found to be equal with respect to their general health and development (Dahl & Sundelin, 1991). Non-clinical prospective studies have tended to find no relationship between picky eating and poor growth (e.g. Mascola *et al.*, 2010), whereas for children with feeding difficulties attending a clinic, poor nutritional intake and growth is more common (Lindberg *et al*., 2006). It may be that professional help seeking in more severe cases where development is compromised.

There has been a small body of research examining the link between early feeding difficulties and later childhood eating disorders. Two large prospective studies and a case-control study have indicated that individuals with eating disorders are more likely to have experienced early feeding difficulties (Marchi & Cohen, 1990; Nicholls & Viner, 2009; Rastam, 1992). Early digestive problems, picky eating and pica (eating non food substances) were predictive of adolescent eating disorders (Marchi & Cohen, 1990). The mealtime environment may also be important in predicting later eating difficulties. In a longitudinal study conflictual interactions at mealtimes predicted a diagnosis of Anorexia Nervosa in adolescence and early adulthood (Kotler *et al.*, 2001).

1.4.1 Section Summary

A body of research has shown a link between feeding difficulties and other developmental and behavioural difficulties. Further research is required to elucidate the longer term outcome of feeding difficulties in terms of stability longitudinally.

Whilst feeding difficulties are a heterogeneous category, a substantial number of families have ongoing problems lasting into preschool and school years. Those children with persistent difficulties, or who have multiple difficulties such as sleep and crying, may go on to develop other emotional and behavioural difficulties. There is a small body of research linking early feeding difficulties and later eating disorders but this mainly relies on parental retrospective reports of feeding difficulties. Prospective research with independent measures is required to substantiate a possible link between infant feeding difficulties and later eating disorders.

1.5 Parental factors in feeding difficulties

1.5.1 Maternal anxiety and depression

Research suggests that 19.2% of mothers suffer postpartum depression in the year following their child's birth (Gaynes *et al.*, 2005). Mothers with psychiatric difficulties are more likely to report that their children have feeding difficulties than mothers without any symptoms (Coulthard & Harris, 2003; Dennis & McQueen, 2007). Longitudinal studies show that levels of anxiety and depression among mothers predict feeding difficulties in their children (Coulthard & Harris, 2003; Farrow & Blissett, 2006). The following will summarise studies reporting maternal anxiety and depression as being associated with feeding difficulties in cross-sectional studies and prospective studies. Further subsections will also show where studies obtained information on feeding difficulties by questionnaire or observational methods.

1.5.1.1 Cross-sectional studies

The following sections will describe both cross-sectional questionnaire and observational studies on mood and feeding difficulties.

Questionnaire studies on mood

It has been hypothesised that maternal psychopathology may cause feeding difficulties as a result of a negative impact on the feeding interaction. An association has been found between unresponsive feeding style, in which there is a lack of guidance, nurturance or recognition of the child's needs and stress, depression and anxiety (Hurley *et al.*, 2008). Maternal stress, anxiety and depression were found to be associated with both forceful and uninvolved parental feeding styles. In this study, depression was also associated with an indulgent feeding style, which is centred on the child's wishes rather than their needs. Anxiety was linked with a restrictive style of feeding, where the baby's type and amount of food is controlled, based on worries about weight or the baby becoming 'spoilt'. Other research in a non-clinical setting, supports a link between maternal mental health and controlling feeding behaviours (Haycraft & Blissett, 2011), however the questionnaire designs mean that maternal report may be influenced by maternal mental health and cognitions. It may also be that the child's feeding behaviour influences controlling parental feeding practices or parental mental health, making causality difficult to ascertain.

Research has also focussed on maternal cognitions and their link to feeding difficulties. A population based study found an association between a host of core beliefs associated with reduced autonomy, poor performance, abandonment, powerlessness and severity of feeding difficulties (Blissett *et al.*, 2005). These 'beliefs' may reflect actual social and interpersonal circumstances that parents find themselves in, such as social isolation,

financial difficulties and reduced social status or may be negative schemata which are a feature of depression. This research may suggest that cognition plays a key role in the perception of a child's feeding, in that negative beliefs may affect both perceptions of self and perceptions of the behaviour of one's child. Maternal report of severity of feeding difficulties may also be affected by low mood, and therefore conclusions may be limited. Research is needed that includes independent observation of the child's behaviour in a feeding situation as well as maternal report of cognitive features and the child's behaviour in order to elucidate what is subjective versus objectively difficult feeding behaviours.

Observational studies on mood

There is a dearth of observational studies that independently assess feeding difficulties rather than using maternal report. There have been a very small number of studies of maternal mood and infant feeding where feeding difficulties are independently assessed. Psychiatric symptoms such as depression do not differ in mothers of children with feeding difficulties presenting to a clinic and those without (Sanders *et al.*, 1993), where feeding difficulties were independently observed although interactional style did have an effect. This study represented a small sample and therefore may not be fully representative of the target groups. Wheelan and Cooper (2000) found that a community sample of mothers of infants with feeding difficulties did not differ in anxiety or depression scores compared with a control group. There is as yet no evidence that there is a link between maternal psychopathology and independently observed feeding difficulties, but more observational research is needed. Non-clinical samples are likely to have low levels of mental health difficulties, and so a large sample with a range of clinical severity may be required to clarify any relationship between parental mental health and infant feeding difficulties.

Some observational studies have been conducted to look at the attachment style between parents of children with feeding difficulties, which may be affected by poor parental mood. Infants with poor growth have been observed to have a more insecure attachment pattern than infants without feeding difficulties, but there are no differences in attachment patterns between healthy eaters and fussy eaters (Chatoor *et al.*, 1998a). Chatoor created a specific diagnosis of 'Feeding Disorder of Attachment' to describe children who receive inconsistent care and where there is a lack of reciprocity between parent and child (Chatoor *et al.*, 1998b). However, as mood was not included as an independent variable it is not possible to make inferences about the role of attachment as a possible mediator between severe low mood and feeding difficulties. The relationship between infant feeding difficulties and attachment may be a matter of degree, with only more severe feeding difficulties showing a relationship with attachment. Longitudinal research would help to further define the temporal order and direction of any relationship.

1.5.1.2 Prospective studies on mood

Prospective studies assist in unpicking the temporal order of maternal and infant difficulties and therefore in answering the question - do maternal mental health difficulties precede or coincide with the onset of feeding difficulties, and do these difficulties predict the maintenance e.g. length of feeding difficulties? The following sections will examine both prospective questionnaire and observational studies on mood and feeding difficulties, and studies that have included the infant's physical outcome.

Questionnaire studies on mood

Prospective questionnaire studies show that parental concerns about infant feeding are relatively enduring when there are maternal mental health issues. Micali et al. (2009) reported in a large prospective questionnaire study that women fulfilling psychiatric diagnoses reported significantly more difficulties in all aspects of feeding their 1 month olds and 6 month olds compared with a control group. This was not reflected in poor weight or growth, and therefore the association is between mood and *perceived* feeding difficulties. Coulthard and Harris (2003) found an association between increased maternal anxiety and decreased satisfaction with growth, which would suggest that there may be a link between mother's distress and a view of their infant's health as being problematic. Problems such as feeding and sleeping are more subjectively perceived than other medical illnesses and therefore more influenced by mental state (Naerde *et al.*, 2000). These studies have been useful in outlining the importance of maternal beliefs in infant feeding difficulties.

Coulthard and Harris (2003) employed a prospective design to investigate the relationship between maternal mood and maternal report of refusal of solid foods. Measures of post-natal depression and state-trait anxiety were administered at three time points in the infant's first year. Onset of feeding difficulties was not predicted by maternal depression or anxiety, but depressed or anxious mothers at 1 month and 11 months were more likely to have a child with ongoing food refusal. The effect of maternal ill-health on the maintenance of feeding difficulties could reflect a natural reaction to the stresses of caring for a child with long-term feeding difficulties. Alternatively mental ill-health could have a negative impact on the parent's perception of the child's eating, or on their ability to respond to difficult infant behaviour. The authors conclude that mood difficulties are caused by feeding difficulties rather than allowing for the influence of other stressors in the parent's life that

may be exacerbated by their child's feeding difficulties. It has been suggested that the low severity of feeding problems in a community sample means their onset is less likely to be predicted by maternal ill-health (Coulthard & Harris, 2003). Results from these studies show that depression and anxiety, among other psychiatric difficulties, predict reports of feeding difficulties across the child's first year of life, and that rather than a direct causal link, these maternal difficulties may contribute to the longevity of existing difficulties. These questionnaire studies show that mothers with mental health issues perceive their children as having more feeding difficulties but cannot confirm that objective difficulties exist.

Observational studies on mood

Similarly to the cross-sectional studies outlined, prospective observational studies of mood and infant feeding have focussed on maternal interactions with the child. Depression in particular is thought to affect maternal sensitivity, i.e. the mother becomes insensitive to her baby's signals (Ainsworth *et al.*, 1978). A longitudinal study of a non-clinical sample of infants found that at 10 months old, feeding problems were associated with an interaction between poor observed maternal sensitivity and degree of infant negative emotionality (Hagekull *et al.,* 1997) indicating that both maternal and infant factors are important. Hagekull and colleagues did not measure maternal psychopathology and therefore the interaction between mood and maternal sensitivity is unknown. Depression specifically has been found to correlate with a number of deficiencies in interaction patterns between parent and child including less communication, warmth and play with infants (Field, 2010). The authors found that mothers who were low in sensitivity and reported having a 'difficult to manage' infant reported more feeding problems, a finding replicated by Kivijarvi *et al.* (2004) in a prospective observational study. However, although maternal sensitivity was observed in this study, feeding difficulties were reported by parents rather than being

independently observed. As infant emotionality was reported by the parent this may have been subject to bias. A blinded rating of maternal-child interactions, including child temperament, would enable us to determine the role of infant factors versus maternal cognitions being influenced by low mood.

No prospective studies are known that include observations of infant feeding to confirm a link between maternal mental ill-health and infant feeding difficulties. Existing studies seem to show a link between a lack of maternal sensitivity and a perception of feeding difficulties, but the role of mood in this relationship is yet unclear. Research which includes various postnatal time points would help to clarify when negative perceptions of feeding and temperament emerge and the relationship between these cognitions and mother-child interactions.

Physical health outcome

Whilst studies have mainly focussed on maternal perception of feeding difficulties, there is little evidence from prospective studies of maternal mental health having a significant effect on infant failure to thrive. Wright *et al*. (2006) found only transient weight faltering in infants of post-natally depressed mothers in the community, and the authors suggest that studies have been more likely to find an effect where mothers are both depressed and from a deprived background. In clinic based studies children from a lower socio-economic status tend to be more prevalent and there is more likely to be significant health issues for mother and child, therefore in non-clinical studies weight issues are unlikely to be prevalent.

1.5.1.3 Summary

The majority of studies investigating mood and feeding problems are cross-sectional (e.g. Blissett *et al.*, 2007; Hurley *et al.*, 2008; Wheelan & Cooper, 2000). Cross-sectional studies can make inferences about this bivariate relationship but cannot represent the complexity of multiple possible causal and mediating factors, e.g. parental attitudes to eating or social support.

In summary, some prospective research (e.g. Coulthard & Harris, 2003) has found that mood difficulties predict the duration of feeding difficulties, and these authors have suggested that mental ill health affects parental perception of their infants' health negatively. Depression is associated with an unresponsive or over-reactive feeding style (Hurley *et al.*, 2008), suggesting that mental ill-health impacts on the parent's ability to manage the feeding situation, resulting in feeding difficulties. There is a paucity of longitudinal studies to clarify when, if at all, in the infant's life cycle parental mental health issues are critical for the feeding relationship. Depression is predictive of reports of feeding difficulties, particularly among more severe feeding disorders (Chatoor *et al.*, 1998), but an association between depression, or anxiety and independently observed feeding difficulties has not been found. A relationship between maternal mood and feeding difficulties is less commonly found in community studies where participants where feeding problems are less severe, which might suggest that severity is a prerequisite for such a relationship.

1.5.2 Maternal eating disorders

The following section will outline research investigating a possible relationship with maternal eating disorder and infant feeding difficulties in cross-sectional, and prospective

studies. Further subsections will also show where studies obtained information on feeding difficulties by questionnaire or observational methods.

1.5.2.1 Cross-sectional studies

Questionnaire/interview studies on Eating Disorders

As with mood, reported differences in parental interaction at mealtimes between eating disordered and non-eating disordered groups have been found to be associated with reports of children's eating. Whitehouse and Harris (1998) found that interactions between mother and child, measured using maternal report, related to parental eating attitudes and that a higher degree of intrusion and control of children's eating was associated with parental reported food refusal and food fussiness. The suggestion is that a key mechanism operates between the dysfunctional attitudes around food and the behaviour of the mother at mealtimes with the infant. A difficulty with using questionnaires in measuring interactions is that maternal report may reflect altered cognitions as a result of clinical status rather than an actual change in the mother or child's behaviour.

Changes in behaviour as a result of maternal attitudes to eating are also reported in parents of children with non organic failure to thrive. Mothers of FTT children reported higher levels of dietary restraint (i.e. more thoughts relating to the need for restraint, increased suppression of hunger and inhibition of eating behaviour) than a matched control group and despite their child's low weight many parents tried to restrict what they viewed as 'sweet' or 'unhealthy' foods (McCann *et al.*, 1994). It is unclear to what extent foods were being restricted, and parents may not necessarily have been inadvisably cautious about unhealthy foods as implied. Failure to Thrive affects only a small amount of children and does not

apply to the majority of parents concerned about their child's eating, therefore this limits the generalisability of this study.

One study has suggested that eating disorders have an impact on a wider breadth of parenting interactions than just feeding. Haycraft & Blissett (2011) found that Bulimia was associated with an authoritarian style of parenting, and mothers with body dissatisfaction were more likely to have a more permissive style. In a case series study of mothers with Eating Disorders, Franzen and Gerlinghoff (1997) describe three types of parent-child role patterns: 1) overprotective or 'enmeshed' relationships, 2) the child becomes 'caretaker' to the mother and his/her needs are neglected, or 3) mothers are distant from the child and there is an absence of emotional expression. Further research is needed to substantiate these role categories, which as yet are fairly speculative. Currently there is no research which links control or permissiveness within feeding interactions to particular parenting styles to feeding interactions. Specific parental behaviours that may contribute to feeding difficulties could be helpfully identified within these roles.

Research has aimed to elucidate the particular pressures and cognitive features driving eating disorders that are also associated with child feeding difficulties. Patel *et al.* (2005) in a qualitative study, found that women with eating disorders report difficulty in coming to terms with their postnatal body and that the dependency of their child during breastfeeding was uncomfortable. Blissett & Meyer (2006) found that as a result of defectiveness and shame beliefs, a drive for thinness occurs and it is this rather than specific symptoms e.g. of bulimia, that lead to changes in maternal mealtime behaviours and child food refusal. Such studies show there is a role for parental report and qualitative studies in suggesting theory and possible mechanisms linking eating psychopathology and infant feeding difficulties.

Quantitative longitudinal research is required however to confirm that cognition plays a mediatory role. Negative feelings about self and eating is likely to

overlap with difficulties with mood, and therefore it would be helpful to examine the role that mood may play, in addition to eating disorders, on feeding interactions and feeding difficulties.

The mother's own cognitions about their child too are increasingly being viewed as important in explaining children's feeding difficulties. There may be a difference in how parents with eating difficulties perceive their child's feeding and weight. There is a higher level of weight and shape concern among mothers of children with feeding difficulties than mothers of children with no feeding difficulties (Wheelan & Cooper, 2000) which may affect their view of their child's eating, shape and weight. Other questionnaire based research suggests that mothers with eating disorders are no more concerned than other mothers about their children's weight (Waugh & Bulik, 1999) which suggests further research is required to clarify the driver for altered mealtime interactions among mothers with Eating Disorders.

Observational Studies on Eating Disorders

A negative and coercive style of feeding has been identified as a factor in the development of feeding difficulties, for example when parents use aversive instructions, and negative prompts and comments when feeding (Sanders *et al.*, 1993). Maternal bulimia and food preoccupation has been found to be associated with conflictual feeding interactions from an early age, in 34 to 36 month olds (Ammaniti *et al.*, 2010). Stein *et al.* (1994) conducted observations of mothers and their one year old infants in a play situation and at mealtimes, and found interactions between mothers who had experienced an eating disorder in the

postnatal year and their children to be more intrusive and conflictual than between infants and mothers who had not experienced these difficulties.

In a non-clinical study of toddlers and their families, Blissett and Haycraft (2011) found that both bulimic symptoms and a drive for thinness increased food restriction and controlling behaviours at mealtimes. Blissett and Haycraft (2011) surprisingly found that less food refusal was shown by toddlers of parents with Eating Disorder symptomatology. The authors explain these results by pointing to observed prompting given to these children, which may however have a negative impact on their acceptance of foods or ability to regulate intake at a later stage. However, negative results are counter to a maternal eating disorder/infant feeding disorder link and should be replicated in a longer follow-up study rather than discounted. The cross-sectional studies are unable to tell us about the onset of difficulties, and therefore whether the children had existing difficulties in accepting foods which contributed to the poor interactions.

1.5.2.2 Prospective studies

Questionnaire studies on Eating Disorders

Reba-Harrelson *et al.* (2010) found a restrictive feeding style in mothers with binge eating disorder and bulimia which predicted disordered infant eating, but found that this group of parents did not pressure their infants to eat any more than the control group; therefore this suggests that attitudes to food and not just mealtime interactions are key to the prediction of childhood eating difficulties. Whilst no significant results were found for anorexic women in terms of restrictive feeding, it may be that bulimic/binge eating women feel under pressure to endorse restricted eating questionnaire items for their children. The presence of

control, negativity or coercion may depend on the specific pattern of parental eating attitudes and behaviours. Micali *et al.* (2009) found that mothers with Bulimia Nervosa reported a higher rate of food refusal in their children than controls, but reported less dissatisfaction after feeding compared to other groups. Mothers fulfilling the criteria for Anorexia Nervosa reported high rates of babies being unsatisfied after feeding but these infants were not overweight at 9 months. It was proposed that mothers with Anorexia Nervosa may have either restricted their child's intake or misread their child's hunger and satiety cues. The authors suggest that mothers with eating disorders have increased worries about their infant's body weight, a proposal which is supported by previous research (Agras *et al.*, 1999) but has not been supported by another study (Waugh & Bulik, 1999) and is speculative since this was not asked of the mothers. Conclusions regarding food intake and misreading of the children's cues are not possible without direct observation.

One difficulty with the current questionnaire based longitudinal studies on maternal eating disorders and infant feeding are that many researchers speculate about mechanisms linking eating the two rather than concentrating on predictors. Questionnaire data may help to identify predictors but cannot hope to identify what may be subtle unconscious interactional process between parent and child.

Select questionnaire based research has investigated maternal predictors of infant feeding; one such study looked at the effects of maternal eating attitudes on children's later behaviour around food. Stice *et al.* (1999) found that as well as bulimic symptoms and maternal body dissatisfaction prospectively predicting secretive eating in children under five years of age, infant factors such as body mass index in combination with a maternal dietary restraint drives overeating in children. Therefore it appears that specific maternal attitudes

in combination with infant factors, leading to concerns about their child's weight, might be present prior to the development of unhelpful eating patterns in children. This prospective study usefully examined both cognitive features and symptoms to determine which specific features might be linked with changes in the child.

Observational studies on Eating Disorders

Prospective observational studies of maternal eating disorder and infant feeding are few, and tend to focus on the mother-child feeding interaction. Both overly controlled and chaotic styles of feeding have been observed in mothers with eating disorder symptoms (Agras *et al.,* 1999; Cooper *et al.*, 2004). Cooper *et al.* (2004) compared maternal eating pathology and eating environment for a group of children with feeding problems, other problems or no problems. The researchers found that the faddy eaters could be distinguished from the other groups by higher levels of mealtime disorganisation, maternal control and disharmony. Mothers with higher eating disorder scores were more likely to have less routine around mealtimes and show a controlling or disharmonious style of interaction with their child. One difficulty with this type of research is that the concept of mealtime disorganisation is subjective and mealtime 'norms' may differ across cultural groups. Alternatively, patterns of mealtime interaction may represent part of a wider parenting style which is influenced by eating disorder symptoms. Mothers with eating disorders for example have been found to exert more control over their toddlers than mothers with postnatal depression or with no mood difficulties, particularly during play (Stein *et al.*, 2001).

Observational research has also been useful in investigation of physical differences in children. One study suggests that in comparison to children of post-natally depressed

women and women with no difficulties, infants of women with eating disorders are smaller in height and length (Stein *et al.*, 1994). Parents may develop genuine concern as a result of growth issues and it might be that their mealtimes become fraught or conflictual.

1.5.3 Summary

Mothers of children with feeding difficulties have been found to have higher rates of eating problems compared to control group mothers in a number of cross-sectional studies (Lindberg *et al.*, 1991; Stein *et al*., 1995; Wheelan & Cooper, 2000). Cross-sectional studies also show increased maternal control in feeding interactions involving mothers with eating disorders and this has been independently observed also. An association between maternal cognitive features in relation to self image and infant feeding difficulties has been shown in cross-sectional studies, and this finding has also been backed up by prospective research. Prospective questionnaire studies have picked up increased maternal reports of restrictive feeding and concerns about child's satisfaction after eating by mothers with eating disorders. As yet, no one study has been able to provide a model of cognitive and behavioural differences between mothers with eating disorders whose children go on to have feeding difficulties versus those whose children have no feeding issues.

There have been studies reporting negative findings e.g. Whitehouse and Harris (1998) found that there was no significant difference in levels of food fussiness between infants of mothers with or without eating disorders, and Waugh and Bulik's (1999) study observed few differences in the feeding interactions between mothers with eating disordered symptoms and controls, with the exception of fewer positive comments by mothers with eating disorders. Differences may be caused by different severities of eating disorder, or

differences in rating systems. In community populations of selective eaters, parental eating pathology was not associated with their infant's eating difficulties or weight gain in both questionnaire studies (Lewinsohn *et al.*, 2005; Wright *et al.*, 2006) and prospective studies with behavioural observation (Jacobi *et al.*, 2003). It may be that levels of eating pathology among women in the community are not sufficient to detect an existing association between maternal eating disorder and infant feeding disorder. Other research in a cohort of older children of 7-12 years of age has not found a relationship between reported picky eating and maternal eating disturbance (Jacobi *et al.*, 2008) and therefore it is not certain that maternal eating disturbance plays a role in the aetiology of selective eating at least. However, selective eating is so common a problem that there is likely to be a range of causal and maintaining factors amongst this heterogenous group.

There are likely to be other factors mediating a possible link between maternal eating disorder and infant feeding difficulties, for example mood. Reba-Harrelson *et al.* (2010) in a large community sample found that the eating disorder groups who had a higher rate of infant feeding difficulties were those who had a higher level of anxiety. The research must therefore take a wide view of the parent's functioning before concluding a causal link. The current study aims to capture as many types of feeding difficulty as possible in a community sample, and measure mood and eating pathology, so as to be as non-selective and representative of the population as possible.

1.5.4 Social support

Cross-sectional studies on social support

Mothers lacking social support report that they feel less competent in managing their infant's routines and are more likely to believe that their infants have a difficult temperament (Teti & Gelfand, 1991), whereas Dennis *et al.* (2002) found that mothers belonging to a peer breastfeeding support group were more likely to be satisfied with their feeding experience than those who did not have peer support. It seems that mothers perceiving, or not perceiving adequate social support is associated with how they view their children's behaviour, and also with their confidence and satisfaction with feeding. Lindberg *et al.* (1994) found that mothers of children with chronic food refusal who lacked emotional support had higher levels of psychosomatic ill health than a control group, which measured anxiety and depression among other physical symptoms. These findings were thought as suggestive of anxiety and depression mediating a relationship between social isolation and feeding difficulties. It has been suggested that that a lack of support post-natally means that feeding difficulties are more difficult to manage (Farrow & Blissett, 2006). Feeding difficulties can have a real impact on relationships, for example the marital relationship (Hagekull & Dahl, 1987), and relationship discord is likely to be associated with lack of social support. An alternative account is therefore that feeding difficulties could precede a low level of social support. A major criticism of these cross-sectional studies is that they cannot determine causality or the direction of any relationship between social support and feeding difficulties.

More specific research shows that spousal support is important in the postnatal period, with an open and supportive relationship being associated with good maternal mental health

(Naerde *et al.*, 2000). Research is needed to establish whether postnatal spousal support is a protective factor for feeding difficulties. Beliefs held about support may also play a role, with Blissett *et al.* (2005) and Farrow & Blissett (2006) finding that among others, maternal core beliefs related to abandonment and dependence among others are associated with severity of maternal reported feeding difficulties, with the latter study showing a prospective relationship. 'Perceived' support is the cognitive component of support and is more predictive of wellbeing than actual received support (Coventry *et al.*, 2004) These core beliefs about our position and connection in relation to others is posited to lead to feelings of powerlessness, isolation and disconnection leading to reduced ability to problem solve about feeding difficulties (Blissett *et al*., 2005). Such a theory is based on supposition however, given the research is cross-sectional, and a number of variables could potentially affect response to feeding difficulties such as life events or social deprivation. Beliefs may also affect expectations about support and motherhood and further research is needed in this area.

The families' wider socio-economic circumstances are relevant to the likelihood of good emotional supports. Socio-economic status is associated with a range of psychosocial difficulties including a lack of social support. Zachariah (1994) found that young mothers living in a low income area had a lack of close relationships. They also had a range of practical and social difficulties and found it difficult making decisions about the care of the baby. It seems that perceptions of social support are associated with confidence in feeding.

With the majority of studies being cross-sectional, it is not possible as yet to conclude there is a definite relationship between social isolation and feeding difficulties, and if one exists, what the direction of any causal relationship is. There seems to be some associations with

core beliefs about self and relationships with others and reports of feeding difficulties, but more prospective research is needed to clarify the nature of this relationship

Prospective studies on social support

A mother's social support system has been found to be more predictive of her mental wellbeing than her baby's physical health in a longitudinal study, with perceptions of social support being more predictive than quantitative measures of social contact (Oakley *et al.*, 1994). Good levels of social support are associated with less infant crying, and increased observable maternal sensitivity across the first year of life (Kivijarvi *et al.*, 2004), indicating that good social support leads to an improved mother-child relationship and a more content baby. Prospective studies have pointed to social isolation as a predictor of depression in postnatal women (Logsdon & Usui, 2001) but further research is needed to establish whether feeding difficulties follow in the infants of this group of women. It seems that mother/child wellbeing and social support are linked but it remains to be seen how this affects feeding or parental satisfaction with feeding.

A small number of studies have investigated social support as a possible variable in maternal perceptions of feeding. Core beliefs regarding social isolation as well as perceptions of infant temperament predicts maternally reported feeding difficulties in a non-clinical sample (Farrow & Blissett, 2006), which contrasts with cross sectional research that found that perceptions of social support do not differ in mothers of children with observed feeding difficulties and mothers of children with no feeding difficulties (Sanders *et al.*, 1993). Early prospective studies then support that negative perceptions of feeding difficulties follow feelings of social isolation. Social support may affect perceptions of infant feeding rather than actual observed infant behaviour. Available research including observations (Sanders *et*

al., 1993) suggests that when feeding difficulties are independently observed, perceptions of social support does not differ between this group and children with no difficulties. As with the research on mood and eating disorders, it is important to differentiate between correlates of perceived difficulties versus observable differences.

1.5.5 Section Summary

The previous section has examined the evidence for a link between infant feeding difficulties and maternal depression, anxiety, eating disorders and social support. In clinic referred families, an association has been demonstrated between maternal psychopathology and reports of infant feeding difficulties. Higher levels of anxiety and depression have been associated with both the presence of, and longer duration of reported feeding difficulties in early prospective studies. Further prospective research is required to establish causal links between mood and feeding difficulties. Community studies have not supported this association, and challenge the existence of a link between maternal anxiety, depression and feeding difficulties in infants who are not referred to feeding or paediatric clinics. Furthermore, whilst prospective studies show that decreased maternal sensitivity is observed in mothers who report feeding difficulties, there is an absence of prospective studies which also independently observe feeding difficulties. Mood, maternal sensitivity and feeding difficulties should be studied together in order to determine the nature of the relationship between these variables.

Research has begun on the maternal cognitive correlates of infant feeding difficulties, and found that negative beliefs about self and others are associated with poor feeding outcomes. As most studies include self-report of feeding difficulties, it remains unknown

whether such beliefs precede observable difficulties. Prospective research would elucidate whether these beliefs precede feeding difficulties, and if they change as mood course alters. It may be that the relationship between maternal and infant factors differs according to type of feeding difficulty or severity, and so these groups may need to be separated.

The research on maternal eating disorders and infant feeding difficulties was summarised in Section 1.5.2. There is a higher prevalence of eating disorders among mothers who have infants with feeding difficulties. Concerns around eating and body image have been linked with a concern about children's eating and weight, and less positive management styles at mealtimes (including in prospective studies) which in turn associated with feeding difficulties. There have also been negative findings in the search for a link between maternal eating disorders and feeding difficulties, particularly in community studies.

Limitations of the eating disorder/infant feeding literature are the inconsistencies in measurement in eating disorder and feeding difficulties. Studies are often cross-sectional with small sample sizes. Whilst there are a small number of prospective studies where eating interactions are independently observed, more of these are needed. Mood is not always measured alongside eating disorder and so it is not clear how these maternal variables might interact to affect infant feeding. As not all studies include both eating attitudes and symptoms it is unclear whether one or both is important in the feeding relationship.

Lastly, a number of studies have linked a lack of maternal social support and infant feeding difficulties. Poor social support is associated with less confidence and satisfaction with the child's routines. Mothers' wellbeing is affected by feelings of social isolation as shown by

both cross-sectional and prospective studies. As yet it is unclear if, and how, a poor perception of social support relates to maternal wellbeing and infant feeding difficulties. Social support is associated with other factors influencing maternal wellbeing such as depression and social deprivation, and yet these variables are not always included in the research. Prospective research that includes measurement of social support alongside mood, feeding and other psychosocial difficulties is needed to clarify the temporal order of these various factors.

1.6 Infant Factors in Feeding Difficulties

1.6.1 Infant temperament

It has long been suggested that children have a nature, or set of characteristics which is innate or develops very early. The fit between child characteristics and the environment, and parental perceptions of the child are key to the ongoing development of the child's temperament (Costa & Figueiredo, 2010). Temperament is often measured once the child is aged at least one and there has been a multitude of environmental experiences to shape infant behaviour. It is not possible to conclude that temperament is a set of fixed characteristics within the child. One proposed component of children's temperament is 'difficultness' (Thomas *et al.*, 1968), which includes aspects such as negative mood, irregularity in routine and low adaptability. Temperament has also been described along dimensional scales, some of which have been associated with feeding difficulties. Pliner and colleagues (Pliner, 1994; Pliner & Loewen, 1997) suggested that dimensional characteristics such as Approach-Withdrawal (the tendency to be comfortable or nervous in response to new stimuli) were associated with the degree of neophobia, or fear of new foods, displayed by children.

1.6.1.1 Cross-sectional studies on temperament

Toddlers displaying a higher level of emotionality are more likely to be reported as showing avoidance of eating (Haycraft *et al.*, 2011). Mothers of infants with colic report their children to have more difficult temperaments than mothers of infants without colic both generally (Jacobson & Melvin, 1995) and during mealtimes (Lindberg *et al.*, 1991). Jacobson and Melvin (1995) observed that infants with colic had more difficult temperament which would support the validity of maternal reports. The 'temperament-feeding difficulty' link is also apparent for other feeding problems. Lindberg *et al* (1994) found that mothers of 'food refusers' reported their children as having more difficult temperaments even after questionnaire items concerning food were removed. Specifically, food refusers were reported to display more negative mood, be less persistent and have irregular sleep patterns. Irregular sleep patterns are common among children with feeding problems (Hagekull *et al.*, 1997), which may mean parents find it more difficult to cope with feeding problems. The studies reported in this section all rely on maternally reported feeding difficulties, and therefore no conclusion can be made about the actual behaviour and routines of children with feeding difficulties. Mothers of children with 'infantile anorexia' (Failure to Thrive) as assessed independently, rated their children as having more difficult temperaments than other infants, and as lacking in eating and feeding routines (Chatoor *et al.*, 2000). This perceived difficult temperament may reflect a difficulty in the ease of interaction between mother and child, and it may be that environmental contingencies are responsible for child 'difficulty' and feeding difficulties rather than a set of inbuilt characteristics being responsible for feeding difficulties.

1.6.1.2 Prospective research on temperament

Temperament has been found to be predictive of early infant feeding problems in both non-clinical samples (Farrow & Blissett, 2006; Haycraft *et al.*, 2011) and a clinical sample of food refusers (Lindberg *et al*., 1994). Whilst Farrow & Blissett (2006) conducted independent assessment of feeding, more studies are needed to independently confirm any relationship between temperament and feeding. Children classified as having difficult temperaments tend to show less positive social behaviour and an increased awareness of their surroundings (Van den Boom & Hoeksma, 1994). These researchers among others have noted that the maternal response to these behaviours may negatively impact on mother-baby interaction. This is supported by research which shows that infant temperament and maternal sensitivity interact to predict early infant feeding problems (Hagekull *et al.*, 1997). How the child is responded to therefore, is as important as their own behaviour in feeding success. Other researchers in a large longitudinal study have found that temperament is influenced by parental depression (Hanington *et al.*, 2010). It has been suggested that mothers of more irritable children become 'bothered' by their child's negative moods, and as a result they provide less stimulation for their children and feel helpless to soothe their child (Jacobson & Melvin, 1995). There will be contextual differences in saliency of child 'difficulty', with routine activities such as feeding and changing being times where parents are most likely to notice their child's negativity (Hane *et al*, 2006), which brings into question whether children will be rated as difficult in temperament if items about these activities are not included. The benefits of the longitudinal design in these studies is in its ability to detect the direction of any relationship between parental and infant variables, and it is likely that relationships might be bi-directional. A longer follow-up would allow

researchers to investigate whether perceived difficult temperament improves in those children where feeding difficulties have allayed.

1.6.2 Prematurity/Low Birth Weight

There is an association between low birth weight and feeding problems, likely due to increased prevalence of physical health problems among children with feeding difficulties (Lindberg *et al.*, 1991). A large prospective UK study found that weight faltering in the first two months after birth was associated with feeding difficulties and is associated with developmental delay and poor intellectual functioning (McDougall *et al.*, 2008). Prematurity can also cause medical problems. A high severity of medical issues predicts a higher likelihood of feeding difficulties (Hawdon *et al.,* 2000). A study of 86 ex-premature babies with feeding difficulties (Schadler *et al*., 2007) revealed that 87% had interaction difficulties (just over half had a learning disability). Poorly developed social skills as well as other developmental difficulties may account for many of the feeding difficulties in prematurely born children.

Additionally, parents of premature infants may suffer increased stress and depression due to the emotional and behavioural demands of the hospitalisation and care of a preterm baby (Meyer *et al*., 1994). This stress may affect the parental resources required to interact sensitively during feeding interactions. Prematurity and low birth weight may bring worries about the health of the baby despite having no obvious health problems as Satter describes:

"If a child is prematurely born, perceived as fragile, or his growth rate or eating pattern is unusual or not pleasing to the parents, then the feeding relationship is at risk. Parents may

attempt to get the child to eat more by using overactive, forcing tactics, or to eat less by delaying feedings or failing to feed to satiety. Parents who are particularly invested in wellness or weight management are at risk of becoming overmanaging in feeding." (Satter, 1990, p.187).

1.6.3 Section Summary

Feeding difficulties have been found to be associated with temperament of the child and prematurity or low birth weight. Temperament is predictive of feeding difficulties. Temperament is not universally accepted as a set of innate characteristics but may also reflect maternal perception of the infant's behaviour and a relational difficulty. There are circumstances where aspects of the child's presentation are more salient (Hane *et al*., 2006), and these situations provide rich material for investigating the differences between parental perceptions and objective observation. A change in parental behaviour can cause the child's routines to be disrupted. Maternal depression alters responses to the child, and studies indicate that both maternal sensitivity and the child's behaviours together are predictive of feeding difficulties. Studies of temperament and feeding difficulties should include measures of mood and maternal sensitivity in keeping with social interactional models of child emotion and behaviour. Prospective studies with combined observational and questionnaire designs could lead to a useful cognitive/interactional model which would reflect both perceptions of the child and the child's actual behaviour. Only longitudinal studies can begin to capture the complexity of the relationships between maternal and infant variables, which could provide a starting point for a model of these relationships.

Secondly, prematurity and low birth weight raises the likelihood of medical problems, the severity of which predicts feeding difficulties. As well as causing physical difficulties, for example with chewing or swallowing, medical problems increase parental stress and worries regarding their child's health. Parental feeding style may be altered as a result of concerns, thus inadvertently reinforcing existing difficulties.

Further research into parental perceptions of premature infants or infants with health difficulties compared to perceptions of full term children with no difficulties, would enable a picking apart of the factors that may be associated with infant feeding problems. Inclusion of mood and observation of interactions within studies of premature children with feeding difficulties would enable greater understanding of the contribution of these factors.

1.7 Parental help-seeking

Studies involving infants with early feeding problems identified by professionals (estimated at 0.3 to 1.4%) produce a lower prevalence of than those identified by parents (estimated at 25 to 30%) (Lindberg *et al*., 1996). This would suggest that there is a chasm between the number of parents experiencing problems and those receiving professional help. This may be because difficulties are transient or there may be a group of parents who are reluctant or unable to access support.

For parents of children with chronic medical problems, feeding difficulties may be one among a range of problems and therefore help may not be sought or given. Of 271 parents

of children with neurological and feeding problems, 64% reported that their child had never been assessed specifically for feeding or nutritional problems and 83% had never been assessed by a dietician (Sullivan *et al*, 2000). Reilly and Skuse (1992) found that in a sample of preschool children with cerebral palsy, severe feeding problems were often overlooked by the medical profession. Feeding problems are a common problem affecting families with and without medical conditions and so a pertinent question arising is what factors influence whether or not parents seek help for these problems?

Maldonado *et al.* (2008) suggested that factors influencing referral for clinical management may be severity of the feeding difficulty, presence of failure to thrive, or the mother's sense of failure at feeding. Maldonado and colleagues have also suggested that those who seek help are more likely to suffer fewer barriers to attendance at a clinic and less problematic patterns of parent-child interaction than those who do attend. Research is planned by this group in to the possible differences in feeding strategies between referred and non-referred infants. Harris and Booth (1992) have suggested that the likelihood of parents seeking help for feeding difficulties may be due in part to their attribution of cause and responsibility. Parents who believe that there is an underlying organic problem or that they themselves have contributed to the problem may be more likely to seek advice.

Knowledge of available resources as well as stress has been found to predict maternal help-seeking for feeding difficulties (Ehrlich, 2009). First time mothers who may have less knowledge and/or confidence make more use of services (Jansson *et al.*, 2001). Ostberg (1998) found that parent's economic situation and degree of social isolation, as well as psychological functioning and degree of child problems all contributed to parental stress in

families with young children seeking help from a child health centre. It seems that socio-economic factors, knowledge, social network and infant factors may all influence help seeking.

Research which examines both professional and parent identified feeding difficulties should help to tease out differences in concerns and factors influencing referral. Lindberg *et al.* (1994) suggests there is little difference between the demographics and health characteristics of families identified by parents and nurses. Their research found that infants and their families did not differ in their amount of contact with medical care. Nurse-identified families had more psychosocial problems than parent identified families. Further research by this group (Lindberg *et al.*, 1996) indicated that the infants identified by nurses are more likely to show insecure attachment patterns. The authors suggest that more severe interaction difficulties are more likely to be identified by nurses than highlighted by parents.

Families' socio-economic circumstances are known to affect decisions about feeding and therefore, one could hypothesise that they may also affect decisions about seeking support for feeding difficulties. Wright *et al.*, (2007) found that infants born to more affluent families are more likely to be breast fed initially and at four months than infants from more deprived families. Families of lower socio-economic status are also more likely to wean their children early (Wright *et al.*, 2004). As preciously highlighted, mothers from more deprived areas are also thought to be more socially isolated Jansson *et al.*, (2001) found that mothers in lower social positions are more likely to use nursing services whereas middle class/those in high social positions rely to a greater extent on literature and mass media. They also found a

geographical divide with urbanites making more use of services. Isolated mothers whose children have developmental difficulties have been found to be more likely to have an external locus of control, and cope with difficulties by distancing themselves from others (Dunn *et al*., 2001). It may be that parents who are isolated are less likely to seek support due to their coping style, or alternatively those who feel isolated seek support because they lack adequate, rather than sufficient supports. Telleen (1990) has suggested mothers who feel isolated and lack confidence seek professional help, but actually have a wider social support network than those mothers who do not seek help.

1.7.1 Section Summary

Feeding difficulties are common amongst families of young children. Research is at too early a stage to identify which factors predict families seeking professional help for feeding difficulties. The current study aims to gather qualitative information regarding mothers' use of professional support; their experiences of support and therefore what affects their ongoing use and satisfaction with child health services.

1.8 Local and National Context

National policy and guidance advocates the targeting of health services to those families most in need. Health for All Children-Version 4 (HALL-4) a National government report, advocates an increase in health promotion, and targeting at risk children. The Scottish implementation guidance (2005) for HALL-4 highlighted the inconsistent use of children's health services by parents from deprived areas. It is recommended that parents with infants

are assessed for depression where indicated, although depression will not be routinely screened for. Local care pathways should be specified for children with growth problems, developmental delay and emotional/behavioural difficulties, and parenting capacity should be bolstered where required with a pre and post birth intensive support service according to 'Early Years and Early Intervention' (Scottish Executive report, 2008).

Both HALL-4 and 'Early Years and Early Intervention' recommend that a range of support for parents is provided through primary care, the local community, voluntary sector, and the education system. There is a move towards both early intervention and local community support systems, however in the light of recent economic challenges it is likely that early intervention will make way to meet the needs of infants with the most immediate health problems.

Scottish policy highlights a number of health challenges for Scotland including feeding difficulties. Delivering a Healthy Future: An Action Framework for Children and Young People's Health in Scotland (Scottish Executive, 2007), highlights obesity, prematurity and chronic illness as current challenges for the NHS. 'Delivering a Healthy Future' advocates that health services address the anxieties of parents, and target needy families with problems such as alcohol/drug misuse.

The Infant Feeding Strategy for Scotland (Scottish Executive, 2006) highlights a number of strategies that have been used in Scotland to support infant feeding, such as encouraging

public breastfeeding friendly areas and increasing breastfeeding support groups. A number of materials have been produced such as a breastfeeding website, and publications for new parents.

International and European strategies by The World Health Organisation (WHO), UNICEF and the European Union have a specific focus on increasing initiation, duration and exclusivity of breastfeeding. The WHO Global Strategy for Infant and Young Child Feeding (WHO, 2003) promotes exclusive breastfeeding from birth to six months. WHO also support the UNICEF Baby Friendly initiative, which encourages hospitals and community staff to promote and support breastfeeding. The European Union have produced their own document outlining strategy for policy makers: Protection, Promotion and Support of Breastfeeding in Europe: a Blueprint for Action (2008).

Nationally healthcare services are also encouraged to promote and support breastfeeding. The National Institute for Clinical Excellence (NICE) cites evidence from the Department of Health's UK Feeding Survey (2005) that 23% of mothers breastfeed when their child is 6 months but of those who stop before this age, three quarters would like to breastfeed for longer. NICE suggest that increased support is required to improve this trend. Social inequalities are also key in feeding patterns, with more deprived children being less likely to be breastfed (DOH, 2005), more likely to be weaned before the recommended age and suffer from growth faltering or obesity (Armstrong *et al.*, 2003). NICE also recommend that health professionals identify and treat accordingly families who require more intensive support.

A number of issues arise from the national and international policy and guidance available on feeding. Consultation responses to the Infant Feeding Strategy highlight that support for feeding often does not reach groups such as young mothers, mothers in rural areas and minority groups. Breastfeeding support groups may exclude those who bottle feed their infants. Guidance for parents who bottle feed has only very recently been produced by UNICEF and professional guidance for midwives and health visitors is limited. The infant Feeding Strategy mentions the support of weaning as a possible future goal but does not elaborate further on how this should be rolled out.

Lastly, on a local level, a community approach has been applied as recommended by national policy. There is a range of local support in Forth Valley, particularly for breastfeeding mothers, for example at the 'baby cafe' in Balfron support is provided in an informal setting. There are a number of breastfeeding support groups running across Forth Valley, and a group of mothers who have previously breastfed have been trained as mentors for new mothers in Stirling. Such peer support groups, as well as increasing breastfeeding rates, have been found to improve levels of wellbeing and parenting skills (Wade *et al.,* 2009). Hoddinott *et al.* (2009), in a Scottish study, has highlighted the difficulties in maintaining healthcare run support groups particularly in deprived areas, and so strategies to provide support to parents of infants cannot be 'one size fits all'.

1.8.1 Section Summary

Although infant feeding is high on the health agenda, much of the focus is on breastfeeding and there is an absence of guidance for mothers and professionals on bottle feeding,

weaning difficulties or more complex issues with attachment. There is a gap between routine healthcare checks at 4 months and 13 months, a crucial time for the confidence of mothers and babies in feeding and therefore the onus is on parents to seek advice. Government guidance suggests that the neediest families are less likely to access the support they need, and that there is not enough evidence on specific social or ethnic groups to inform how we should target advice and support. There is a trend towards informal community support but this support too is focused on the promotion and support of breastfeeding and may ignore other difficulties that families face.

1.9 Rationale for current study and research questions

Sections 1.1 to 1.8.1 have outlined the background research to the current study. This section will summarise this in order to provide a rationale for the research questions.

Research indicates that, in addition to childhood medical complaints, clinically significant maternal depression, anxiety and eating disorder symptoms predict the perception of ongoing feeding difficulties in infants. This outcome is not consistently found in a community sample, and is thought to depend on the levels of psychopathology. These difficulties have been linked to the increased likelihood of a non-responsive feeding style or aversive feeding environment. Further, a lack of social support is thought to reduce maternal confidence in their child's routine and ability to cope with difficult behaviours. If difficult behaviours are perceived as being excessive (i.e. a difficult temperament is perceived as being present), mothers are more likely to also perceive difficulties in their child's feeding.

The principal objective is therefore to identify which characteristics of the parent or the child, or support network predicts reports of problematic infant feeding. Factors that are hypothesised to predict feeding difficulties are maternal anxiety and depression, mealtime negativity, eating disorder symptomatology, perception of poor social support, and difficult infant temperament.

The second research question concerns maternal perception of help-seeking and factors associated with feeding difficulties. Factors associated with successful and unsuccessful feeding experiences from the point of view of mothers will be identified using content analysis.

Lastly this thesis will also seek to identify the prevalence and nature of feeding difficulties in a community sample.

2. METHODOLOGY

2.1 Design

A mainly quantitative approach using a questionnaire was used to answer the research questions, along with a small number of qualitative questions. The questionnaire was given to participants at around 20 weeks of pregnancy, and post-natally when their infant was around three months and seven months old. The questionnaire comprised demographic information, questions about previous feeding experiences, expectations of infant feeding, and attitudes towards help-seeking which were created for the purposes of the current research. Standardised self-report measures were also included in the questionnaire; of symptomatology (maternal stress, anxiety, depression and attitudes towards eating) and social support. For the post-natal data collections the parents were additionally asked to report on the child's feeding (problem type if relevant, parental response at mealtimes feeding difficulties, levels of distress for parent and child and whether professional help was sought) and finally perceptions of the child's temperament. Measures will be discussed more fully in Section 2.4.

A within subjects longitudinal design was used to examine factors which are predictive of problem feeding, and identify factors which correlate with help-seeking for infant feeding difficulties.

2.2 Ethical Approval

The research was examined by the Tayside, Fife and Forth Valley Medical Ethics Committee (Appendix I) and NHS Forth Valley Research and Development (Appendix 2).

There were a number of ethical issues that required to be addressed. One ethical consideration was that as women were approached at their health care appointment, they may feel that it was compulsory to take part or that their healthcare might be affected if they did not take part. It was therefore made clear in the consent form (Appendix 4) and participant information leaflet (Appendix 3) that participants were free to withdraw from the study at any time and that their healthcare would not be affected as a result.

It was taken into consideration that there would be some women who would miscarry pregnancies or they/their children would have major health issues. It was considered in this case that it would not be appropriate to contact these women due to the distress that would be caused. A procedure was set up to ensure that women who had suffered miscarriages or significant health issues (themselves or their children) where inclusion in the study may cause further distress were not contacted. It was made clear in the consent form and participant information leaflet that their GP, midwife and health visitor would all be aware of their involvement in the study.

As some items in the questionnaire related to mood and disordered eating behaviours, these items could potentially cause some participants distress if these were relevant to

them. Participants were made aware in the information leaflet that they could contact the investigator should any items concern them, and they were also aware that their midwife, health visitor and GP would be aware of their involvement in the study should they require support. It was also considered that some participants would score in a clinical range for stress, depression, anxiety or disordered eating attitudes/behaviours. It was decided that if participants scored significantly (two standard deviations) above the clinical cut-off for anxiety, depression or disordered eating attitudes, a phone call to the participant would take place to assess whether their difficulties required referral to their General Practitioner.

2.3 Participants

2.3.1 Inclusion and Exclusion Criteria

The sole inclusion criteria were that the participants should be pregnant females aged sixteen and over with a gestational stage of around 12 weeks of age. This stage of pregnancy was chosen to gather informed consent as it was identified by the midwifery department as the only stage in pregnancy that every pregnant mother in Forth Valley generally attends a routine healthcare visit.

Exclusion criteria for mothers included drug dependence, per caregiver discretion mother is not capable of consent, or mother is not fluent in English. Exclusion criteria for infants include custody under contention, or major congenital anomaly or congenital infection. The midwifery and health visiting department were given these exclusion criteria and agreed to

inform the researcher if the individual was not suitable for the study under any of these conditions.

2.3.2 Total Sample

Table 2.1 shows the total number of participants and mean age for each time point, following exclusion of participants by the midwifery/health visiting department as well as participant drop-out.

Table 2.1: Total number of participants and mean age at all time points.

Time point	No. of participants	Mean Age
1 (pre-natal)	64	28 years 4 months
2 (3-5 months)	48	30 years 3 months
3 (7-10 months)	31	29 years 6 months

2.4 Measures and rationale for their selection

A copy of all measures and questions used in the questionnaires can be found in Appendix 5.

2.4.1 Measure of distress - Depression Anxiety Stress Scales (DASS-21)

The Depression Anxiety Stress Scale (DASS) (Lovibond & Lovibond, 1995) is a three factor measure of depression, anxiety and stress. The depression scale measures loss of self-esteem, incentive; and anhedonia. The anxiety scale emphasises fear-related symptoms,

autonomic arousal and situational anxiety. The stress scale measures persistent arousal, tension and sensitivity to upset or frustration. Lovibond and Lovibond (1995) intended to assess core symptoms of depression and anxiety and provide a measure that discriminates between the two. The third factor, stress, emerged from their analysis of a non-clinical sample. Higher scores have been shown to be predictive of inclusion in the diagnostic category of Generalised Anxiety Disorder (Brown *et al.*, 1997).

The DASS-21 is a shortened version of the original DASS, with seven items for each factor. The factors are depression (e.g. "*I felt that I had nothing to look forward to*"), anxiety (e.g. "*I felt I was close to panic*"), and stress (e.g. "*I felt I was rather touchy*"). Participants are asked to rate the extent to which they experienced the symptom in the past week using a 4-point Likert scale (0 being '*did not apply to me at all'* and 3 being '*applied to me very much*, or *most of the time*.') Severity ratings are based on percentile scores. Responses to each scale item are summed to provide a total scale score.

There has been debate over whether depression and anxiety are distinct entities or whether they are inter-correlated (Clark & Watson, 1991). Clark and Watson (1991) following a review of the literature concluded that depression and anxiety, whilst sharing a non-specific affective distress component, did have distinct features. They proposed a tripartite model of depression and depression comprising general affective distress (common to anxiety and depression) and named the specific features of anxiety as physiological hyperarousal and depression as an absence of positive affect. This model, although developed after the DASS was first created, has many parallels with the three factor structure of the questionnaire (Brown *et al.*, 1997). Further studies have supported a three factor model of the DASS in

clinical samples (Antony *et al.*, 1998; Brown *et al*., 1997; Clara *et al.*, 2001; Page *et al.*, 2007) and non-clinical samples (Crawford & Henry, 2003; Lovibond & Lovibond, 1995) and have shown that the individual scales are specific in their targeting of depression, stress & anxiety (Shea *et al.*, 2009). High levels of reliability (Shea *et al.*, 2009) and validity have been reported for the DASS (Crawford & Henry, 2003).

Studies suggest that the three factors are equally valid for the shortened version of the DASS (DASS-21) in a large non-clinical sample (Henry & Crawford, 2005) and that the DASS-21 has a cleaner factor structure than the full version (Anthony *et al.*, 1998; Clara *et al.*, 2001). DASS-21 discriminates between depression, anxiety and depression, the scores reflect clinical diagnostic status and the DASS-21 shows sensitivity to change equivalent to other scales such as the Health of the Nation Outcome Scale (HoNOS) and the Mental Health Questionnaire (MHQ-14) (Ng *et al.*, 2007). Alpha values for the three scales range from .73 to .90 in large non-clinical samples (Henry & Crawford, 2005; Lovibond & Lovibond, 2004). Norton *et al.* (2007) found that the internal consistency and convergent and divergent validity of the DASS-21 are similar across different racial groups. The DASS-21 had acceptable internal reliability (0.69-0.89) when administered a group of women ante-natally and post-natally (Gamble *et al*., 2005). Miller *et al.*, (2006) found similar alpha co-efficients in their study of post natal women (.77-.86). The current study found alpha co-efficients of .59 to .87 for the current sample. The median reliability for the DASS-21 was .86 for the current study. The low reliability could not be improved through item analyses and deletion.

The DASS-21 was chosen for its brevity and responsiveness to change. It has been tested in non-clinical samples and retains the same latent factor structure as in clinical samples. In

addition, it does not contain somatic symptoms that may occur during or after pregnancy (Sugawara *et al.*, 1999).

Respondents were asked to complete the DASS-21 at all three time points; at five months pregnant, and three and seven months post-natally.

2.4.2 Measure of Dysfunctional Eating Attitudes - Significant Others Scale - Short Version (SOS-S)

The SOS (Power *et al.*, 1988) was developed as a measure of the structure and function of an individual's social network. The SOS was originally designed to rate perceived practical and emotional support of seven key relationships (mother, father, spouse/partner, closest brother and sister, other brother or sister, closest son or daughter and best friend). This provides several types of information, one being the absence of typical support figures such as a mother, and the size of the social network. Perceived rather than actual social support has been shown to be important as it is buffers more against life stress and is more predictive of health and well-being (Coventry *et al.*, 2004).

Power *et al.* (1988) recommend that the short version is used where other measures are being administered, which gives respondents the option to select four significant others to rate. For the purposes of this study, the first two significant others were specified as mother (or substitute) and partner (or substitute), as both have particular relevance to the care-giving relationship. Individuals are asked to rate their significant relationships as to whether they provide the stated emotional or practical functions (e.g. for Emotional support: "*Can you trust, talk to frankly, and share feelings with this person?*") using a Likert scale where

1=*never*, and 7=*always*. A higher score indicates a greater frequency of support. A practical support item is "*Do they give you practical help?*"). For both emotional and practical support items, respondents rate perceived level of actual support and the level of support that they would wish for ideally (respondents are asked for emotional and practical support items "*What rating would your ideal be?*"). Actual and Ideal scores are obtained. For each relationship therefore a score of ideal and actual emotional support can be calculated, as well as ideal and actual practical support. The mean levels of emotional or practical support can also be calculated for all the individual's stated relationships. The discrepancy between the respondent's ideal and actual levels of support (Ideal minus Actual support) for each type of support and each relationship can be calculated, taking into account both a perceived deficit of support or an overprovision of support.

Factor analysis indicated an ideal factor solution of three; emotional, social fun and practical support (Power *et al.*, 1988). However, as functions of different relationships vary, social fun was irrelevant to some roles and relevant to others, and the best factor solution included social fun as part of practical support.

The SOS had good test-retest reliability for the social function scores (correlations from 0.73-0.83 over six months) and is predictive of clinical status (Power *et al.*, 1988). The current study found mixed results for internal reliability in the current sample with alpha co-efficients ranging from .61 to .88. The median alpha value for the SOS-S in the current study is .82. The low alpha values were found for Timepoint 1 only, and could not be improved through item deletion.

Lower levels of perceived emotional support on the SOS are predictive of depressive symptoms in conjunction with life events (Power, 1988); and unmet emotional support is associated with depression (Neeleman & Power, 1994). Lower social support on an adapted SOS predicts higher antenatal depression (Pajulo *et al*., 2001). Positive associations have been also made for Eating Disorders. Patients with Anorexia Nervosa and Bulimia Nervosa rate themselves using the SOS as having a higher unmet support needs than a student comparison group (Tillier *et al*., 1995).

The SOS was selected due to its capacity to capture perceptions of social support. Additionally it was selected because of its brevity combined with an ability to capture key relationships and their function. The SOS was administered at all three time points; at around five months prenatally, and at both postnatal time points.

2.4.3 Measure of Eating Disorder Attitudes - Eating Attitudes Test-26 (EAT-26)

The Eating Attitudes Test (EAT; Garner & Garfinkel, 1979) was originally designed as a 40 item self-report measure of behaviours and attitudes associated with anorexia nervosa. The 26 item shortened version (EAT-26; Garner *et al.*, 1982) was used. Items are in a six point Likert format and the person is asked to rate whether the behaviour or attitude is true for them, from '*never*' to '*always*'. The three most extreme responses, with the exception of one item, '*often*', '*usually*' and '*always*' are scored 1, 2 or 3 points and item scores are summed. Higher scores indicate higher levels of eating disturbance. The EAT-26 gives a total eating attitudes score as well as a Dieting score, Bulimia and Food Preoccupation score, and an Oral Control score.

Factor analysis suggested three factors, the first 'dieting', relating to food avoidance and the aim of losing weight (e.g. '*avoid eating when I am hungry'*); 'bulimia and food preoccupation', which consists of thoughts about food and 'bulimic' behaviours (e.g. '*give too much time and thought to food*') and 'oral control', which relates to self-control around eating and the perceived pressures from others to gain weight (e.g. '*display self control around food*' (Garner *et al*., 1982). 14 items did not load on the three factors, and were eliminated, leaving the shorter 26 item version (EAT-26). Koslowsky *et al.* (1992) assessed the factor structure and the criterion validity of the EAT-26 in a non-clinical population, and found that the scale was reliable (Alpha score of 0.83). The current study found an alpha co-efficient of .61 to .85 for the EAT total score. The median alpha value was .71. The low alpha value affected Timepoint 2 only and could not be improved by item deletion.

High scores on the bulimia factor of the EAT-26 predict bulimia patient status (Orbitello *et al.*, 2006). EAT-26 scores, as well as the individual factors, are correlated with perceptions of body image, body dissatisfaction, and frequency of dieting (Koff & Sangani, 1996; Koslowsky *et al.*, 1992).

The EAT-26 was selected for its validity and reliability in capturing attitudes and behaviours associated with Eating Disorder and for its brevity. Pregnant women score equivalently on the EAT-26 to the general population (Bowen *et al.*, 1999).

Respondents were asked to complete the EAT-26 at all three time points; prenatally and both postnatal time points.

2.4.4 Measures of infant feeding difficulties - Child feeding assessment questionnaire

The child feeding assessment questionnaire is based on the scoring system developed by P. Whitehouse and G. Harris (1998) for the original The Feeding Assessment Form (Harris & Booth, 1992). The Feeding Assessment Form was designed for use clinically, to capture the broad nature of feeding difficulties that can occur. The amendments to the form by Whitehouse and Harris (1998) mean that severity of these difficulties can be rated. It contains sections on mealtime negativity, food refusal and food fussiness. The mealtime negativity section looks at emotions of child and carer during feeding, child behaviours and parental responses and strategies. For example, parents are asked to rate on a visual nine point scale where they would place their children's mealtimes from relaxed, or happy (scoring 1) to stressful or tearful (scoring 9). Parental response to children's feeding behaviours (parental management style) are also scored, e.g. moving on to a next course or taking the food away scores 0, but distracting the child to eat or attempting to make the child eat food attracts a higher score. The section picks up on autonomy given to the child and anxious or controlling behaviour of parents (Blissett & Whitehouse, personal communication). The section on food refusal rates quantity and type of refusal behaviours. Parents are asked to rate the frequency that their child engages in behaviours at mealtime such as '*Turns head away repeatedly'*, from a 4 point scale from '*never*' (scoring 0) to '*most meals*' (scoring 21 to reflect the times in a week the behaviour may occur). As the section of the CFAQ designed to examine fussiness was designed with clinical description in mind rather than brevity, this was replaced by the fussiness scale of the Children's Eating Behaviour Questionnaire (CEBQ; Wardle *et al*., 2001) (see section 2.4.4.2.).

The CFAQ has been used successfully to identify parental correlates of infant feeding difficulties (Blissett *et al.*, 2005, Blissett *et al.*, 2007). Parental management style as measured by the CFAQ has been found to predict food refusal (Whitehouse & Harris, 1998) in children who have parents with dysfunctional eating attitudes. The CFAQ correlates highly with direct observation of child-parent interaction and feeding behaviours (Blissett, 1998) and has been used as an interview schedule and diagnostic tool (Wheelan & Cooper, 2000). The current study found acceptable internal reliability with alpha co-efficients of .83 to .86 for the mealtime negativity scale and .7 to .75 for the food refusal scale.

The CFAQ was chosen as it could be adapted for the target age group of this study. Items were removed that were not relevant for the age group of the child, given developmental norms e.g. questions which were clearly only related to solid food were removed if they could not be re-worded to include milk feeding.

2.4.5 Children's Eating Behaviour Questionnaire

The Children's Eating Behaviour Questionnaire (CEBQ; Wardle *et al*., 2001) was designed to assess eight dimensions of feeding style in children. This study utilises the fussiness scale from the questionnaire. The scale consists of six questions, e.g. '*My child decides that s/he doesn't like food, even without tasting it*'. Respondents were asked to complete the Fussiness scale of the CEBQ when their child was around three and seven months old.

The fussiness scale was found to have a high internal consistency (Cronbach's Alpha=0.91), and a high test-retest reliability (correlation of 0.87). Fussiness does not change significantly

with age of child, and fussiness items were negatively correlated with positive responsiveness to food (Wardle *et al*., 2001). Internal reliability in the current study's sample was acceptable with an alpha co-efficient of .85.

The fussiness scale has been found to be predictive of maternal pressure to eat, partially mediated by concerns about children being underweight (Gregory *et al.*, 2010). Gregory *et al.* (2010) completed a factor analysis of the subscale and included that the fussiness subscale incorporates the child's interest in new foods and variety as well as fussiness and refusal, and therefore this subscale perhaps measures the child's willingness to accept new foods/attitude towards eating a range of foods rather than just a measure of food rejecting behaviour, and this is appropriate for the purposes of the present study.

The fussiness scale was chosen as it is a succinct measure of food fussiness, and shows proven reliability and validity.

2.4.6 Measure of infant temperament - Infant Characteristics Questionnaire

The Infant Characteristics Questionnaire (ICQ; Bates *et al.*, 1979) was designed to measure parent-rated subjective temperament. The version designed for use with six month olds of the ICQ has 24 7-point rating items. The ICQ was found to have a four factor structure of 1. Fussy-difficult, 2. Unadaptable, 3. Dull and 4. Unpredictable. Mothers indicating that their child was fussy and difficult to sooth score high on Factor 1. A high score on factor 2 contains items relating to the child's reaction to new people, things and events. Factor 3

samples the baby's social responsiveness and activity level and Factor 4 rates how easy or difficult it is to predict the child's needs. Factor 1: fussy-difficult accounted for 59.8% of the variance in scores, much higher than that explained by the final three factors (17.4%, 14.7% and 8.1% respectively; Bates *et al.*, 1979).

Only the fussy-difficult subscale ('difficult' will be used for brevity) was used in the current study and therefore the following evidence will focus on this factor. Respondents were asked to complete the difficult subscale of the ICQ when their babies were around three and seven months old. An example item on the difficult subscale is '*please rate the overall degree of difficulty your baby would present for the average mother*' (rated on a seven point Likert scale from 1- '*super easy'* to 7- '*highly difficult to deal with'*).

Bates *et al.* (1979) tested the internal consistency and test-retest reliability of Factor 1 (difficult) and both were acceptable (Alpha co-efficient =.79; Pearson correlation=.70). Internal reliability in the current study was acceptable with Alpha co-efficients from .74 to .83.

There is concurrent validity with established infant temperament scales: between the difficult subscale and the mood factor in the Carey & McDevitt (1977) scales (correlation=.61, N=82) and between the difficult subscale and Distress to Limitations on the Rothbart *et al.* (1997) scales (correlation=.51, N=77). Ratings on the difficult factor at six months and thirteen months have been found to correlate with intrusive maternal control

and observed conflict between mother and child at the age of 2 years old (Lee and Bates, 1985).

There is a small but consistent correlation of around .3 with mother and trained observer report (Bates *et al.*, 1979; Bates *et al.*, 1982; Petit and Bates, 1984), with the difficult subscale correlating with objective observation of crying, fussing and social demandingness.

2.5 Other information collected

Respondents were asked about the length of their pregnancy, the baby's weight and any health problems to determine prematurity and other factors that may impact on feeding. The women were also asked whether they breastfed or bottle fed and their experiences of breastfeeding if relevant. Respondents were asked to provide their age, ethnic origin, marital status and work status.

2.6 Content Analysis

The women in the current study were asked when their child reached 3 months and 7 months old about their experiences of help and barriers in relation to successfully feeding their baby. Open ended questions were asked about 1) helpful experiences: *What do you think has helped you with feeding, or made feeding your child a better experience?* 2) barriers to successful feeding: *What, if anything, has got in the way of happy/successful feeding, or made it more difficult to feed your child?* and 3) about support or attitudes among those supporting them: *Is there specific support/knowledge or attitude changes*

among others (e.g.) health professionals that would help you in feeding your baby? The aim of the qualitative questions was to gather subjective maternal experience without limiting or leading responses.

Content analysis is a qualitative method which quantifies the presence of words or concepts within text (conceptual analysis) and there is the option to explore the relationships between the concepts identified (relational analysis) (Busch *et al.*, 2005). For the purposes of the current research, conceptual analysis only was used as well as an identification of general trends in frequency across the time line of the study. The text was broken into themes for each participant, adding a new theme to the list of themes coded each time a new one was identified. The decision was made to code for frequency as well as existence, and to allow concepts with different phrasing to be included under the same theme. Text was coded by hand, and entered into an Excel spreadsheet, using shorthand phrases to reflect the meaning of the participant's text.

2.7 Procedure

The flowchart (over) (Figure 2.1) shows the procedure used in the study.

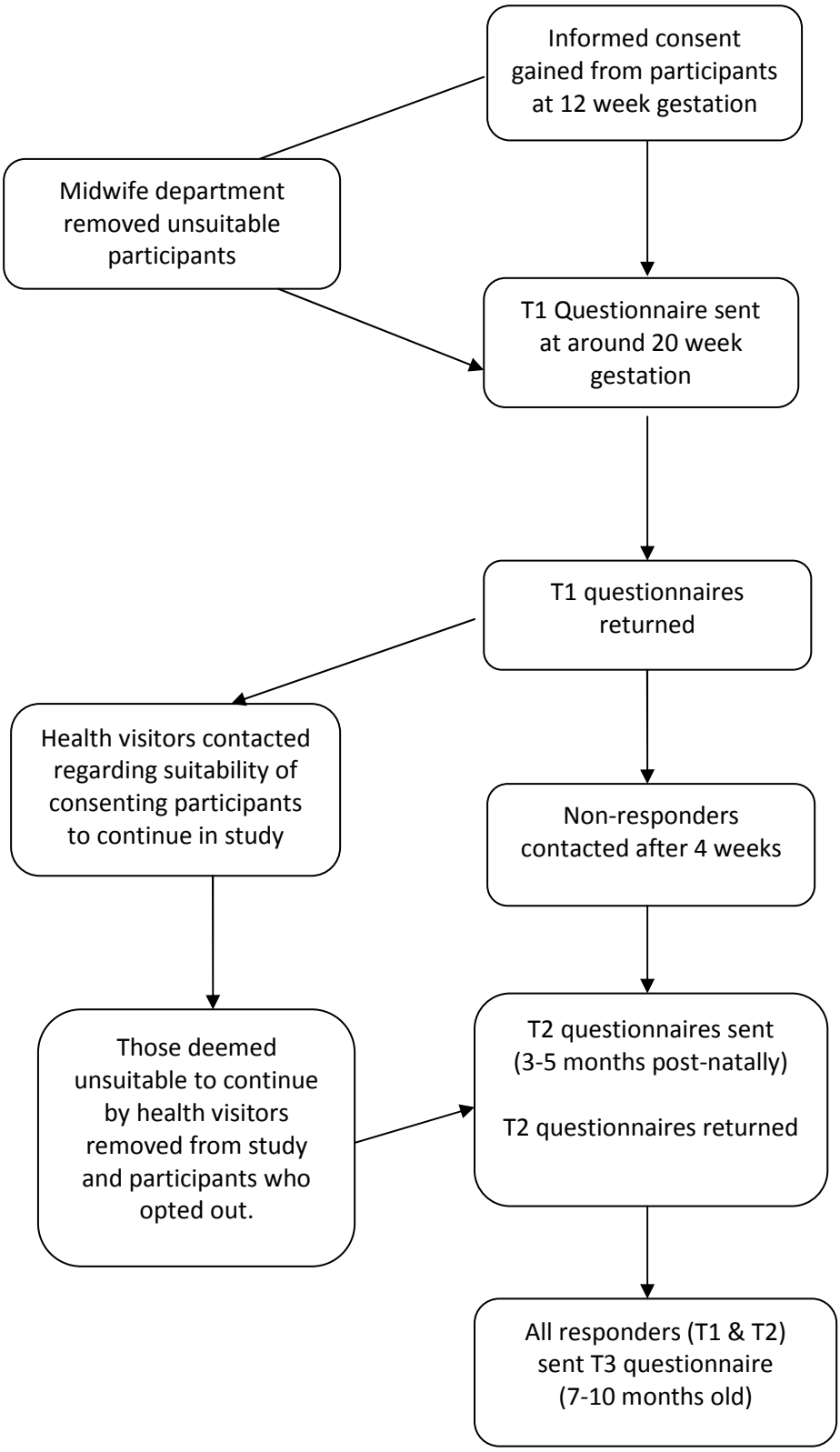

Fig 2.1: Study Procedure

At the planning stage of the study discussions were held with the lead midwife. Meetings with the lead midwife had the purpose of discussing practicalities such as expected numbers of attendees at prenatal clinics, time and rooms available for seeking informed consent, and also to ensure that the research and timing would be acceptable for the midwifery department. The lead midwife contacted the team of midwives to ensure that they were aware of the research and information about the research was made available to them.

On the first day of seeking informed consent from women attending a prenatal appointment, the researcher asked that the midwives approach women to take part in the research and provide them with a participant information leaflet. However, with midwifes introducing the study there was very poor take up at the first clinic (1 woman agreed to take part). From the second clinic attended onwards, the researcher requested to approach the women attending after they had approached reception and before seeing the midwives. This approach meant there was a much improved rate of recruitment. The parent was asked (the main "feeder", in 100% of cases mothers were volunteered), usually in the company of their partner/family in the appointment room whether they would be interested in discussing a study about infant feeding. If they agreed they were given an information sheet and the study aims were discussed as well as what participation would involve. If women were happy to take part in the research they provided their contact details and the contact details of their GP. If women were unsure about whether they wished to take part they were given an information sheet with the researcher's contact details. The women were informed that they would be sent a questionnaire later in their pregnancy (this was to ensure that any eating attitude responses were not influenced by nausea/sickness which would be more likely to occur at an earlier stage of pregnancy).

Women who did not return the questionnaires after four weeks were contacted by telephone to ask if they would still like to participate and were removed from the database if requested by them. Health visitors were contacted prior to the second time point (when the child was around 3 months) to establish whether any women/infants had developed health difficulties that would preclude participation in the study. If this was the case, the women were removed from the study database.

As highlighted in section 2.3 the researcher contacted women who scored over two standard deviations over the clinical cut off scores for depression, stress, anxiety or attitudes associated with eating disorder (using the DASS-21 and EAT-26). In one case where the respondent could not be contacted by telephone, a letter was sent to her and copied to her GP. Contact with the respondent's GP was necessary under the researcher's duty of care, and had been discussed with the participants when their informed consent was sought. Where respondents were contacted (in one case) by telephone they were offered a home visit or an appointment at the Child and Adolescent Mental Health Service to discuss their options for further support if necessary. In one case a referral for further support was made to a GP.

2.8 Analysis

2.8.1 Power analysis

Cohen (1992) specifies a formula for determining the sample size required for multiple correlations. Cohen specifies that for a medium effect size, the sample size required is 84.

Similar studies to the current study have found around a 60% uptake rate (Hagekull, Bohlin & Rydell, 1997). 84 participants are required based on the number of participants needed to detect a significant effect using multiple regression, with an uptake rate of 60%. The researcher aimed to recruit 140 women and following discussions with midwifery about clinic numbers this was judged to be realistic within a six week timeframe.

2.8.2 Statistical analysis

The data was analysed using Statistical Packages for Social Sciences (SPSS).

Frequency and descriptive data are presented for the demographic characteristics and for the main predictor measures (anxiety, depression, mealtime negativity, social support, temperament, social deprivation status). T-tests and Mann-Whitney U tests were used to identify whether the non-completers' main variable scores at T1 differed from the completers'.

Outliers were examined and found to be genuine and representative of clinical variation and so were included in the analysis. The data was transformed using the log transformation (log (Xi) + 1), however it remained non-normal. After square root transformation (√Xi) and reciprocal transformation the mood symptomatology, eating attitudes and social support data remained non-normal. It was therefore decided to conduct the analyses on non-transformed data. Transformation of the food refusal outcome measure was possible using a log transformation, which was applied to both T2 and T3 data.

A correlation matrix was calculated for the main variables for the three time points, and across time points to assess intercorrelation and multicollinearity. Multiple regression was used to find the relative contribution of predictors to severity of feeding difficulty. The predictors to be entered into the regression were decided on the basis of significance of correlations.

3. RESULTS

3.1 Response Rate and Sample Size

Informed consent was gathered at the prenatal scan for 140 women, and this list was subsequently checked by a senior midwife who removed women who were considered by them to be vulnerable and not suitable for the study. 115 women remained and were sent out the first questionnaire when they were around 5 months pregnant. In the first data collection (T1), 64 women completed the questionnaires, giving a 56% response rate. Two women indicated by telephone at T1 that they did not want to take part in the study. Prior to T2 (3-5 months post-natally), the women's health visitors were contacted to establish whether they had had any difficulties that would mean contacting them was not appropriate. The health visitors identified two women who should not be contacted. One woman contacted the researcher to indicate she wished to be removed from the study as she had suffered a stillbirth. 111 women were sent questionnaires at T2. When a follow up telephone call was made to participants who had not returned questionnaires at T2, eleven women asked to be removed from the study. 48 questionnaires were completed and returned at T2, a 47% response rate. All T2 responders were sent questionnaires at T3, and 31 had returned at the time of data analysis, a 75% response rate. A flow chart indicating the number of participants and drop-out at each time point is shown over (Fig 3.1.).

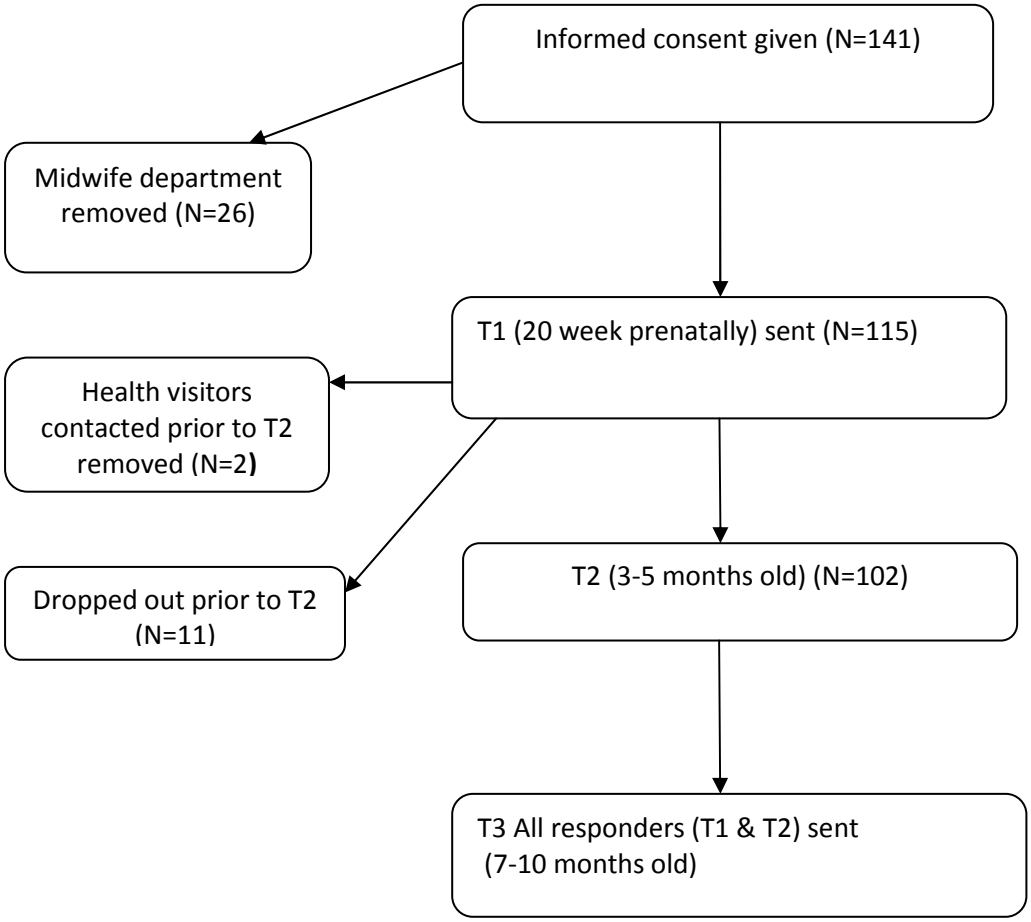

Fig. 3.1: Flow chart of participant numbers at each time point and drop-out

3.2 Demographic information

Table 3. 1: Summary of Demographic characteristics at each time point

	T1 Mean (SD) (N=64)	Range	**T2 Mean (SD) (N=48)**	Range	**T3 Mean (N=31)**	Range
Age of Mother (yrs)	28.4 (5.7)	17-41	30.3 (5.5)	17-41	29.6(4.7)	17-41
Age of child (wks)	n/a	n/a	18.2 (2.6)	13.1-24.4	36.6 (2.8)	28.7 – 43.5

	T1 No (N=64)	**%**	**T2 No (N=48)**	**%**	**T3 No (N=31)**	**%**
No of prior children						
No prior children	29	45	21	44	16	52
One prior child	26	41	19	39	11	36
Two or more prior children	9	14	8	17	4	13
Marital Status						
Single	11	17	4	8	1	3
Married/Cohabiting	52	81	44	92	29	94
Separated	1	2	0	0	1	3
Educational Level						
None	3	5	3	6	0	0
GSCE/Standard Grade	7	11	3	6	2	6
Highers	7	11	5	10	2	6
'A' Levels/Sixth Year Studies	1	2	1	2	0	0
College Diploma	13	20	8	17	7	23
University degree/Postgraduate	32	50	28	58	20	65
Deprivation Code (1-20*)						
1-4 most deprived	6	9	5	10	1	3
5-10	23	36	17	35	12	39
11-15	14	22	11	23	7	23
16-20 least deprived	21	33	15	31	11	31
Employment Status						
Part-time employment	21	33	10	20	9	29
Full-time employment	24	37	7	15	14	45
Self employed	1	2	0	0	1	3
Look after family/home/maternity leave	9	14	27	57	4	13
Unemployed/unable to work	7	11	4	8	2	7
Psychiatric History (self defined)						
Yes	22	34	13	27	9	29
Anxiety	7	11	4	8	2	6
Depression	15	23	9	19	6	19
Other e.g. Eating Disorder	0	0	0	0	1	3
No	42	66	35	46	22	71

*** Scottish Index of Multiple Deprivation (2006) Vigintile (bands of 5%) Most deprived= Top 25% of most deprived, Least deprived=bottom 25% of most deprived**

As can be seen from **Table 3.1** above the mean maternal age for T1 was 28.4 years (SD 5.69; Range 17-41; Median 29). The mean maternal age for T2 was 30.3 years (SD 5.48; Range; 17-41; Median 30.5). The mean maternal age for T3 was 29.6 years (SD 4.65; Range 17-41; Median 30).

The mean age of the most recent born child at T2 was 18.2 weeks (SD 2.62; Range 13.1 - 24.4) and at T3 was 36.6 weeks (SD 2.77; Range 28.7 - 43.5).

81% (N=52) of T1 participants were married or cohabiting, 17% (N=11) were single, and 2% (N=1) was separated from their partner. 92% (N=44) of T2 participants were married or cohabiting, and 8% (N=4) were single. None of the T2 sample were separated from their partner, divorced or widowed. 94% (N=29) of T3 participants were married or cohabiting, 3% (N=1) was single and 3% were separated from their partner.

The majority of participants across all three time points lived in areas in the 26^{th}-50^{th} percentile (second most deprived category) for social deprivation, (T1 36% (N=23); T2 35% (N=17) and T3 39% (N=12)), and in the least deprived category (T1 33% (N=21); T2 31% (N=15) and T3 31% (N=11)).

Participants were asked about the number of children in their family (prior to the last born and subject of the current study). The majority of women had one prior child (T1 41% (N=26); T2 39% (N=19) and T3 36% (N=11) or had an only child (T1 45% (N=29); T2 44% (N=21) and T3 52% (N=16).

The majority of T1 and T3 participants were in full or part time employment (T1 72% (N=46)); T3 77% (N=24)); whereas at T2 the majority was looking after family/home or on maternity leave (57% (N=27)).

At all time points the majority of participants had achieved a further education qualification (College/University) (T1 70% (N=45), T2 75% (N=36) and T3 88% (N=27)).

3.3 Depression, anxiety and stress symptomatology across time points

3.3.1 Depression symptomatology

The DASS-21 Depression scale was completed by all participants (N=64) at T1, all at T2 (N=48), and all at T3 (N=31).

The mean depression score was 4.7 out of a possible 42 (SD 5.0, Range 0-20, Median 4) for T1, the mean for T2 was 4.08 (SD 5.4, Range 0-20, Median 2), and for T3 the mean was 3.16 (SD 4.92, Range 0-20, Median 2). See **Table 3.2** below.

Table 3. 2: Descriptive data and categorical outcomes for depression at all time points

DASS-21 Depression Scores			
	T1 (N=64)	**T2 (N=48)**	**T3(N=31)**
Mean	4.7	4.1	3.2
Standard Deviation	5.0	5.4	4.9
Minimum	0	0	0
Maximum	20	20	20
Median	4	2	2
Skewness	1.5	1.6	2.1
Std Error of skewness	0.32	0.34	0.42
Depression range	**No. (%)**	**No. (%)**	**No. (%)**
Normal (0-9)	52 (81)	40 (83)	27 (87)
Mild (10-13)	7 (11)	4 (8)	2 (<7)
Moderate (14-20)	5 (8)	4 (8)	2 (<7)
Severe (21-27)	0	0	0
Extremely Severe (28+)	0	0	0

Examining the T1 data for the DASS-21 depression scores in **Table 3.2** it can be seen that the scores for all time points are positively skewed. Kolmogorov-Smirnov tests were significant, (T1 D(64)=1.92, p<0.001; T2 D(48)=2.1, p<0.001; T3 D(31)=0.3, p<0.001) indicating the data were non-normally distributed.

The cut-off scores for the DASS-21 range from 'Mild' to 'Extremely severe' and the range of scores is shown in **Table 3.2**. At T1 eighty one per cent of the sample (N=52) scored in the non-clinical ('Normal') range, with nineteen per cent (N=12) scoring in what would be considered the clinical range. Eleven per cent (N=7) scored in the 'Mild' range and eight per cent (N=5) in the 'Moderate' range. No women scored in the 'Severe' range or above for T1. Three women (5%) described symptoms of pure depression (in the absence of stress/anxiety scores in the clinical range) (T2-four women (8 %); T3-one woman (3%)). One woman (two per cent) described both anxiety and stress symptoms in the clinical range in T1, and three women (five per cent) scored in the clinical range for depression, anxiety and stress scales (T2-three women (7%); T3-one woman (3%)). At T2 one woman (2%) had depression and anxiety scores both in the clinical range.

At T2 eighty three per cent (N=40) scored in the non-clinical ('Normal') range, with sixteen per cent (N=8) scoring in the clinical range. Eight per cent (N=4) scored in the 'Mild' range and eight per cent (N=4) in the 'Moderate' range. No women scored in the 'Severe' range or above in T2.

At T3 eighty seven percent (N=27) scored in the non-clinical range, with thirteen per cent scoring in the clinical range. Under seven percent (N=2) scored in the 'Mild range', with the

same number scoring in the 'Moderate' range. No women scored in the 'Severe range' or above in T3.

3.3.2 Anxiety Symptomatology

All respondents in T1, T2 and T3 completed the DASS-21 Anxiety scale. The mean anxiety score for T1 was 3.3 out of a possible 42 (SD=4.3, Range 0-20, Median 2.0). The mean score for T2 was 2.2 (SD=3.5, Range 0-14, Median 0). The mean anxiety score for T3 was 1.2 (SD 2.35, Range 0-10, Median 0). See **Table 3.3**.

Table 3. 3: Descriptive data and categorical outcomes for anxiety at all time points

DASS-21 Anxiety Scores			
	T1 (N=64)	**T2 (N=48)**	**T3 (N=31)**
Mean	3.3	2.2	1.2
Standard Deviation	4.3	3.5	2.4
Minimum	0	0	0
Maximum	20	14	10
Median	2	0	0
Skewness	1.7	2.0	2.4
Std Error of skewness	0.30	0.34	0.42
Anxiety range	**No. (%)**	**No. (%)**	**No. (%)**
Normal (0-7)	55(86)	43(90)	30(97)
Mild (8-9)	1(2)	2(4)	0
Moderate (10-14)	7(12)	3(6)	1(3)
Severe (15-19)	0	0	0
Extremely Severe (20+)	1	0	0

Examination of the DASS-21 anxiety scores in **Table 3.3** indicated that the data were skewed. The anxiety scores for all time points are positively skewed. Kolmogorov-Smirnov

tests were significant (T1 D(64)=1.85, p<.05; D(48)=2.2, p<0.001; T3 D(31)=0.43, *p*<0.001) indicating non-normal distributions.

The cut off scores for the DASS-21 anxiety scale range from 'Mild' to 'Extremely Severe' as shown in **Table 3.4**. For T1 eighty-six per cent (N=55) of the T1 sample scored below the 'Mild' cut-off. Sixteen per cent (N=9) scored in or above the 'Mild' cut-off, fourteen per cent (N=8) of those scoring in the 'Moderate' - 'Extremely Severe' range. Three women described symptoms of pure anxiety, scoring in the clinical range.

Ninety per cent (N=43) of the T2 sample scored below the 'mild' cut-off. Five women scored in or above the 'mild' cut-off (10 per cent), Six per cent (N=3) of those scoring in the moderate range. No women scored in the severe range or above. No women in T2 described symptoms of pure anxiety.

Most of the T3 sample (97%, N=30) scored in the non-clinical range, with only one person (3%) scoring in the 'Moderate' range for anxiety. No women in T3 described symptoms of pure anxiety.

3.3.3 Stress Symptomatology

All T1, T2 and T3 respondents completed the DASS-21 Stress scale. The mean T1 Stress score was 9 out of a possible 42 (SD=7.93, Range 0 to 28, Median 6.0). The mean T2 score was 8.79 (SD=7.66, Range 0-32, Median 8.0). The mean T3 score was 7.42 (SD=7.43, Range 0-32, Median 6.0). See **Table 3.4**. (over)

Table 3.4: Descriptive data and categorical outcomes for stress at all time points.

DASS-21 Stress Scores			
	T1 (N=64)	**T2(N=48)**	**T3(N=31)**
Mean	9	8.79	7.42
Standard Deviation	7.93	7.66	7.43
Minimum	0	0	0
Maximum	28	32	32
Median	6	8	6
Skewness	0.76	0.94	1.57
Std Error of skewness	0.30	0.34	0.42
Stress range	**No. (%)**	**No. (%)**	**No. (%)**
Normal (0-14)	51 (80)	40 (83)	26 (84)
Mild (15-18)	2 (<3)	2 (4)	3 (10)
Moderate (19-25)	9 (15)	4 (8)	1 (3)
Severe (26-33)	2 (<3)	2 (4)	1 (3)
Extremely Severe (34+)	0	0	0

Examination of the DASS-21 stress scores for T1 in **Table 3.4** shows positively skewed data at all time points. Kolmogorov-Smirnov tests were significant for T1 and T3 (T1 $D(64)=1.55$, $p<.05$; $D(31)=0.21$, $p<.05$) indicating non-normal distributions, but were not significant at T2 indicating that the distribution did not differ significant from normal ($D(48)=0.90$, $p>.05$).

The DASS-21 stress scale has cut-offs ranging from 'Mild' to 'Extremely severe' as shown in **Table 3.4**. In T1 eighty per cent (N=51) of T1 scored below the 'Mild' cut off. Twenty per cent of the T1 sample scored above the cut off, less than three per cent in the 'Mild' range (N=2), fifteen per cent in the 'Moderate' range (N=9), and less than three per cent (N=2) in the 'Severe' range. No women scored above the 'Severe' cut-off. Three women (five per cent) in T1 described symptoms of stress in the absence of depression or anxiety.

In T2 a similar distribution across clinical ranges occurred, with slightly less women in the moderate range. Eighty three per cent (N=40) of T1 scored below the 'Mild' cut off. Sixteen

per cent of the T1 sample scored above the cut off, four per cent in the 'Mild' range (N=2), eight per cent in the 'Moderate' range (N=4), and four per cent (N=2) in the 'Severe' range. No women scored above the 'Severe' cut-off. Four women (eight per cent) in T2 described symptoms of stress in the absence of depression or anxiety.

Eighty four percent (N=26) of T3 respondents scored below the 'Mild' cut off for stress. Sixteen per cent scored above the cut off, ten per cent (N=3) in the 'Mild' range, with one woman in the 'Moderate' range (3%) and one in the 'Severe' range (3%).

3.4 Social Support

3.4.1 Summary of Social Support Scores

Table 3.5 (over) provides a summary of social support scores for the total sample. For all actual emotional and actual practical mean scores, the maximum is 14.

Table 3.5 Summary of Individual and Total Social Support Scores

Summary of social support scores			
	Mean (SD) T1	**Mean (SD) T2**	**Mean (SD) T3**
Actual Emotional			
Husband/partner	13.4 (1.3)	13.4(1.7)	13.6 **(**1.2)
Mother	11.9 (2.3)	11.3(2.9)	11.6(2.3)
'Other 1'	11.9 (2.4)	11.9(2.4)	11.2(3.2)
'Other 2'	11.7 (2.6)	13.1(2.9)	12.2(2.5)
Actual Practical			
Husband/partner	13.2(1.3)	12.9(2.2)	13.1(1.6)
Mother	11.4(2.7)	11.1(2.7)	11.3(2.8)
'Other 1'	11.6(2.3)	11.7(2.6)	10.9(3.2)
'Other 2'	11.4(2.4)	11.8(3.8)	10.9(3.3)
Total emotional support			
Actual	6.0 (0.9)	6.3 (0.90)	6.1 (0.83)
Ideal	6.1 (0.8)	6.7 (0.55)	6.6 (0.45)
Discrepancy	0.2 (1.1)	0.5 (0.57)	0.6 (0.63)
Total practical Support			
Actual	5.7 (0.9)	5.9 (1.04)	5.8 (1.13)
Ideal	6.1 (0.8)	6.5 (0.74)	6.4 (0.65)
Discrepancy	0.9 (1.3)	0.7 (0.63)	0.7 (0.74)

3.4.2 Social Support from husband or partner

At T1 sixty two respondents (97 per cent), and all of the respondents at T2 (N=48) and T3 (N=31) completed the husband/partner section of the SOS. Two (three per cent) of T1 respondents left this section blank, indicating that they do not have a partner or substitute who provides support. All T2 respondents (N=48) completed the partner section.

The mean actual emotional support scores for T1 was 13.4; for T2 was 13.4, and for T3 was 13.6. The mean actual practical support for T1 was 13.2; for T2 was 12.9 and for T3 was 13.1.

3.4.3 Social support from mother

Sixty two respondents (97 per cent) of T1 and all of T2 respondents (N=48) and T3 (N=31) completed the mother section of the SOS. Two (three per cent) of T1 respondents left this section blank, indicating that they do not have a mother or substitute available who provides support.

Mean actual emotional support score for T1 was 11.9, for T2 was 11.3 and for T3 was 11.6. The mean actual practical support scores for T1 was 11.4, for T2 was 11.1 and for T3 was 11.3.

3.4.4 Social support from others

The SOS asked for respondents to answer the same questions for two 'others' who they considered important in providing support. Sixty three respondents (98 per cent) of T1 respondents; 47 of T2 respondents (98 per cent) and all T3 respondents completed the first significant 'other' section of the SOS. One (two per cent of T1 and T2) respondent left this section blank, indicating that they do not have an 'other' available who provides support.

For the first 'other' provided, the mean emotional support for T1 was 11.9, for T2 was 11.9 and for T3 was 11.2. The mean actual practical support for T1 was 11.6, for T2 was 11.7 and for T3 was 10.9.

Fifty four women (84 per cent) of T1 respondents; 46 women (96 per cent) of T2 respondents and thirty women (97 per cent) of T3 identified a second 'other' who provides support. Ten (16 per cent) T1 respondents; two (4 per cent) T2 respondents and one (3 per

cent) of T3 left this section blank, indicating that they do not have a second 'other' whom provides support.

For those that completed the second 'other' section, the mean emotional support for T1 was 11.7, for T2 were 13.1 and for T3 was 12.2. The mean actual practical support for T1 was 11.4, for T2 was 11.8 and for T3 was 10.9.

3.4.5 Total support scores

Support scores from all sources of support (husband/partner, mother and two other sources) were summed to provide total support scores.

Kolmogorov-Smirnov tests were significant for Total Emotional Discrepancy (T1 $D(64)=0.21$, $p<0.001$; T2 $D(46)=0.195$, $p<0.001$; T3 $D(30)=0.20$, $p<.05$) and Total Practical Discrepancy (T1 $D(64)=0.24$, $p<0.001$; T2 $D(46)=0.18$, $p<0.001$; T3 $D(30)=0.20$, $p<.05$) at all time points indicating a non-normal distribution. Three total social support scores were non-normally distributed at T1 only (Kolmogorov-Smirnov: Total Actual Emotional Support $D(46)=0.13$, $p<.05$; Total Ideal Emotional Support $D(46)=0.13$, $P<.05$; Total Ideal Practical Support $D(46)=0.154$, $p<0.001$).

Levels of social support were higher for this group in comparison with normative data for both clinical and non-clinical groups (Power, Champion & Aris, 1988).

3.5 Eating Disorder Attitudes and Behaviour

The mean total Eating Attitudes Test-26 score for T1 was 3.6 (SD 3.7) out of a possible 78; for T2 was 3.7 (SD 3.5) and for T3 was 4.4 (SD 6.1). **Table 3.6** over summarises the mean total EAT scores and subscale scores for the 3 time points.

A score of 20.5 on the EAT-26 places respondents at the 85th percentile for 'normal' controls and a score of 20 is considered to be an indicator that someone may have a clinical eating disorder (clinical diagnosis is made in conjunction with other eating behaviours being present as well as weight indicators). One participant in T1 scored over 20, another in T3 with a score of 21 and 27 respectively. No participants scored 20 or above in T2.

Kolmogorov-Smirnov tests were significant for the Eating Attitudes Test-26 subscales at all time points (total EAT score T1 $D(64)=0.21$, $p<.05$; T2 $D(48)=0.18$, $p<.05$; T3 $D(31)=0.30$, $p<.05$; Dieting Subscale T1 $D(64)=0.29$, $p=0.29$, $p<.05$; T2 $D(48)=0.32$, $p<.05$; T3 $D(31)=0.351$, $p<.05$; Bulimia/Food Preoccupation Subscale T1 $D(64)=0.262$, $p<.05$; T2 $D(48)=0.28$, $p<.05$; T3 $D(31)=0.30$, $p<0.001$; Oral Control Subscale T1 $D(64)=0.29$, $p<.05$; T2 $D(48)=0.36$, $p<.05$; T3 $D(31)=0.34$, $p<0.001$) indicating that the EAT-26 scores are non-normally distributed.

Table 3.6: Eating Attitudes Test: summary of total and subscale scores

	Mean (SD) T1 (N=64)	Mean (SD) T2 (N=48)	Mean (SD) T3 (N=31)
Total EAT score *	3.6 (3.7)	3.7 (3.5)	4.4 (6.1)
Range	0-21	0-14	0-27
Median	2	3	2
Dieting	1.4 (2.6)	2.0 (2.8)	2.7 (5.0)
Range	0-11	0-11	0-19
Median	0	0	0
Bulimia/Food preoccupation	1.1 (0.9)	1.1 (1.1)	0.9 (0.9)
Range	0-3	0-3	0-3
Median	1	1	1
Oral Control	1.2 (1.9)	1.6 (1.0)	0.8 (1.2)
Range	0-8	0-5	0-5
Median	0	0	0

*Higher scores on all EAT-26 subscales suggest maladaptive eating attitudes and behaviours.

As can be seen in **Table 3.6**, T1, the mean dieting subscale score was 1.4 (SD=2.6) and in T2 was 2.0 (SD 2.8). No participants in T1 or T2 scored more than 1 standard deviation above the mean found in non-clinical populations (7.1, SD=7.2; Garner *et al.*, 1982). In T3, the mean dieting subscale score was 2.7 (SD=5.0). Two participants in T3 (6 per cent) scored within 2 standard deviations above the mean found in non-clinical populations (7.1, SD=7.2; Garner *et al.*, 1982) with scores of 16 and 19.

The mean bulimia and food preoccupation subscale score was 1.13 (SD=0.9) for T1, 1.1 (SD=1.1) in T2, and was 0.9 (SD=0.9) in T3. No participants in T1, T2 or T3 scored more than 1 standard deviation above the mean found in non-clinical populations (1.0, SD=2.1; Garner *et al.*, 1982).

The mean oral control subscale score in T1 was 1.2 (SD=1.9). 3% (N=2) of participants in T1 scored more than 2 standard deviation above the mean found in non-clinical populations (1.9, SD=2.1; Garner *et al.*, 1982). These two participants scores (7 and 8) might be suggestive of maladaptive attitudes found in eating disorder clinical populations (Garner *et al.*, 1982). For T2, the mean oral control subscale score was 1.6 (SD=1.0), with no participants in T2 scoring more than one standard deviation above the mean found in non-clinical populations (1.9, SD=2.1; Garner *et al.*, 1982). In T3, the mean oral control subscale was 0.8 (SD=1.2). The highest scorer in T3 for oral control was within 2 standard deviations of above the mean found in non-clinical populations (1.9, SD=2.1; Garner *et al.*, 1982).

3.6 Analysis of drop out

T-tests were performed to compare the main T1 symptom measures for participants who participated in T2 and those who dropped out after T1, and to compare those who completed the study versus those who dropped out at T2. For those summary measures where scores violated the assumption of normality, or equal variances, Mann Whitney U tests were run. In both sets of comparisons, completer and drop out scores did not differ for any of the SOS-S summary scores, Total EAT-26 scores, DASS-21 subscale scores, all t-tests and Mann Whitney U tests being non-significant ($p>.05$).

3.7 Frequency and type of infant feeding problems

3.7.1 Type of feeding difficulty

23% (N=11) of T2 participants, and 13% of participants (N=4) at T3 reported their child as having one or more feeding difficulties. 6% of these (N=3 at T2, N=2 at T3) had more than one feeding difficulty. **Table 3.7** below shows the frequency of reported feeding difficulties types. The most common feeding difficulty in T2 was the child eating a limited variety of foods at weaning, 13% (N=6) of families experienced this as a problem; 6% of children were perceived as having chewing/swallowing difficulties (N=3) and 4% (N=2) were perceived as having a food intolerance. 77% (N=37) experienced no feeding difficulties.

The most common feeding difficulty in T3 was reported as food/milk intolerance, reported by 10% of women (N=3), followed by being slow eaters (6%, N=2). 87% of T3 participants (N=27) said their infant had no feeding difficulties.

Table 3.7: Type of feeding problem - Child Feeding Assessment Questionnaire

	T2 3-5 months (N=48)		T3 7-10 months (N=31)	
	No.	**Percentage**	**No.**	**Percentage**
Limited variety	6	13	0	0
Swallowing difficulties	3	6	0	0
Food/milk intolerance	2	4	3	10
Irregular eating	1	2	0	0
Slow to feed	1	2	2	6
Other difficulties	1*	2	1*	3
One/multiple problems	11	23	4	13
Multiple feeding problems	3	6	2	6
No feeding difficulties	37	77	27	87

* reflux, food refusal

3.7.2 Frequency of gastro-intestinal difficulties

Participants were also asked to answer Child Assessment Questionnaire questions on gastro-intestinal difficulties (GI) shown by their child. Frequency of GI difficulties is shown in **Table 3.8**.

At T2 29% (N=14) reported their child as suffering GI difficulties, 4% (N=2) suffered more than one GI problem. The most common difficulty experienced (15%, N=7) was colic or abdominal pain, 8% (N=4) had constipation, 6% (N=3) suffered diarrhoea, and 4% (N=2) had frequent vomiting. 71% of women (N=34) reported their child suffered no GI difficulties.

At T3 16% (N=5) reported GI problems, with only 6% (N=2) having more than one GI problem. The most common problem reported at T3 was constipation (16%, N=5) and the only other problem reported was diarrhoea, suffered by 2 children (6%). GI Problems were co-morbid with feeding difficulties in 13% (N=6) at T2, but reduced to 3% (N=1) at T3.

Table 3.8: Frequency of gastro-intestinal difficulties- Child Feeding Assessment Questionnaire

	3-5 months (N=48)		7-10 months (N=31)	
	No.	**Percentage**	**No.**	**Percentage**
Vomiting	2	4	0	0
Constipation	4	8	5	16
Diarrhoea	3	6	2	6
Abdominal pain/colic	7	15	0	0
No. with child gastro difficulties	14	29	5	16
> one gastro problem	2	4	2	6
No gastro problems	34	71	26	84
Co-morbid gastro problems & feeding problems	6	13	1	3

3.7.3 Summary of total frequency of feeding problems

As can be seen from **Table 3.9** below, the mean number of difficulties, feeding or gastro-intestinal problems at T2 was 0.67 (SD 1.0) and at T3 was 0.39 (SD 0.8). 48% of the sample's children (N=20) at T2, and 26% (N=8) at T3 experienced either feeding or GI problems. Number of difficulties were less when feeding difficulties were counted in the absence of GI problems – with 8% (N=4) having problems at T2 and 6% (N=2) at T3. Co-morbid feeding and GI problems were more common at T2, with 12% (N=6) experiencing this; only 1 child (3%) at T3 had both feeding and GI problems.

Table 3.9: Frequency of infant feeding/gastro-intestinal problems

	Mean no. of feeding problems (Range, SD, Med.)	**No. (%) with feeding or GI problems**	**No. (%) with feeding problems (no GI)**	**No. (%) with co-morbid feeding/GI**
T2 (3-5 months, N=48)	**0.67** (0-4, 1.0, 0)	**20 (48)**	**4(8)**	**6 (12)**
T3 (7-10 months, N=31)	**0.39** (0-3, 0.8, 0)	**8 (26)**	**2 (6)**	**1 (3)**

3.7.4 Summary of feeding problems

Section 3.7 has summarised the frequency and type of infant feeding difficulties found in the sample. In summary,

- 23% of mothers identified their infants as having feeding difficulties at T2, and 13% at T3 as measured by the CFAQ.

- The most common problems identified with mothers was eating a limited diet at T2 (13%;) and milk/food intolerance at T3 (10%).

- 29% of infants had gastro-intestinal problems at T2, and 16% at T3.

3.8 Measures of child feeding behaviour and parental response

The Child Feeding Assessment Questionnaire measured Mealtime Negativity and Food Refusal at T2 and T3, and the Children's Eating Behaviour Questionnaire measured Food Fussiness at T3. Mean scores are shown in **Table 3.10** over.

Table 3.10: Mean mealtime behaviour scores (Child Feeding Assessment Questionnaire and Children's Eating Behaviour Questionnaire).

Subscale		Mean (SD)	Median	Range
Mealtime Negativity	3-5 months (N=44)	19.2(9.5)	16	8-44
	7-10 months (N=31)	16.7(7.8)	15	8-38
Food Refusal	3-5 months (N=46)	27.4(29.5)	21	0-126
	7-10 months (N=31)	19.5(24.4)	10	0-98
Food Fussiness	7-10 months (N=31)	4.0 (3.5)	4.0	0-11

The Mealtime Negativity score on the adapted Child Feeding Assessment Questionnaire provides an indicator of a positive or negative mealtime environment, including aspects of the caregiver's response to food/milk refusal. The mean Mealtime Negativity scores (see **Table 3.10**) for T2 was 19.2 (SD 9.5) out of a possible 82 and for T3 was 16.7 (SD 7.8). Kolgomorov-Smirnov tests indicated that the Mealtime Negativity scores for T2, D(44) = 1.106, *p>.05*, and T3, D(31) =0.99, *p>.05* were of normal distribution.

The Food Refusal score on the Child Feeding Assessment Questionnaire provides a parental score of refusal behaviours displayed by the child. The mean Food Refusal score for T2 and T3 is shown in **Table 3.10** above. The mean Food Refusal score for T2 was 27.4 (SD 29.5), and at T3 was 19.5 (SD 24.4). Kolgomorov-Smirnov tests indicate that the distribution of

Food Refusal scores differed significantly from normal at T2 (D(46)= 1.41, p<.05) but not at T3 scores (D(31)=1.31, *p>.05*).

The food fussiness section of the Children's Eating Behaviour Questionnaire was given at T3 as it provides a score for food selectivity (questions are not appropriate for milk feeding and therefore lower age groups and was therefore not given at the earlier postnatal time point). The food fussiness mean score and descriptive are provided in **Table 3.10**. The mean fussiness score was 4.0 out of a possible 24, higher than a normative group (although the normative group was older) of children under three years of age with a mean of 2.9 (Wardle *et al.*, 2001). Kolgomorov-Smirnov tests indicated that the Food Fussiness scores were normally distributed (D(31)=0.731, *p>.05*).

3.9 Infant Temperament

The Infant Characteristics Questionnaire scale was completed by all participants at T2 (N=48) and all at T3 (N=31). See **Table 3.11** over.

The mean difficult temperament score for T2 was 16.3 out of a possible 42 (SD 5.4) and for T3 was 15.4 (SD 4.8). Kolgomorov-Smirnov tests indicate that the temperament scores for T2 were found to be of normal distribution (D(47)=0.11, *p>.05*), but there was a non-normal distribution of scores for T3 (D(31)=0.16, *p<.05*).

Table 3.11 Mean Difficult Temperament score on the Infant Characteristics Questionnaire

	Mean no. (SD)	Median	Range
3-5 months (N=48)	16.3 (5.4)	17	7-30
7-10 months (N=31)	15.4 (4.8)	14	9-27

3.10 Within time point correlations

Spearman's rho correlations for the main outcome measures are presented in **Table 3.12** for T1 data, **Table 3.13** for T2 data, and **Table 3.14** for T3 data.

Table 3.12 Spearman's Rho Correlations for main variables at T1

	DASS-21			SOS-S	
Measure	**Stress**	**Anxiety**	**Depression**	**Actual Practical Support**	**Actual Emotional Support**
Anxiety	.60**				
Depression	.57**	.51**			
Actual Practical Support	-.19	-.16	-.14		
Actual Emotional Support	-.20	-.16	-.13	.83**	
Eating Attitudes Total (EAT-26)	.07	.13	-.01	.12	.11

*Coefficients significant at p < .05
**Coefficients significant at p < .01

As can be seen from **Table 3.12** above significant correlations at T1 related to subscales within measures. There was a significant positive correlation between stress and anxiety, rs

=.60, *p<.01*; stress and depression, rs = .57, *p<.01*; anxiety and depression, rs = .51, *p<.01* and actual practical and emotional support, rs = .83, *p<.01.* With Bonferroni corrections these relationships remain significant at *p=.000.*

Table 3.13: Spearman's Rho Correlations for main variables at T2

	DASS-21			SOS-S		EAT-26	CFAQ	
	Str	**Anx**	**Dep**	**Prac**	**Emo**	**Atts**	**Ref**	**Neg**
Anx	.73**							
Dep	.77**	.64**						
Prac	-.25	-.26	-.11					
Emo	-.21	-.24	-.07	.81**				
Atts	.11	.18	.25	-.06	-.05			
Ref	.27	.17	.22	-.04	-.05	.09		
Neg	.24	.34*	.29	-.44**	-.34*	.02	.28	
Temp	.08	.28	.05	-.55**	-.50**	-.13	-.05	.44**

Str=Stress, Anx=Anxiety, Dep=Depression (DASS-21), Prac= Actual Practical Support, Emo=Actual Emotional Support (SOS-S), Atts = Eating Attitudes Total Score (EAT-26), Neg = Mealtime Negativity Scale (CFAQ), Food Ref = Food Refusal Scale (CFAQ), Temp = Difficult Temperament Total (ICQ).
* p< .05
** p< .01

As can be seen from **Table 3.13** above, there was a significant positive correlation between mealtime negativity and maternal anxiety, rs =.34, *p<.05* and mealtime negativity and temperament, rs =.44, *p<.01.* There were significant negative correlations between mealtime negativity and practical support, rs = -.44, *p<.01*; mealtime negativity and emotional support, rs = -.34, *p<.05*. There were also significant correlation coefficients for temperament and practical support, rs =-.55, *p<.01* and temperament and emotional support, rs =-.50, *p<.01*. With Bonferroni corrections, of the associations discussed only the relationships between temperament and practical support *(p=.000)* and temperament and emotional support *(p=.000)* remain significant.

Table 3.14 Spearman's Rho Correlations for main variables at T3

	DASS-21			SOS-S		EAT-26	CFAQ		ICQ	CEBQ
	Str	**Anx**	**Dep**	**Prac**	**Emo**	**Atts**	**Ref**	**Neg**	**Temp**	**Fuss**
Str										
Anx	.64**									
Dep	.67**	.65**								
Prac	-.16	-.46*	-.25							
Emo	-.25	-.51**	-.26	.89**						
Atts	-.19	-.07	-.22	.09	-.06					
Ref	.12	-.22	-.19	.19	.18	.17				
Neg	.34	-.04	-.03	.07	-.10	-.06	.39*			
Temp	.006	.02	.04	-.53**	-.51**	-.02	-.13	-.14		
Fuss	-.03	.12	-.05	-.09	-.12	-.09	.31	.32	-.36*	

Str=Stress, Anx=Anxiety, Dep=Depression (DASS-21), Prac= Actual Practical Support, Emo=Actual Emotional Support (SOS-S), Atts = Eating Attitudes Total Score (EAT-26), Neg = Mealtime Negativity Scale (CFAQ), Food Ref = Food Refusal Scale (CFAQ), Temp = Difficult Temperament Total (ICQ).
* p< .05
** p< 0.01

Table 3.14 shows a significant positive relationship between mealtime negativity and infant food refusal at T3, rs = .39, *p<.05*; significant negative correlations between infant temperament and infant food fussiness at T3, rs =-.36, *p<.05*; emotional support and anxiety, rs =-.51, *p<.01* and practical support and anxiety, rs =-.46, *p<.05*. There are also significant coefficients for temperament and practical support, rs =-.53, *p<.05* and temperament and emotional support, rs =-.51, *p<.01*. Following Bonferroni corrections *(p<.001)* none of the associations described remained as significant.

3.11 Correlations between time points

Correlations between time points are shown for T1 to T2 (**Table 3.15** over), T1 to T3 (**Table 3.16**), and T2 to T3 (**Table 3.17**).

Time point 1 and Time point 2

Non-parametric Spearman's Rho correlations were conducted for the main variables from T1 and T2 (see **Table 3.15**).

Table 3.15: Spearman's Rho Correlations for Time point 1 to Time point 2

	DASS-21			SOS-S		EAT-26
	S1	**A1**	**D1**	**P1**	**Em1**	**At1**
S2	.64**	.72**	.54**	-.22	-.25	.10
A2	.41**	.77**	.49**	-.26	-.21	.08
D2	.49**	.55**	.67**	-.20	-.23	.10
P2	-.10	-.26	-.05	.35*	.20	-.12
Em2	-.04	-.17	.08	.30	.34*	-.23
At2	.11	.21	.16	-.06	-.10	-.59**
R2	.34*	.26	.35*	-.03	-.10	-.06
N2	.07	.07	.02	-.14	.10	-.04
T2	-.06	.18	-.18	.42**	-.25	0.06

S=Stress, A=Anxiety, D=Depression (DASS-21), P= Actual Practical Support, Em=Actual Emotional Support (SOS-S), At = Eating Attitudes Total Score (EAT-26), R = Food Refusal Scale (CFAQ), N = Mealtime Negativity Scale (CFAQ) T = Difficult Temperament Total (ICQ).

* $p < .05$

** $p < 0.01$

There were significant positive relationships between maternal depression at T1 and food refusal at T2, rs =.35, *p<.05*; and between maternal stress at T1 and food refusal at T2, rs =.34, *p<.05*. There was also a significant relationship between practical support at T1 and

temperament at T2, rs =.42, *p<.01*. Following Bonferroni corrections *(p<.001)* none of the associations described remained as significant.

Correlations between T1 and T3 variables

Non-parametric Spearman's Rho correlations were conducted for the main variables from T1 and T3 (see **Table 3.16**).

Table 3.16: Spearman's Rho Correlations for Time point 1 to Time point 3

	S1	A1	D1	P1	Em1	At1
S3	.62**	.56**	.12	-.26	-.30	-.16
A3	.40*	.61**	.47**	-.39*	-.40*	.01
D3	.37*	.65**	.40*	-.34	-.21	-.10
P3	-.08	-.44*	-.10	.38*	.17	-.10
Em3	-.14	.45**	-.05	.32	.14	-.24
At3	-.15	-.10	-.02	.06	-.04	.68**
R3	.29	.14	.15	.17	.13	.05
N3	.16	.01	-.27	.09	.22	-.03
T3	-.06	.15	-.08	-.17	-.09	.10
Fu3	.06	.13	.12	.00	.28	-.05

S=Stress, A=Anxiety, D=Depression (DASS-21), P= Actual Practical Support, Em=Actual Emotional Support (SOS-S), At = Eating Attitudes Total Score (EAT-26), R = Food Refusal Scale (CFAQ), N = Mealtime Negativity Scale (CFAQ) T = Difficult Temperament Total (ICQ), F=Fussiness Scale (CEBQ).
* p < .05
** p < 0.01

There was a significant negative correlation between practical support at T1 and maternal anxiety at T3, rs =-.39, *p<.05*; between emotional support at T1 and anxiety at T3, rs=-.40, p<.05 and a positive correlation between stress at T1 and anxiety at T3, rs=.40, *p<.05*. There

were also significant correlations between anxiety at T1 and depression at T3, rs=.65, *p<.01* and anxiety at T1 and emotional support at T3, rs=.45, *p<.01*. Following Bonferroni corrections *(p<.001)* none of the associations described remained as significant.

Time point 2 and Time point 3

Non-parametric Spearman's Rho correlations were conducted for the main variables from T2 and T3 (see **Table 3.17**).

Table 3.17: Spearman's Rho Correlations for Time point 2 to Time point 3

	S2	A2	D2	P2	Em2	At2	R2	N2	T2
A3	.61**	.51**	.70**	-.31	-.27	.02	.01	.21	-.04
D3	.41*	.35	.41*	-.24	-.22	-.13	.06	.11	.10
P3	-.15	-.29	-.29	.15	-.53**	-.17	.11	-.27	-.47*
Em3	-.16	-.32	-.26	.69**	.60**	-.16	.20	-.28	-.42*
At3	-.10	.03	.07	.08	.02	-.78**	-.08	-.33	-.12
R3	.25	.21	.01	.07	-.00	.21	.47*	.14	-.07
N3	.09	.29	-.18	-.19	-.23	-.00	.35	.61**	.12
T3	-.07	-.09	.05	-.39*	-.34	.02	.11	.04	.51**
F3	.18	.40*	.02	-.17	-.08	-.20	.09	.43*	.11

S=Stress, A=Anxiety, D=Depression (DASS-21), P= Actual Practical Support, Em=Actual Emotional Support (SOS-S), At = Eating Attitudes Total Score (EAT-26), R = Food Refusal Scale (CFAQ), N = Mealtime Negativity Scale (CFAQ) T = Difficult Temperament Total (ICQ), F=Fussiness Scale (CEBQ).

*Coefficients significant at p < .05
**Coefficients significant at p < .01

There was a significant positive relationship between mealtime negativity at T2 and infant food fussiness at T3, rs =.43, *p<.05*, and between maternal anxiety at T2 and infant food fussiness at T3, rs =.41, *p<.05*. There was a significant relationship between infant food refusal at T2 and T3, rs =.38, *p<.05*, and between mealtime negativity at T2 and T3, rs =.69, *p<.01*, indicating that these are reasonably stable across time. There were also significant correlation coefficients for temperament at T2 and practical support at T3; rs =-.47, *p<.05*, temperament at T2 and emotional support at T3; rs =-.42, *p<.05* and practical support at T2 and temperament at T3, rs =-.39, *p<.05*. Following Bonferroni corrections *(p<.001)* none of the associations described remained as significant.

3.12 Multiple Regression analysis of T1 predictors to T2 food refusal

A hierarchical multiple regression analysis was employed to determine which of the hypothesised variables at T1 predicted food refusal at T2. Predictors were reduced by de-selecting variables with non-significant correlations (prior to post-hoc analyses) with the outcome variable, as the number of possible variables was high in relation to participants, using the Spearman's Rho correlations. Independent variables entered were maternal depression and stress. Whilst Q-Q plots **(Appendix 7)** were considered, and a plot of residuals indicating some outliers, all Cook's Distance values were not over the value of one and therefore the outliers were not considered to be an undue influence on the model.

Table 3.18 over displays the unstandardised regression coefficients, (B), the standard error (SEB), the standardised regression coefficients (β), t value and significance of each variable entered.

R was not significantly different from zero after each variable was entered. After step 1, with maternal depression in the equation, R^2 =.06, F(1, 48) =2.22, p=.15. After step 2, with maternal stress added to the equation, R^2 =.11, p=.13. Maternal depression and stress did not contribute significantly to the model and therefore neither maternal depression or stress significantly predicts level of food refusal.

Table 3.18 Regression Analysis Summary for Maternal Factors (DASS-21) Predicting Infant Food Refusal

Variable	B	SEB	β	t	Sig.
Step 1					
Maternal Depression	**1.35**	**0.90**	**0.24**	**1.49**	**.15**
Step 2					
Maternal Stress	**1.04**	**0.72**	**0.29**	**1.44**	**.16**

Multiple regression analysis was not conducted on hypothesised predictors of infant feeding outcomes (food refusal or food fussiness) at T3 due to the small sample size at T3.

3.13 Feeding method and experience of feeding

Participants were asked about their chosen method of feeding and experience of breastfeeding if relevant. **Table 3.19** over shows the responses to questions regarding feeding method and experiences.

Table 3.19: Feeding method, expectations and experiences

	T2 (N=48) unless specified	
	No.	**Percentage**
Breast fed child	34	71
Bottle fed child	34	71
Age 0-3 weeks	21	44
1 month-3 months	11	23
3-6 months	4	8
Experience of breastfeeding		
Very Easy/Easy	8	24
Neutral	10	29
Difficult/very difficult	16	47
Stopped breastfeeding due to problems	11	32

Expectations of ease of weaning (T1) and experience of weaning (T3)				
	T1 N	**T3 N**	**T1 %**	**T3 %**
Very easy/easy	33	27	52	87
Neutral	26	1	41	3
Difficult/very difficult	1	2	2	6
Agreement on feeding with partner				
	T1 N	**T3 N**	**T1 %**	**T3 %**
Perfectly Agree	45	23	70	74
Mainly agree	14	6	22	19
Mainly disagree	1	0	2	0
Not relevant	4	2	6	7

3.14 Help-seeking

Participants were asked about their experience of help-seeking and support at T2 and T3. **Table 3.20** shows the responses to questions about help-seeking and support. At T2 35% (N=17) and 35% at T3 (N=11) had sought help for difficulties with feeding . The most commonly sought help at T2 was 15%

(N=7) from the midwife, and from health visitors (13 %, N=5) and this was reversed at T3 (26% from health visitor and 16 from midwife). 23% (N=11) had sought support for feeding difficulties from more than one source. Most people were satisfied with the support they had received, and the majority said they would be likely to seek support at both time points. More than a quarter of women said that they were unaware of local sources of support for infant feeding.

Table 3.20: Experience and expectations regarding support and help.

	T2 (N=48)		T3 (N=31)	
	No.	**Percentage**	**No.**	**Percentage**
Has sought support for feeding	**20**	**42**	**11**	**35**
From:				
Midwife	7	15	5	16
Health Visitor	6	13	8	26
Paediatrician	2	4	3	10
Dietician	2	4	3	10
Other (e.g. GP, breastfeeding counsellor)	3	6	1	3
More than one support sought	11	23	8	26
No support sought	**28**	**58**	**20**	**65**
Satisfaction with support (if sought)				
Very satisfied/Satisfied	15	75	7	64
Neutral	3	15	0	0
Unsatisfied/Very unsatisfied	2	10	2	18
Aware of local feeding support available	**35**	**73**	**19**	**61**
Unaware of local feeding support available	**13**	**27**	**8**	**26**
Likelihood of seeking support for feeding if a problem				
Very likely/likely	43	89	27	87
Unsure	3	9	1	3
Unlikely	2	4	2	6

3.15 Qualitative information about helping/hindering factors and support

Qualitative data from three questions asked at T2 and T3 were analysed using conceptual analysis. Phrases were coded using an interactive set of concepts listed in Appendix 7. A full set of coded data is also contained in Appendix 7. Relevant categories were added as they were found in the text. **Table 3.21** (over) shows the themes for question one, concept frequency and example responses. Frequency of new responses is also noted, i.e. number of new participants responding about the named theme. The same participant responding under this theme was counted as new only when the participant referred to something that was clearly different under the same concept e.g. '*support from best friend*' at T2 and '*advice from mother*' at T3 refers to different aspects under the same theme which may reflect a change over time and was counted as new.

3.15.1. Opinions regarding factors that support successful feeding

Participants were asked: *What do you think has helped with feeding, or made it more comfortable to feed your child?* See **Table 3.21** over.

Table 3.21 : Responses to open question about factors helping feeding.

Response theme	**Frequency of response**	
Support or advice from family and friends	**T2 38% (N=18)**	**T3 52% (N=16) (new 16%) (N=5)**
" Support of family and friends. I had friends who breastfed before and I knew I could do it if they had." ***(P 61)***		
Own approach (due to previous experience, confidence etc.)	**T2 40% (N=19)**	**T3 52% (N=16) (new 26%) (N=8)**
"Experience. As this is my second child I knew what to expect." ***(P 40)***		
Professional Support	**T2 27% (N=13)**	**T3 23% (N=7) (new 6%) (N=2)**
" Health visitors were encouraging and supportive of my decisions" ***(P 18)***		
Feeding method, materials or environment	**T2 35% (N=17)**	**T3 13% (N=4) (new 13%) (N=4)**
"Being organised and preparing feeds in advance; tubs to weigh out formula. " ***(P 31)***		
Child (e.g. content)	**T2 8% (N=4)**	**T3 13% (N=4) new 10% (N=3)**
"Baby latched on easily... baby loves it also. Have no problems and enjoy the bonding." ***(P 69)***		
Seeking out knowledge	**T2 8% (N=4)**	**T3 23% (N=7) new 13% (N=4)**
"Informing myself/being aware of normal baby behaviour.." ***(P 30)***		

Table 3.21 shows the most common themes in response to what has helped with feeding were the support of family and friends (T2, 38%; T3, 52%) and the mothers' own approach (due to previous experience or confidence) (T2, 52% ;T3, 26%) indicating these themes are important for mothers at both T2 and T3. Frequency of responses for these themes decreased for T3 when only new responses are taken into account, but remain the most frequent themes.

Feeding method, materials and environment is the third most common theme at T2, contained in 35% of responses and remains important for 13% of participants at T3. All responses at T3 were new suggesting that this remains important at a slightly later stage of the baby's development.

Professional support is commonly cited as helping with feeding (T2, 27% ;T3, 23%). 6% of responses were new at T3 which may mean that professional support is not as much of a feature at this stage when there are fewer scheduled clinic appointments.

Mothers indicated that seeking out knowledge and support was important for 8% at T2, 23% at T3 of which 13% were new responses. Seeking out knowledge and support is therefore consistently important to mothers in the first 3 to 10 months of the baby's life.

The child themselves (the child's nature and the child being content) was named as an important feature by 8% of mothers at T2 and 13% at T2 (10% new), which was consistent across the two time points.

3.15.2 Opinions regarding barriers to successful feeding

Table 3.22 (over) shows the themes for question two, concept frequency and example responses. Frequency of new responses is also noted.

Participants were asked: *What, if anything got in the way of happy/successful feeding, or made it more difficult to feed your child?*

Table 3.22: Responses to question about barriers to successful feeding

Response theme	Frequency of response	
Medical condition or illness	**T2 27% (N=13)**	**T3 16% (N=5)** **new 10% (N=3)**
*"Baby went off milk...due to illness and it was difficult to build up a routine again." (**P 10)***		
Unsuccessful/difficult/painful breastfeeding	**T2 21 % (N=10)**	**T3 13% (N=4)** **new 10% (N=3)**
"I wanted to breastfeed but milk was late in coming in. Baby was starving and we had no sleep for days..so started bottle feeding.. I wish had known this could have been a problem." (**P 12)**		
Pressure from health professionals/media	**T2 8% (N=4)**	**T3 6% (N=2)** **new 3% (N=1)**
*"I hated the feeling of breastfeeding (the let down I think?) But forced myself to carry on because of pressure from health professionals and the media." **(P 25)***		
Own feelings	**T2 6% (N=3)**	**T3 0% (N=0)**
"Anxiety that he wasn't drinking enough ." (P.No. 20)		
Lack of support/attitudes of others	**T2 6% (N=3)**	**T3 10% (N=3)** **new 10% (N=3)**
*"One negative comment from a man in a cafe..he walked out in disgust." **(P 48**)*		
Lack of sleep	**T2 4% (N=2)**	**T3 0% (N=0)**
*"Doing the majority of night feeds...if bottle-fed my husband would probably do more feeds." **(P 66)***		
Poor equipment	**T2 2% (N=1)**	**T3 0% (N=0)**
*"Bottles with slow flow teats" **(P 14)***		
Unwanted advice and support (family/others)	**T2 0% (N=0)**	**T3 10% (N=3)** **new 10% (N=3)**
*"Conflicting advice from family" **(P 41)***		

Table 3.22 shows responses to the question regarding barriers to successful feeding. It can be seen that illness or medical conditions were thought to be an important factor for 27% of mothers at T2 and 16% at T3 (of which 10% were new responses). Illness was therefore

important to mothers in terms of the effect on feeding but may have changed in frequency, or reduced in importance as their child developed.

Unsuccessful or difficult breastfeeding was cited frequently as a barrier to feeding (T2, 21%; T3, 13% of which 10% were new).

Other barriers identified at both time points were pressure from health professionals about method of feeding (T2, 8%; T3, 6%, of which 3% were new), and lack of support or unhelpful attitudes of others (T2, 6%; T3, 10%, all responses at T3 were new).

Mother's own feelings (anxiety/frustration) about feeding (6%), lack of sleep (4%) and poor equipment (4%) were identified by a minority of mothers as important at T2 but not at T3. Unwanted advice and support from others was a feature for 10% at T3 but was not mentioned in T2.

3.15.3 Support and attitude of health professionals

In **Table 3.23 (over)** are the themes for question three, concept frequency and example responses. Frequency of new responses is also noted.

Participants were asked: *Is there specific support/knowledge or attitude changes among others (e.g.) health professionals that would help you to feed your baby?*

Table 3.23: Responses to support wished for and opinion on the attitudes of health professionals.

Response theme	Frequency of response	
Variable or inadequate support/knowledge of health professionals	**T2 19% (N=9)**	**T3 23% (N=7)** **new 6% (N=2)**
Huge differences in attitudes between hospital based staff. Some made me feel like I was difficult, one told me I wasn't aggressive enough with the breastfeeding technique, others were supportive. ***(P 41)***		
Pressure from health professionals	**T2 19 % (N=9)**	**T3 13% (N=4)** **new 13% (N=4)**
"I find the pressure to breastfeed from the health profession to be very difficult. I think my negative feelings about breastfeeding stopped me from enjoying my baby as much as I could have. " ***(P 25)***		
Privacy (hospital settings)	**T2 4% (N=2)**	**T3 0% (N=0)**
Being left alone and given privacy in hospital. ***(P 23)***		
Public Attitudes	**T2 2% (N=1)**	**T3 0% (N=0)**
"Making it acceptable to feed in public to all" ***(P 48)***		
Encouragement	**T2 4% (N=2)**	**T3 0% (N=0)**
"Just encouragement I was doing the right thing" ***(P17)***		
Resources/Information	**T2 0% (N=0)**	**T3 6% (N=2)** **new 6% (N=2)**
"More practical dietary advice..even reference material to good websites or books." ***(P65)***		

Table 3.23 shows that in response to the question regarding support and attitude of health professionals, participants most commonly discussed variation in the support offered by health professionals or inadequate knowledge of health professionals (mentioned at T2, 19%; T3, 23%, of which 6% are new responses) and pressure from health professionals about method of feeding (usually in favour of breastfeeding) was mentioned by 19% at T2 and 13% at T3, all responses at T3 were new. Variable health professional advice and support, and pressure from professionals is likely to be less relevant as mothers spend less time at clinic, however both themes remain the most frequently cited themes at T3.

Privacy in hospital settings (T2, 4%), public attitudes to breastfeeding (T2, 2%) and encouragement from health professionals (T2, 4%), were discussed as being important by a minority at T2. 6% of mothers at T3 wanted more information or resources.

3.16 Summary of Main Findings

This section will summarise the main findings of the thesis in relation to the main research questions:

1. Which characteristics of the parent or the child, or support network predict problematic infant feeding?

- By examining correlations between predictors it was determined that maternal depression and stress in pregnancy showed initial correlations with severity of food refusal in infants at 3 to 5 months. However, these factors were not significant when adjusted using Bonferroni corrections nor when entered into a multiple regression model.

2. Levels of mood and eating disorder symptomatology:

- Prevalence of depression above clinical thresholds was 19% at T1, 16% at T2 and 13% at T3.
- Prevalence of anxiety was 16% at T1, 10% at T2 and 3% at T3. Prevalence of stress was 20% at T1, 16% at T2 and 16% at T3.

❖ Levels of maternal depression and anxiety were lower when infants were 7-10 months compared to 3-5 months

❖ There are low levels of dysfunctional maternal eating attitudes and behaviours with only two participants scoring in the clinical range.

3. Prevalence of feeding difficulties:

❖ 23% of mothers of 3 to 5 month old infants, and 13% of mothers of 7 to 10 month olds reported their child as having one or more feeding difficulties. 6% of these were reported as having more than one feeding difficulty.

4. Maternal experience of infant feeding:

❖ 47% of those mothers who breastfed found breastfeeding difficult or very difficult.

❖ 27% of mothers expected that weaning their child would be easy or very easy, and after weaning 87% reported that weaning their child was easy or very easy.

❖ 75% of mothers of 3 to 5 month olds and 64% of mothers of 7 to 10 month olds who sought help or advice for infant feeding were satisfied or very satisfied with the support offered.

❖ The most frequently cited factors that mothers felt helped with feeding were support/advice from family and friends, their own previous experience or confidence, and support from health professionals.

❖ The most frequently cited factors that mothers felt were barriers to successful feeding with feeding were their infant suffering from an illness, and painful or difficult breastfeeding.

❖ The most frequently cited themes in relation to ways in which support could improve were an improvement in variable or insufficient support/knowledge of health professionals, and a reduction in pressure from health professionals in relation to feeding method.

4. DISCUSSION

4.1 Overview

This section will discuss the research findings and relate them to the literature on maternal and infant factors in infant feeding outcomes. It will highlight service implications arising from the findings. Limitations of the research will be discussed, and possible directions for future research will be outlined.

4.2 Discussion of results

4.2.1 Prevalence and nature of feeding difficulties

In the community sample studied, reports of one or more infant feeding difficulties were made by 23% of mothers at 3 to 5 months post-natally, and 13% at 7 to 10 months post-natally. 6% of mothers reported their infant as having more than one feeding difficulty. This level of prevalence (which includes possibly transient problems) is lower than other reported prevalence levels (40% of families; Northstone *et al.*, 2001). However previous research includes prevalence levels up to the ages of 15 months and it is likely that prevalence will grow for this group of women. Fussy eating or food refusal most commonly becomes a matter of concern for parents when their child is between 9 months and 18 months, during transition to spoon or self-feeding (Chatoor & Ganiban, 2003). Nearly half of 10 month old children with reported feeding difficulties continue having difficulties until at least the age of 2 years of age (Hagekull *et al.*, 1997). Carruth *et al.* (2004) found that an increase in picky eating from a rate of 19% to 50% was reported between the ages of 4 to 24 months. It may also be that the sample size in the current level was not large enough to

reflect the variation found in a community sample, particularly due to the levels of drop out over the duration of the study.

The most common feeding problems were due to the child accepting a limited variety of foods on weaning in 13% of 3 to 5 month old infants, and milk/food intolerance in 10% of 7 to 10 month olds. The most common group of 'fussy' infants may reflect the normative weaning process where infants are still developing in their ability to manage solid foods. Lack of progression in ability to eat is usually seen in older infants (Maldonado-Duran *et al*., 2008). Some 'fussy' eaters may have regulatory difficulties (Maldonado-Duran *et al.*, 2008); where infants are either under-aroused or easily distracted by other stimuli in the environment. The food intolerance levels are high, with a review of European studies showing that milk intolerance has a prevalence of around 2% (Masden, 1997) and food intolerance of all types estimated at about 6% across the first 3 years of life (Sampson, 2004). Differences in prevalence rates between the current and previous studies may be due to food intolerance being self-reported in the current study. When food intolerances are confirmed, around 40% of these infants experience distress, vomiting and gastro-oesophageal reflux (Hill *et al.*, 2000). Ostblom *et al.* (2008) found that as well as children with food hypersensitivity suffering physical effects, their parents are more likely to report difficulties in family functioning. All feeding difficulties are self-reported in the current study, and therefore may be an over-estimation of the number who would receive a medical diagnosis.

4.2.2 Incidence of psychiatric symptomatology and relationship with feeding

Depression was in the clinical range for 13-19% across the study period; anxiety 3-16%, and stress for 16-20% of mothers. SIGN guidelines (2002) estimate a prevalence rate of diagnosed clinical depression at 10-15%. A large scale meta-analysis found a prevalence rate of clinical depression in pregnancy of around 13% (Gavin *et al.*, 2005) although prevalence at any one point in pregnancy is considerably lower e.g. 5% at the end of the second trimester (Gavin *et al.*, 2005). The Avon Longitudinal Study of Parents and Children (ALSPAC) team found 15% experienced clinical levels of anxiety during pregnancy and 8% experienced clinical levels of anxiety 8 weeks post-natally (Heron *et al.*, 2004). The current study found that 10% scored above threshold levels at 3 to 5 months post-natally, but this dropped to only 3% at 7-10 months. Numbers of women scoring in the clinical range for mood difficulties at T3 in the current study may be less reliable due to levels of attrition. However, attrition should not have affected the balance of 'well versus unwell' significantly as analysis showed that completers and non-completers did not differ in terms of initial mood symptomatology. It remains possible that those women who went on to develop mood difficulties in the post-natal period showed selective attrition.

There were problems with reliability of the DASS-21 for the current sample, specifically for depression scores in Timepoint 1 and for anxiety scores. Therefore any findings in relation to these constructs must be treated with caution.

Whilst levels of stress did not change over the course of the study, levels of maternal depression and anxiety were lower when infants were 7-10 months (T3) compared to the

third trimester of pregnancy (T1). Righetti-Veltema *et al.* (2002) found that depressed women are significantly more likely, 3 months post-natally, to feel that there are many restrictions on their life since the birth of their baby. It is notable that a large number of women returned to work before T3 (7-10 months post-natally) and therefore in this sample, it may be that feelings of role restriction were lesser and thus mood was improved. However, a return to work is not always a choice but a necessity, and further longitudinal research on feelings of role restriction and maternal mood in early infancy would be helpful in clarifying a possible relationship. Anxiety in post-natal women is a more poorly researched area than post-natal depression, but women meeting criteria for anxiety disorders is common, prevalence rates being around 10 to 16% of women, with 2 to 4% of women meeting criteria for co-morbid depression and anxiety (Matthey *et al.*, 2003). Worries of anxious mothers include fears about not coping, a perceived incompetence in caring for their child, as well as fears about the health of their baby (Matthey *et al.*, 2003). With such worries being amenable to early intervention from health professionals (Matthey *et al.*, 2003), a minimal intervention during pregnancy may be helpful in preventing ongoing clinical anxiety.

The current research did not find a significant relationship between increased anxiety at T1 and food refusal at T2, or between anxiety at T2 and food refusal at T3. There was a cross-sectional relationship between maternal anxiety and mealtime negativity but not when Bonferroni corrections were applied. No longitudinal relationship was found. Interestingly, before Bonferroni corrections, higher levels of stress at T1 were correlated with higher levels of food refusal at T2. There were also significant relationships between increased maternal anxiety at T2 and higher levels of infant food fussiness at T3, and between mealtime negativity at T2 and infant food fussiness at T3. Maternal depression in pregnancy

showed a positive correlation with food refusal in 3-5 month olds. None of these relationships remained when Bonferroni corrections were applied, however Bonferroni corrections have been critiqued as reducing power and increasing Type II errors (e.g. Nakagawa, 2004). As the current study was already underpowered due to drop-out, the Bonferroni corrections may have had a further effect in reducing the study's power. However, significant correlations prior to the Bonferroni corrections cannot be taken as a reliable finding without replication of the study in a larger sample.

A link between anxiety, depression and reports of feeding difficulties is supported by previous research. Levels of anxiety and/or depression among mothers in the community have been found to be associated with reports of feeding difficulties (Blissett, Meyer & Haycraft, 2007; Coulthard & Harris, 2003; McDermott *et al.*, 2008) or difficulties in feeding interactions in their children (Farrow & Blissett, 2005; Blissett, Meyer & Haycraft, 2007; Hurley *et al.*, 2008; Haycraft & Blissett, 2008). A small number of prospective questionnaire studies have found an association between maternal mental health and reports of infant feeding. Micali *et al.* (2009) reported in a large prospective study that women fulfilling psychiatric diagnoses reported significantly more difficulties in all aspects of feeding their 1 month olds and 6 month olds compared with a control group but made no distinction between anxiety, depression or other psychiatric diagnoses. Maternal anxiety has been linked with increased worries about the baby's growth (Coulthard & Harris, 2003) which may lead to a change in mealtime interactions, which can be more restrictive (Hurley *et al.*, 2008) and controlling (Haycraft & Blissett, 2011) when mothers have higher levels of anxiety. However, although anxiety and mealtime negativity were significantly correlated at T2 before post hoc analysis, there was no significant association between time points. Stress in pregnancy and food refusal at T2 were significantly correlated before post hoc analyses

and so although stress cannot be isolated as a cause of feeding difficulties, a larger study may find joint causal processes affecting both maternal stress and food refusal. A cross-sectional relationship between maternal anxiety and mealtime negativity was found in early infanthood prior to Bonferroni corrections although maternal anxiety did not predict later mealtime negativity in this sample. One possible explanation is that feeding problems are a source of maternal anxiety when children are 3-5 months old (T2), but this needs further study in a larger sample. Feeding problems at T2 were not related to maternal mental health at T3 and therefore it seems that initial feeding problems are unlikely to be a longer term predictor of maternal ill-health.

Maternal depression during pregnancy was correlated with food refusal at T2. When depression at T1 was entered into a multiple regression however, it was not a significant predictor of food refusal. This was not strongly significant (*p=0.03*), and this result again did not remain with Bonferroni corrections. It has been suggested that depression does not predict onset, but rather predicts duration of (ongoing) food refusal (Coulthard & Harris, 2003). A longer follow up would clarify whether the infants displaying food refusal with a post-natally depressed mother continued having feeding problems. Another possibility for a negative finding is that the majority of maternal depression at T1 was mild, and levels of depression reduced over the time of the study. It may be that more severe depression is more likely to have an effect on feeding outcomes. Other studies of women in the community have not found a relationship between depression and infant feeding difficulties e.g. Wheelan and Cooper (2000) and Coulthard and Harris (2003), who postulated that low levels of feeding difficulties in the general population mean that a relationship with depression is unlikely in community based studies. Any conclusions based on either previous

research or the current study must be tentative. There is a lack of prospective research, and as most as the current study is based on questionnaire data, any associations found between maternal mental health and feeding are based on maternal perception rather than observation. There is stronger evidence for a link between maternal psychopathology and perception of difficult mealtimes or feeding difficulties, from both cross-sectional and prospective studies.

There are a number of inconsistencies in the research literature regarding a link between maternal anxiety, depression and feeding difficulties, which may be in part due to methodological differences between studies. Some studies have used global measures of distress (i.e. Farrow and Blissett (2005) and Haycraft and Blissett (2011) used the Brief Symptom Inventory), whereas the present study used a measure which separates out scores for anxiety, stress and depression. Some studies have been very specific in their definition of feeding difficulties, e.g. Coulthard and Harris (2003) looked at a group of food refusers compared to non-refusers, while others used a one question self report as a measure of 'irregular feeding' (McDermott *et al.*, 2008). Studies that have found mood as a predictor of feeding difficulties have tended to involve children of an older age group, and it may have been that infants were too young in the current study for some relationships to emerge. Coulthard and Harris (2003) found that onset of feeding difficulties was not predicted by maternal anxiety but duration of difficulties was, among a larger sample with a longer follow up period. Feeding difficulties in this sample may have reflected mainly transient difficulties, with the prevalence of feeding difficulties reducing over the period of study. Had a larger sample been retained in the current study, it would have been possible to continue studying these relationships over time.

In summary, the evidence base for a longitudinal link between maternal anxiety, depression and food refusal is limited as yet. The current study found a longitudinal relationship between stress in pregnancy and food refusal at 3-5 months prior to post hoc analyses. Additionally a longitudinal link between maternal anxiety at T2 and maternally reported food fussiness in 7-10 month old infants was found prior to post hoc analyses and therefore it is worthwhile replicating the study on a larger sample to prevent the current study's lack of power. It may be that stress and anxiety each have relationships with different feeding difficulty presentations, with different causal pathways. However, as discussed, maternal cognitions may account for maternally reported psychopathology and maternally reported feeding problems. Some research has indicated a link between maternal mood and mealtime negativity, specifically a cross-sectional relationship in pre-school years rather than a causal link. A cross-sectional relationship between anxiety and maternally reported mealtime negativity in early infant months again did not emerge following post-hoc analyses but may be worthy of further investigation.

4.2.3 Incidence of eating disorder symptomatology and relationship with feeding

In terms of dysfunctional eating attitudes, low levels of dysfunctional eating attitudes were found. Only two separate participants, one individual in T1 and one individual in T2 scored in the clinical range for dysfunctional eating attitudes and behaviour as measured by the EAT-26. These results, despite the negative findings, must be treated cautiously due to low internal consistency for the EAT-26 scale at Timepoint 2. No women indicated that they had suffered an Eating Disorder in the past. As questionnaires as well as psychiatric history were self-reported, it is unknown whether symptoms were under-reported, perhaps due to stigma of psychiatric disorders, particularly when pregnant or caring for young children. A

large study (Turton *et al.*, 1999) found an improvement in existing eating disorder symptoms during pregnancy and whilst this may be a factor, eating disorders did not subsequently rise post-natally. Eating Disorders are less common in pregnancy generally due to the reduction of fertility in individuals with an Eating Disorder (NICE, 2007). Fairburn and Beglin (1990) estimate the prevalence of Anorexia Nervosa and Bulimia Nervosa in childbearing age at 1-2% of women aged 16-40 years. Another possible reason for the low rates of Eating Disorder symptomatology found is that midwives and health visitors retained the option to screen out vulnerable women that they thought were not appropriate for the study. As a result 28 women were removed from the study and it may be that levels of psychopathology were higher in this group of women. Consequently it is unsurprising that no relationship was found between eating disorder symptomatology and feeding difficulties, as with such low levels of eating disordered symptomatology it would not be possible to detect a relationship.

A link between eating disorder symptomatology and feeding difficulties in the community has not been consistently found in previous research. In previous research with community populations of selective eaters, parental eating pathology was not associated with infant feeding difficulties (Jacobi *et al.*, 2003; Lewinsohn *et al*, 2005; Wright *et al.,* 2006) although Micali *et al.* (2009) did find a relationship. Micali and colleague's ALSPAC study was a very large community sample, which therefore had access to large numbers of women with diagnosed eating disorders, perhaps increasing power to detect any existing relationship between maternal eating disorder and infant feeding difficulties. Eating disorders were also self-reported only in the ALSPAC study. This may then indicate that the sample size was more problematic in the present study for detecting a relationship, rather than the use of self-report measures. Feeding difficulties themselves are almost always reported by

parents even where studies are prospective (e.g. Micali *et al.,* 2009; Reba-Harrelson *et al.,* 2010; Stice *et al.,* 1999) making conclusions limited, as with the research on mood and feeding. Prospective observational research has found difficulties in the feeding styles of mothers with an eating disorder, but this does not tell us whether these children go on to receive diagnoses or treatment for ongoing problems with feeding. The current study was self-reported eating disorder and feeding difficulties, and it is unknown whether more eating disorder symptomatology would have been uncovered with a diagnostic interview.

4.2.4 Other factors predictive of problematic feeding

Other factors that were hypothesised as possible predictors of problematic feeding were mealtime negativity, perception of poor social support (Farrow & Blissett, 2006), and difficult infant temperament (Haycraft *et al.*, 2011). By examining correlations between predictors and using multiple regression it was found that these factors did not predict severity of food refusal. Results for social support must be treated with caution, as for Timepoint 1 , there was low internal consistency for the SOS-S.

While mealtime negativity was not found to be a predictor of food refusal in the present study, previous research has found that parental response to food choice and food avoidance is a key factor in picky eating (Jacobi *et al.,* 2003). Although food refusal and mealtime negativity showed an (initial, prior to post hoc analyses) cross-sectional relationship at T3, these two factors showed no significant association at T2. It may be that infants were too young at 3-5 months old to have undergone reinforcement of food refusal behaviours resulting from environmental contingencies. The mealtime negativity subscale includes aspects of the child's behaviour and affect but also parental response, which may

be related to parental interpretation or coping style. A more specific breakdown of negative infant behaviour and negative response by parent would enable clarity around the relationship between maternal and infant factors. Further investigation of this potential relationship using further longitudinal research would be valuable to pinpoint vulnerable stages in the infant's life-cycle.

Temperament and food refusal were not correlated at T2 or T3. Previous research has linked parent-reported infant negative affect and picky eating (Jacobi *et al.*, 2003). Temperament and mealtime negativity showed initial correlation at T2 but not at T3. It may be that possible overlap in the concepts of parental perception of difficult temperament in their children and perceptions of the child's behaviour at mealtimes, or alternatively that parents are reacting to the challenges presented by their child's behaviour. It is possible that a sensitive response by mothers has alleviated difficult behaviour in the older age-group or that the infants themselves have matured in their feeding skills. A relationship between infant behaviours and maternal sensitivity was found in a community sample (Hagekull *et al.*, 1997) with less sensitive mothers of less manageable infants showing more food refusal. Such research highlights the mutually reinforcing nature of mother-child interactions. Temperament and food fussiness showed initial correlations at T3, which could be looked at further to determine whether there is an overlap in these behaviours or whether they might share a common maternal perceptual process. Further longitudinal research examining parental report of the child's behaviour including direct observation of child behaviour and parental response at mealtimes would clarify whether negative maternal response is driven by perception of the child's feeding or objectively difficult mealtime behaviours.

There was no significant cross-sectional or longitudinal relationship between social support and feeding difficulties. Research on the relationship between social support and feeding difficulties is at a very early stage and does not include independent observation of feeding difficulties. Some cross-sectional research supports an association between beliefs about support and perception of feeding difficulties e.g. Blissett et al (2005) and this has been supported by prospective research by the same group. Core beliefs regarding social isolation predicted maternally reported feeding difficulties in a non-clinical sample (Farrow & Blissett, 2006), contrasting with cross-sectional research that found that perceptions of social support do not differ in mothers of children with feeding difficulties and mothers of children with no feeding difficulties (Sanders *et al.*, 1993). A mother's social support system has been found to be predictive of her mental wellbeing (Oakley *et al.,* 1994) and participants felt reasonably well supported by significant others in this sample. If there is a shared cognitive process operating both for higher levels of mood difficulties and perception of poor social support, it is likely that this would not emerge in a reasonably 'well' sample. Lower socio-economic status is associated with a range of psychosocial difficulties including a lack of social support (Zachariah, 1994). The current sample is slightly weighted towards participants living in less deprived areas, with a greater proportion of women living in the most deprived areas dropping out over the study period. Independent observation of feeding difficulties both in previous research and in the current study would have allowed confirmation of existing difficulties as opposed to maternal report only.

4.2.5 Mothers' experiences of infant feeding and professional support

A number of themes arose from the content analysis of questions on the mother's experience of infant feeding and professional support. A large proportion of women who

breast fed (47%) found the experience difficult or very difficult. Previous qualitative research found that 63% of women experienced pain or discomfort when breastfeeding and that women who experienced pain or discomfort during feeding felt ill-prepared for pain or discomfort, felt it affected their relationship with their baby and commented that support from health professionals had either a positive or a negative impact on their discomfort (Kelleher, 2006). Bearing in mind these possible consequences of breast feeding difficulties, it is important to understand how difficulties arise and how factors such as support can help alleviate problems. Few women had expectations that weaning would be easy or very easy (27%), whereas women's experience was that 87% found weaning to be easy or very easy in reality. Worries about weaning are often around nutritional adequacy, which foods to give, and child weight, with inconsistent advice from professionals worsening worries for women (Davies & O'Hare, 2004). A major change following a systematic review (Kramer & Kakuma, 2002) was the World Health Organisation global recommendations for exclusive breastfeeding until the child is 6 months. Guidelines were previously to begin weaning from 4 to 6 months. Some mothers mentioned that the change in guidance had put extra pressure on them to delay weaning.

The most frequently discussed themes in relation to ways in which support could improve were an improvement in variable or insufficient support/knowledge of health professionals, and a reduction in pressure from health professionals in relation to feeding method. Inconsistent advice is experienced both pre and post weaning by 19% of mothers at 3-5 months and 13% of mothers at 7-10 months post-natally. Inconsistent advice has been identified as a problem frequently experienced by mothers in previous research (Manhire *et al.*, 2007; Simmons, 2002).

Pressure from health professionals regarding method of feeding was mentioned by 19% of mothers at T2, and 13% at T3. Women often mentioned that advice and support was not offered in relation to bottle-feeding by health visitors as bottle feeding could not be recommended by them due to guidelines or directives. Mothers felt uncomfortable about stopping breastfeeding as they felt that this would be disapproved of. Non supportive attitudes from health professionals can be a significant barrier to breast feeding success (Manhire *et a.,,* 2007; Patton *et al.,* 1996). Hoddinott & Pill (2000) have described an authoritarian, one-sided approach to communication by healthcare professionals in the UK. Midwives in the UK have been found to use language which emphasises the power differential in the patient-professional relationship (e.g. 'girl' rather than 'woman') and incorporating tactics of persuasion (Furber & Thomson, 2010). The health visiting profession was a profession designed to carry out instructions of public health authorities and therefore their advice can be oppressive (Rolls, 1992) and change according to directives. In a wider sense, mothers are acutely aware of the beliefs, attitudes and expectations of significant others which causes conflict around feeding decisions (Manhire *et al.*, 2007).

The findings of the current study suggest that although a subsection of women experience problems with healthcare professionals, general satisfaction with health professionals' advice and support around feeding was reasonably high with 75% of mothers of 3 to 5 month olds and 64% of mothers of 7 to 10 month olds who sought help or advice for infant feeding being satisfied or very satisfied with the support offered. Support from health professionals was one of the most commonly cited factors which mothers felt helped them with feeding, along with support and advice from family and friends and the mother's own previous experience or confidence. Social support from close family members has been

described as crucial in supporting breastfeeding in particular (Ingram & Johnson, 2004). Maternally reported social support scores were higher in this group than those found in groups with mood difficulties and non-clinical groups (Power *et al.,* 1988) and so findings around satisfaction with support may be influenced by positive maternal expectations and experiences around support.

The most frequent factor that mothers felt was a barrier to successful feeding was their infant suffering from an illness. Illness is likely to have an effect both on the child's eating routine even if in the short term due to a minor illness, but difficulties might be maintained by parental response due to worry or frustration. Mathisen *et al.* (1999) found that infants with Gastro-oesophageal reflux disease (GORD), had delayed feeding skills, showed more negative emotion and that mothers displayed more negative emotion. It may be that there are physical factors impacting on feeding, as well as the impact of the maternal-child interaction as a result of illness. Longitudinal research on infants with illness including observations of parental mealtime behaviour would clarify possible parental mechanisms impacting on feeding.

4.3 Service Implications

Worries in relation to infant feeding are frequently reported. Although routine health appointments are common in the first six months of the child's life, the current research indicates that many parents feel that support can be inconsistent. Research on type of

feeding difficulties helps services to target advice or literature according to the most common concerns. The current study suggests that in a sample of mothers from the general population, the most common reported difficulties were selective eating or food intolerance. The number of women reporting fussy eating when their children were 3-5 months, which then alleviates, suggests that worries may develop in relation to transient difficulties in the weaning process and health professionals have a valuable role in educating parents about the developmental processes of feeding.

Clinical levels of anxiety and depression are common in pregnancy, as well as in the postnatal period. NICE (2007) guidance recommends that mood is assessed both in the antenatal and postnatal period, and the guidelines most frequently raise depression as a key target for assessment. Although measures of anxiety are suggested as a possible assessment tool, this is not routine. SIGN (2002) does not support routine screening for depression in pregnancy. Postpartum depression has been found to affect early interactions with the child, breastfeeding outcomes and parenting (Field, 2010) and therefore is worthy of attention and intervention. Interventions for maternal mood have problematic resource implications, as individualised interventions focusing on mother-infant interaction are the most effective for postpartum depression (Field, 2010), and those seeing mothers most often may be under-resourced and lacking training in this area.

Nearly half of all mothers who breastfed reported finding breastfeeding difficult or painful. Women frequently reported that they felt pressurised to continue breastfeeding and felt judged by health professionals. Women who attended breastfeeding support groups found that advice from their peers was extremely helpful, although this type of support was accessed by few mothers. Many women mentioned that advice and support about bottle

feeding was more difficult to access than advice about breastfeeding. Whilst breastfeeding is promoted due to the health benefits, health services need to consider the needs of a large number of women who choose not to breastfeed for the recommended period and design support groups which are open to all regardless of feeding method.

Mothers who are more highly educated tend to seek out information and support from professionals and family (Matich & Sims, 1992). Support services should be targeted in areas of social deprivation where sources of support may be lacking. Over a quarter of mothers said they were unaware of local support for infant feeding, suggesting that an improvement could be made by health professionals in highlighting information on local resources. Consultations in primary care might be improved by regular audit around patient satisfaction. Increasing access to peer support could have a beneficial effect on maternal mood and feeding outcomes, as well as easing pressure on child health services. This might be particularly helpful in rural areas where health services are more difficult to access. Support from friends and family was frequently mentioned by mothers as being crucial in supporting infant feeding. Health professionals could have a key role in supporting and educating family members, thus assisting them to support mothers. Such interventions have proved successful in deprived areas (Ingram & Johnson, 2004). Ultimately, the experts on support needs for mothers are the mothers themselves and more consultation with them across the various tiers of care would enable improved patient led services.

4.4 Strengths and limitations of the study

The current study's strength lies in its targeting of a prenatal population and young infants, an area in which there is little research. Furthermore longitudinal research can enable clarity around causal factors and cross-sectional relationships. Qualitative aspects of the research suggested factors which mothers themselves consider as important in supporting them or which are barriers to feeding. Qualitative studies on mothers' views of support around feeding are few in number, particularly in the UK, and studies tend to focus on breastfeeding only.

Feeding difficulties and mealtime behaviours were self reported rather than direct observation and therefore are subjective in nature. Observational data would have corroborated parental perceptions of child behaviour. However, a number of studies have shown that maternal report of feeding difficulties is reliable in comparison with observational data (Wheelan & Cooper, 2000; Cooper *et al.*, 2004). A possible difficulty with observational methods of measurement is both ethical and related to effects on participation, in that they may have felt intrusive to participants or discouraged mothers from agreeing consent or continuing in the study. Observation may also have disturbed a natural interaction between mother and child so that data would be inaccurate.

Measures of feeding difficulties are not consistent across studies, and there is no widely accepted standardised measure, particularly for this age group. The CFAQ used in the current study focuses on refusal of food rather than maternal control over eating, which has been found to be more prevalent in anxious mothers (Farrow & Blissett, 2005). The fact that food fussiness had different correlates to food refusal in the current study (prior to post-hoc

analyses) suggests that larger studies may find that different mechanisms affect different aspects of problematic feeding but there are limits to which aspects can be studied by self-report in such a young population of infants. As 100% of participants were of White Scottish origin, feeding difficulties may not be representative of women from other ethnic backgrounds. Twamley *et al.* (in press) for example found that women of South Asian parentage living in the UK were more likely to bottle feed, citing a lack of privacy, family commitments and grandparental attitudes to breastfeeding as reasons for this.

Several of the maternal psychopathology measures showed problems with reliability for this sample. This group of women is a 'well' sample, particularly as a number of women who initially consented were withdrawn from the study by the midwifery department. Homogeneity of a sample can affect the reliability of scales (Gregory, 1992).

It has been reported that anxiety is more common in fathers than in mothers (Matthey *et al.*, 2003). This study asked for participants to be the main person in charge of feeding, and in 100% of cases, the women volunteered as being in this role. However, many men take a large part in the care and feeding of their child, and their health and mood has an impact on their participation with feeding, as well as on the mental health of their partner. Symptoms of post-natal depression are significantly associated among couples, and a perception of low partner support is related to postnatal mood difficulties in both women and men (Iles *et al.*, 2001).

The major limitation of the study is the rate of attrition, and as a result a lack of power to detect relationships between the variables of interest. As a result of drop out from the study

it was not possible to use regression analyses to examine possible relationships between maternal health at T2 and feeding difficulties at T3. The multiple comparisons used in the correlations meant that initial significant results did not remain when Bonferroni corrections were applied. A greater number of women recruited pre-natally would have allowed for a large drop-out rate. It may have been that the commitment involved in filling out a relatively long questionnaire was considered too much by consentees.

4.5 Future research directions

Future research would help to clarify whether severity of depression in a community sample improves over time, with improved infant routines. A wide variety of factors have been implicated as key in understanding onset and maintenance of post-natal depression. Women who experience post natal depression are more likely to have had the experience of a difficult delivery, experience a negative change in their relationship with significant others, have more financial and work worries, be of lower socio-economic status and have an infant with more difficulties with sleep, feeding and constipation (Righetti-Veltema *et al.*, 2002). It is likely that a core group of depressed women remain so over time, associated with psychosocial difficulties. A number of factors are of importance in mood difficulties in mothers such as number of children, with multiparous women being more likely to feel tired and depressed than first time mothers (Righetti-Veltema *et al.*, 2002). Varying rates of depression, anxiety and stress at differing points in the child's life cycle suggest that different sources of distress may affect mothers at different points. Research with both men and women would help clarify the relationship between maternal and paternal wellbeing,

and effect on infant feeding outcomes for example. Further longitudinal research with a larger sample, incorporating a range of demographic, maternal, paternal and infant factors would help to provide a comprehensive understanding of the complex relationship between parental mental health and infant feeding problems.

Qualitative research helps to stimulate theory about the complex relationships between various factors. Previous research has concentrated on empirical research methods rather than generating theoretical frameworks. The current study focussed on conceptual analysis rather than on relations between themes in women's discourse. However, by using conceptual analysis across time points it was possible to look at changes in themes across the study period. Content analyses across time also allowed a comparison between the factors that women felt helped consistently from 3-10 months post natally (e.g. support from family/friends and a content, happy child), to those factors that were more important at a younger age group (feeding method/materials/environment) or in later infanthood (seeking out information). Some barriers to feeding were identified consistently across time (e.g. pressure from health professionals/the media and lack of support/poor attitudes of others), some barriers reduced in importance (e.g. own feelings about feeding) and some assumed more importance with an older infant (unwanted advice/support from family/friends). In terms of women's recommendations for improvement in support, the majority of women who did comment on this mentioned inadequate, variable support or of pressure being applied by health professionals. Further qualitative research could usefully progress this research with more in-depth interviews identifying possible links between helping factors versus barriers, for example some factors may act as resilience factors in feeding leading to less help-seeking. Quantitative analysis of factors predicting help-seeking would usefully be explored for those families who experience persistent feeding difficulties.

A possible criticism of research on feeding in community populations is that it looks for relationships in a group of children with heterogeneous problems. Research into parental or infant factors affecting feeding difficulties would benefit from comparisons between groups of infants with specific feeding difficulties, at different age groups, as a 'one size fits all' measure will not elucidate the interplay between factors involved in specific feeding problem types. Comparisons between new and persistent feeding difficulties would clarify factors that relate to onset versus maintenance of difficulties.

5. CONCLUSION

This exploratory population based study found initial evidence of cross-sectional and longitudinal relationships between a range of infant and maternal psychological and behavioural characteristics, including feeding difficulties. Most notably there were cross-sectional relationships between mealtime negativity and food refusal, mealtime negativity and practical support, anxiety and mealtime negativity and anxiety and food fussiness. Longitudinal relationships were found between maternal stress, depression and food refusal. However, these results did not remain significant once post-hoc analyses was applied. Specific correlations need further confirmation with a larger sample, or more specific research looking at a smaller number of factors. Prevalence of feeding difficulties in this sample was fairly low compared to previous studies, at 23% for 3 to 5 month olds.

The research has also enabled a better understanding of the maternal perception of barriers to successful feeding, which were illness, painful feeding and inconsistent professional support; and conversely factors supportive of successful feeding e.g. good professional, peer and family support. Whilst the majority of women were satisfied with professional support provided for feeding difficulties, they also offered ways in which support could improve – with increased knowledge/reduced variability among advice of health professionals, and less pressure from health professionals in relation to feeding method.

Suggestions have been made for improvements in service delivery and future research directions. There was a large group of women who found breastfeeding difficult or painful, and many who also reported feeling pressured about breastfeeding. The health benefits of

breastfeeding are well documented but the current strategy adopted by healthcare providers may need revision. One option which has shown some initial promise is peer support from other mothers which may work well in rural or deprived areas.

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7. APPENDICES

Appendix 1: East of Scotland Research Ethics Committee's Approval

NHS Fife | NHS Forth Valley | NHS Tayside

Rec'd 13/5/11 MM

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1 Randolph Road
Stirling
FK8 2AU

Date:	10 May 2011
Your Ref:	
Our Ref:	LR/**09/S1402/40**
Enquiries to:	Mrs Lorraine Reilly
Extension:	Ninewells extension 40099
Direct Line:	01382 740099
Email:	Lorraine.reilly@nhs.net

Dear Mrs Mills

Study Title: **Predictors of infant feeding: role of maternal and infant factors.**
REC reference number: **09/S1402/40**

This study was given a favourable ethical opinion by the Committee on 21 October 2009.

It is a condition of approval by the Research Ethics Committee that the Chief Investigator should submit a progress report for the study 12 months after the date on which the favourable opinion was given, and then annually thereafter. To date, the Committee has not yet received the annual progress report for the study, which was due on 20 October 2010. It would be appreciated if you could complete and submit the report by no later than 25 May 2011.

Guidance on progress reports and a copy of the standard NRES progress report form is available from the National Research Ethics Service website.

The NRES website also provides guidance on declaring the end of the study.

Failure to submit progress reports may lead to the REC reviewing its opinion on the study.

09/S1402/40 **Please quote this number on all correspondence**

Yours sincerely

L. Reilly

Mrs Lorraine Reilly
Co-ordinator

Copy to: Mrs Elspeth Currie, University of Edinburgh
NHS Forth Valley R&D office

POSITIVE ABOUT DISABLED PEOPLE

Appendix 2: NHS Forth Valley Research and Development Approval

Medical Directorate

Carseview House
Castle Business Park
Stirling
FK9 4SW

Telephone (01786) 463031
Fax
www.show.scot.nhs.uk/nhsfv

NHS
Forth Valley

Mrs Suzanne Mills
Trainee Clinical Psychologist
NHS Forth Valley
Child and Adolescent Mental Health
1 Randolph Road
Stirling
FK8 2AU

Date: 18 January 2010
Your Ref:
Our Ref: GD/ig
Enquiries to: Allyson Bailey
Direct Line: (01324) 677564
Fax:
Email: Allyson.bailey@nhs.net

20 JAN 2010

Dear Mrs Mills

Following approval from the Tayside Committee on Medical Ethics B on 21 October 2009, I am pleased to confirm that I formally gave Management approval to "Predictors of Infant feeding: role of maternal and infant factors" on 18 January 2010..

The Research Governance Framework for Health and Community Care applies to all research undertaken within NHS Forth Valley. The Framework sets out standards and details the key responsibilities of key individuals, including the research sponsor, principle investigator, other researchers and supervisors of students undertaking research.

All those involved in the project will be required to work within accepted guidelines of research governance and IHC-GCP guidelines.

A copy of the Framework and links to background annex material can be accessed via the Chief Scientist Office website at : http://www.sehd.scot.nhs.uk/cso/Publications/ResGov/Framework/RGFEdTwo.pdf and ICH-GCP guidelines may be found at http://www.ich.org/LOB/media/MEDIA482.pdf

You will be required to provide a progress report on your study **annually** and at the end of the study. We will also require a copy of the final report, when available. You will also be asked annually to complete a form on the activity taking place in relation to the study within Forth Valley, for each financial year during which/

Continued

NHS
Forth Valley

which it is active here, and may be asked to provide other information. The appropriate forms will be provided to you by the Research and Development office when they are needed.

Yours sincerely

Gareth Davies
Medical Director

Appendix 3: Participant Information Sheet

Predictors of Infant Feeding: Maternal and infant factors

We would like to invite you to take part in a research study that is being conducted by Suzanne Mills, in part fulfilment of a Doctorate in Clinical Psychology at the University of Edinburgh.

Before you decide if you want to take part you need to understand why the research is being done and what it will involve for you. Please take the time to read the following information carefully. Please ask Suzanne if there is anything that is not clear or you would like more information. Discuss the study with friends or relatives if you wish. You do not have to make a decision now.

- Part 1 tells you about the purpose of the study and what will happen if you decide to take part.
- Part 2 gives you more detailed information about the conduct of the study.

PART 1

What is the study about?
From research we know that there is a high rate of feeding difficulties in children such as restricted eating and food refusal. A variety of factors in the child and parent's situation have been found to exist alongside feeding difficulties such as difficulties with mood and temperament. There is little research that has taken place at different time points as the child is growing up, that will help to identify which families seek help for feeding difficulties and which do not.

Why have I been invited to take part?
You have been invited to take part because your child's due date is within the time period selected for the study. Around 140 people will be approached to take part in the study.

What will I be asked to do?

1. If you decide that you would like to take part in this study, Suzanne will ask you to fill in a consent form at your 12-14 week scan, to indicate that you agree to take part in the study. If you would like some time to think about whether you would like to take part, that is fine.
2. You will then be asked for your contact details. Suzanne will then contact you between 20-26 weeks into your pregnancy to ask you whether you would like to be sent the questionnaires for the study, to be sent back by a pre-paid envelope or whether you would prefer a home visit. You will be asked to sign the consent form too at this stage if you haven't already done so.
3. The questions ask about things like your mood and feelings about eating. The kind of question that you might be asked is:

"I engage in dieting behaviour (Please state: Always, Usually, Sometimes, Often, Rarely, Never)"

The questionnaires can be completed at your own pace.

4. Suzanne will then contact you again when your child is around 3 months and 7 months old to complete the questionnaires again, and answer some questions about your child's feeding and how he/she is getting on generally.
5. Afterwards Suzanne will look at the answers on the questionnaires and identify which factors, if any, are associated with feeding difficulties and will write a report on this.

What are the possible benefits of taking part?

The study is not intended to be of direct benefit to yourself or your child. However, as questions about your mood and feelings about your own eating are part of the study, if the participant has any concerns about this, you will be directed towards sources of help and support.

What are the possible risks of taking part?

There are no physical health risks from taking part in the study. Some questions in the questionnaires will ask about difficulties with mood or eating, which could be upsetting if these issues are relevant for you. Please contact Suzanne should you want to discuss any issues that come up for you from the questionnaires.

Will anyone be informed that I am taking part in the study?

Your GP, health visitor and midwife will be informed with your permission. This is so they can let us know if there is any reason why it would no longer become appropriate for you to be contacted by us, for example if you or your child become unwell for any reason. If your answers to the questionnaires cause concern about your health or that of your child, your GP would be notified in order that support can be provided to you. You would be notified of this if at all possible.

What happens if I no longer want to take part in the study?

That's fine. You are free to refuse to take part or withdraw from the study at any point. Unless you say otherwise, any information already collected via the questionnaires will be used. The standard of care you and your child receive, and your relationship with healthcare staff will not be affected if you withdraw from the study.

THANK YOU FOR READING THIS FAR! IF YOU ARE STILL INTERESTED, PLEASE LOOK AT PART 2

PART 2

What will happen to the information collected in the study?

All the information you give will be treated as confidential. Information from questionnaires will be reported on as a group rather than individually. Names and other identifying information will not be used. The data will be kept in a secure place and destroyed after 10 years. It is a requirement that your records in this research, together with any medical records, are available for scrutiny by monitors from NHS Tayside and the Regulatory Authorities, whose role is to check that the research is properly conducted and the interests of those taking part are adequately protected. The only time that we would tell anyone else what you have told us is if we are worried about your own safety or

about the safety of someone else. If this was the case we would contact you if at all possible to let you know, then contact your GP who would decide whether further support was required.

Did anyone else check the study is OK to go ahead?
Yes, the Tayside, Fife and Forth Valley Ethics Committee, which has responsibility for scrutinising proposals for medical research on humans, has examined this proposal and has raised no objections from the point of view of medical ethics.

Will I be informed of the results of the study?
A report will be made available to participants summarising the findings of the study once this information has been gathered and analysed.

Who else can I speak to if I have concerns?
We do not anticipate that there will be any problems. If you should have any concerns please contact Suzanne and she will do her best to help you.

What if I want to make a formal complaint?
If you need to make a formal complaint you can contact any of the following people. Helen Stirling, Head of Service for Child and Adolescent Mental Health, 01324 610 846 or Dr Emily Newman, Academic Tutor, Department of Clinical Psychology, 0131 651 3945. If you believe that you have been harmed in any way from taking part in this study, you have the right to pursue a complaint and seek any resulting compensation through the University of Edinburgh who are acting as the research sponsor. Details about this are available from the research team. Also, as a patient of the NHS, you have the right to pursue a complaint through the usual NHS process. To do so, you can submit a written complaint to Jacqueline Richardson, Patient Focus and Relations Manager, NHS Forth Valley Patient Relations Team, Headquarters Building, Westburn Avenue, Falkirk, FK1 5SU, Tel: 01324 678 530. Note that the NHS has no legal liability for non-negligent harm. However, if you are harmed and this is due to someone's negligence, you may have grounds for a legal action against NHS Forth Valley but you may have to pay for your legal costs.

What if I have a question about the study?
You can contact Suzanne on 01786 450 471 or by email at suzannemills@nhs.net or at the Child and Adolescent Mental Health Service, 1 Randolph Road, Stirling, FK8 2AU.

THANK YOU FOR TAKING THE TIME TO READ THIS INFORMATION SHEET AND FOR CONSIDERING TAKING PART IN THE STUDY

Appendix 4: Participant consent form

Predictors of infant feeding: role of maternal and infant factors

Researcher: Suzanne Mills

Please Initial

1. I confirm that I have read the participation information leaflet dated 10/10/09, Version 3, about the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐

2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason and without my medical care or legal rights being affected. ☐

3. I understand that relevant sections of data collected during the study may be looked at by individuals from regulatory authorities or from NHS Forth Valley where it is relevant to my taking part in the research. I give my permission for these individuals to have access to the data. ☐

4. I agree to my GP, midwife and health visitor being informed of my participation in this study. ☐

5. I understand that if there are major changes in terms of my own or my child's health, or the main caregiver for the child changes, it may not be appropriate for me to continue taking part the study. ☐

6. I agree to taking part in the study. ☐

I agree to be contacted in eight to fourteen weeks time.

My contact details are:

Name:

Address:

Post Code:

Telephone Number:

OK to leave a message on the answer machine (please tick box)

Yes	No
☐	☐

Version 3 20/08/2009

Appendix 5: Questionnaires

Prenatal Questionnaire

1. What is your Post code?_____

2. What is your GP name and address?
_____
_____
_____

3. What is your age?_____

4. What is your ethnic group? (please tick)

White (e.g. Scottish/British/Irish) ☐ Indian ☐ Pakistani ☐ Bangladeshi ☐
Chinese ☐ Caribbean ☐ African ☐ Mixed background ☐
Other ethnic group ☐

5. What is your expected due date? _____

6. Do you have any other children? _____

7. If so, what are their ages? _____

8. What is your marital status?

Single ☐ Married/cohabiting ☐ Separated ☐

Divorced/Widowed ☐

9. What is your level of education? (please tick)

No academic qualifications ☐
'O' level/Standard Grade ☐
Highers ☐
'A' level/Sixth Year Studies ☐
Further college Education ☐
University Degree/Doctoral ☐

10. What is your work status? (please tick)

Part-time employment ☐ Full time employment ☐ Look after home/family ☐

Unemployed ☐ Unable to work ☐ Maternity leave ☐

Other (please specify) ☐

11. Do you intend to breastfeed? Yes ☐ No ☐ Unsure ☐[1]

12. Have you breastfed before? (please circle) Yes / No

13. How easy do you expect that breastfeeding will be? (if not relevant please move on to question 14)

(please tick)

Very easy	Easy	Neither easy nor difficult	Difficult	Very difficult	Don't know
☐	☐	☐	☐	☐	☐

14. Do you know any other mothers who are breastfeeding or who recently breastfed? (please circle)

Yes / No

15. If so how many? _____

16. Do you intend to bottle feed? (please circle) Yes / No / Unsure

17. If yes, from what age? (please tick)

birth-3 weeks	☐
1 month-3 months	☐
3-6 months	☐
6-9 months	☐
9-12 months	☐
1 year+	☐

18. Do you plan to attend any support groups after giving birth?

National Childbirth Trust/NHS parent and baby groups	☐
Breastfeeding Support Groups	☐
Baby massage classes	☐
Other	☐

19. Do you and your partner (please move on to question 20 if not relevant) agree on the best way of feeding your baby?

(please tick)

Perfectly agree	Mainly agree	Neither agree nor disagree	Mainly disagree	Totally Disagree
☐	☐	☐	☐	☐

20. How easy do you expect that moving your baby on to solids (weaning) will be?

Very easy	Easy	Neither easy nor difficult	Difficult	Very difficult	Don't

know

21. Would you be likely to seek support if you have any difficulties with feeding?

Very likely	Likely	Not Sure	Probably not	Definitely not
☐	☐	☐	☐	☐

22. Are you aware of local support available for feeding your baby? Yes / No (please circle)

SOS-S

Listed below are two sources of personal and social support on which you may be able to draw. For each person please CIRCLE a number from 1 to 7 to show how well support is provided. The second part of each question asks you to rate how you would like things to be if they were exactly as you had hoped for. As before, please put a CIRCLE around a number to show what your rating is Please note: If a particular source of support does not exist for you please substitute the name of 'an other' who acts to provide this support.

Person 1: Husband or partner (Substitution please STATE THE RELATIONSHIP.....)

	Never			Sometimes			Always
1a. Can you trust, talk to frankly and share your feelings with this person?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7
2a. Can you lean on and turn to this person in times of difficulty?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7
3a. Do they give you practical help?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7
4a. Can you spend time with them socially?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7

Person 2: Mother (Substitution please STATE THE RELATIONSHIP.....)

1a. Can you trust, talk to frankly and share your feelings with this person?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7
2a. Can you lean on and turn to this person in times of difficulty?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7
3a. Do they give you practical help?	1	2	3	4	5	6	7

b. What rating would your ideal be?	1	2	3	4	5	6	7
4a. Can you spend time with them socially?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7

Please list below TWO other people who are important in your life. Typical other relationships include brother, sister, close friend etc. As before for these people please CIRCLE a number from 1 to 7 to show how well support is provided.

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

Person 3: (Please STATE THE RELATIONSHIP e.g. - best friend or sister).....

1a. Can you trust, talk to frankly and share your feelings with this person?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7
2a. Can you lean on and turn to this person in times of difficulty?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7
3a. Do they give you practical help?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7
4a. Can you spend time with them socially?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7

Person 4: (Please STATE THE RELATIONSHIP e.g. - best friend or sister).....

1a. Can you trust, talk to frankly and share your feelings with this person?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7
2a. Can you lean on and turn to this person in times of difficulty?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7
3a. Do they give you practical help?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7
4a. Can you spend time with them socially?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7

DASS 21

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you *over the past week*. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:
0 Did not apply to me at all
1 Applied to me to some degree, or some of the time
2 Applied to me to a considerable degree, or a good part of time
3 Applied to me very much, or most of the time

1	I found it hard to wind down	0	1	2	3
2	I was aware of dryness of my mouth	0	1	2	3
3	I couldn't seem to experience any positive feeling at all	0	1	2	3
4	I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5	I found it difficult to work up the initiative to do things	0	1	2	3
6	I tended to over-react to situations	0	1	2	3
7	I experienced trembling (e.g., in the hands)	0	1	2	3
8	I felt that I was using a lot of nervous energy	0	1	2	3
9	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
11	I found myself getting agitated	0	1	2	3
12	I found it difficult to relax	0	1	2	3
13	I felt down-hearted and blue	0	1	2	3
14	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
15	I felt I was close to panic	0	1	2	3

16	I was unable to become enthusiastic about anything	0	1	2	3
17	I felt I wasn't worth much as a person	0	1	2	3
18	I felt that I was rather touchy	0	1	2	3
19	I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat)	0	1	2	3
20	I felt scared without any good reason	0	1	2	3
21	I felt that life was meaningless	0	1	2	3

EAT-26

Please shade in the response in the column which applies best to each of the numbered statements. All of the results will be strictly confidential. Please answer each question carefully. Thank you.

		Never	Rarely	Sometimes	Often	Very often	Always
1	Am terrified about being overweight	O	O	O	O	O	O
2	Avoid eating when I am hungry	O	O	O	O	O	O
3	Find myself preoccupied with food	O	O	O	O	O	O
4	Have gone on eating binges where I feel that I may not be able to stop	O	O	O	O	O	O
5	Cut my food into small pieces	O	O	O	O	O	O
6	Aware of the caloric content of foods that I eat	O	O	O	O	O	O
7	Particularly avoid foods with high carbohydrate content	O	O	O	O	O	O
8	Feel that others would prefer if I ate more	O	O	O	O	O	O
9	Vomit after I have eaten	O	O	O	O	O	O

10	Feel extremely guilty after eating	O	O	O	O	O	O
11	Am preoccupied with a desire to be thinner	O	O	O	O	O	O
12	Think about burning up calories when I exercise	O	O	O	O	O	O
13	Other people think that I am too thin	O	O	O	O	O	O
14	Am preoccupied with the thought of having fat on my body	O	O	O	O	O	O
15	Take longer than others to eat meals	O	O	O	O	O	O
16	Avoid foods with sugar in them	O	O	O	O	O	O
17	Eat diet foods	O	O	O	O	O	O
18	Feel that food controls my life	O	O	O	O	O	O
19	Display self control around food	O	O	O	O	O	O
20	Feel that others pressure me to eat	O	O	O	O	O	O
21	Give too much time and thought to food	O	O	O	O	O	O
22	Feel uncomfortable after eating sweets	O	O	O	O	O	O
23	Engage in dieting behaviour	O	O	O	O	O	O
24	Like my stomach to be empty	O	O	O	O	O	O
25	Enjoy trying new rich foods	O	O	O	O	O	O
26	Have the impulse to vomit after meals	O	O	O	O	O	O

3 MONTH Postnatal Questionnaire

Postcode_____

What is your GP name and address?
_____
_____

My baby's date of birth

_____

Length of your pregnancy (please tick)

<34 weeks ☐ 34-37 weeks ☐ 37-39 weeks
Full term ☐

What was your baby's weight at birth?

_____

We are interested in what you think has helped or been a barrier to feeding your baby.

1. What do you think has helped you with feeding your baby, in terms of your relationship with him/her, attitudes or support you've encountered?

_____
_____
_____
_____

2.What, if anything, has got in the way of feeding, or made it more difficult to feed your baby (in terms of your relationship with him/her, attitudes or support you've encountered?)

_____
_____
_____
_____

Not applicable ☐

3. What, if anything, would help improve you and your baby's experience of his/her feeding in terms of your relationship with him/her, attitudes or support?

_____
_____
_____
_____

Not applicable ☐

4. Did you have any health difficulties in pregnancy, or at delivery of your baby? (if so, please specify)

_____

5. Does your baby have any health difficulties? (if so, please specify)

_____

6. Do you have a history of, or a current problem with:

Depression	Past ☐	Current ☐
Anxiety	Past ☐	Current ☐
Bulimia	Past ☐	Current ☐
Anorexia	Past ☐	Current ☐
Other mood difficulty:	Past ☐	Current ☐

Specify_____

7. Did you breastfeed your baby? (please circle) Yes / No

8. What was your experience of breastfeeding, if relevant? (please tick)

Very easy	Easy	Neither easy nor difficult	Difficult	Very difficult
☐	☐	☐	☐	☐

9. Do you know any other mothers who are breastfeeding or who recently breastfed (in the past 6 months)? (please circle) Yes / No

If so how many? _____

10. Have you bottle fed your baby? (please circle) Yes / No

If yes, from what age?

birth-3 weeks	☐
1 month-3 months	☐
3-6 months	☐

11. Did you stop breastfeeding because you had problems with this? (please circle)

Yes / No

12. Do you/ did you attend any support groups after giving birth?

National Babybirth Trust/NHS parent and baby groups	☐
Breastfeeding Support Groups	☐
Baby massage classes	☐
Other	☐

13. Have you sought help for your baby's feeding difficulties, if relevant? (please circle)

Yes / No / Not applicable

14. If yes, who have you sought help from?

Midwife	☐	Health Visitor	☐
Paediatrician/Consultant	☐	Speech & Language Therapist	☐
Dietician	☐	Other (specify)	☐
Psychologist	☐	_____	

15. If yes, how satisfied are you with the help you have received?

Very Satisfied		Satisfied	Neutral	Unsatisfied	Very Unsatisfied
☐	☐	☐	☐	☐	

16. Have you been made aware of local professional support for feeding your baby? (please circle)

Yes / No

17. Do you and your partner (if relevant) agree on the best way of feeding your baby? (please tick)

Perfectly agree	Mainly agree	Neither agree nor disagree	Mainly disagree	Totally Disagree
☐	☐	☐	☐	☐

18. How easy do you expect that moving your baby on to solids (weaning) will be? (please tick)

Very easy	Easy	Neither easy nor difficult	Difficult	Very difficult
☐	☐	☐	☐	☐

19. Would you be likely to seek support, for any future feeding issues if they arise, e.g. weaning your baby on to solids? (please tick)

Very likely	Likely	Not Sure	Probably not	Definitely not
☐	☐	☐	☐	☐

CFAQ

Section 1:

Does your child have any of the following problems?	☐
Has a poor appetite	☐
Is slow to feed	☐
Swallowing difficulties	☐
Food intolerance	☐
Irregular eating habits (e.g. not 3 meals a day, eating unusual amounts or at unusual times)	☐
Other (please state)	☐

No eating difficulties □

2. Does your child suffer with
Vomiting □
Constipation □
Diarrhoea □
Abdominal pain/colic □

3. Has your child ever been hospitalised for a major problem? Yes/No
If so, Please give details.....

Example |_|_|_|_|x|_|_|_|_|

4. Is your child's appetite poor |_|_|_|_|_|_|_|_|good

Do you think your child eats enough? Yes |_|_|_|_|_|_|_|_|no

Is your child difficult to feed? Not difficult |_|_|_|_|_|_|_|_|difficult

Are mealtimes

relaxed |_|_|_|_|_|_|_|_|stressful

unrushed |_|_|_|_|_|_|_|_|rushed

tearful for parents |_|_|_|_|_|_|_|_|happy for parents

happy for child |_|_|_|_|_|_|_|_|tearful for child

5. If your child doesn't finish his/her feed what do you do?

a) Take it away □
b) Attempt to make child take milk □
c) Distract child to take milk □
d) Offer next course □
e) Offer child reward for eating □

6. If your child is a messy eater, does it bother you? (please circle)

usually sometimes rarely never not messy

7. Does your child cry/scream during meals?

usually sometimes rarely never

8. How many people does it take to feed your child?

feeds self one two three more

Section 3.

Please think about the following things your child may do at mealtimes and tick the box to show often they do t is.

	Never	Once a week	Once a day	Most meals
Throws/pushes milk away	□	□	□	□
Spits milk out	□	□	□	□
Wont swallow	□	□	□	□
Turns head away repeatedly	□	□	□	□
Closes mouth when offered milk	□	□	□	□
Vomits after/during meal	□	□	□	□
Dribble milk out of mouth	□	□	□	□

SOS-S

Listed below are two sources of personal and social support on which you may be able to draw. For each person please CIRCLE a number from 1 to 7 to show how well support is provided.
The second part of each question asks you to rate how you would like things to be if they were exactly as you had hoped for. As before, please put a CIRCLE around a number to show what your rating is Please note: If a particular source of support does not exist for you please substitute the name of 'an other' who acts to provide this support.

Person 1: Husband or partner (Substitution please STATE THE RELATIONSHIP.....)

	Never		Sometimes				Always
1a. Can you trust, talk to frankly and share your feelings with this person?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7

2a. Can you lean on and turn to this person in times of difficulty?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7
3a. Do they give you practical help?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7
4a. Can you spend time with them socially?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7

Person 2: Mother (Substitution please STATE THE RELATIONSHIP.....)

1a. Can you trust, talk to frankly and share your feelings with this person?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7
2a. Can you lean on and turn to this person in times of difficulty?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7
3a. Do they give you practical help?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7
4a. Can you spend time with them socially?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7

Please list below TWO other people who are important in your life. Typical other relationships include brother, sister, close friend etc. As before for these people please CIRCLE a number from 1 to 7 to show how well support is provided.

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

Person 3: (Please STATE THE RELATIONSHIP e.g. - best friend or sister).....

1a. Can you trust, talk to frankly and share your feelings	1	2	3	4	5	6	7

with this person?

b. What rating would your ideal be?	1	2	3	4	5	6	7
2a. Can you lean on and turn to this person in times of difficulty?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7
3a. Do they give you practical help?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7
4a. Can you spend time with them socially?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7

Person 4: (Please STATE THE RELATIONSHIP e.g. - best friend or sister).....

1a. Can you trust, talk to frankly and share your feelings with this person?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7
2a. Can you lean on and turn to this person in times of difficulty?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7
3a. Do they give you practical help?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7
4a. Can you spend time with them socially?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7

DASS 21

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you *over the past week*. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:
0 Did not apply to me at all
1 Applied to me to some degree, or some of the time
2 Applied to me to a considerable degree, or a good part of time
3 Applied to me very much, or most of the time

1	I found it hard to wind down	0	1	2	3
2	I was aware of dryness of my mouth	0	1	2	3
3	I couldn't seem to experience any positive feeling at all	0	1	2	3
4	I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5	I found it difficult to work up the initiative to do things	0	1	2	3
6	I tended to over-react to situations	0	1	2	3
7	I experienced trembling (e.g., in the hands)	0	1	2	3
8	I felt that I was using a lot of nervous energy	0	1	2	3
9	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
11	I found myself getting agitated	0	1	2	3
12	I found it difficult to relax	0	1	2	3
13	I felt down-hearted and blue	0	1	2	3
14	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
15	I felt I was close to panic	0	1	2	3
16	I was unable to become	0	1	2	3

	enthusiastic about anything				
17	I felt I wasn't worth much as a person	0	1	2	3
18	I felt that I was rather touchy	0	1	2	3
19	I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat)	0	1	2	3
20	I felt scared without any good reason	0	1	2	3
21	I felt that life was meaningless	0	1	2	3

EAT-26

Please shade in the response in the column which applies best to each of the numbered statements. All of the results will be strictly confidential. Please answer each question carefully. Thank you.

		Never	Rarely	Sometimes	Often	Very often	Always
1	Am terrified about being overweight	O	O	O	O	O	O
2	Avoid eating when I am hungry	O	O	O	O	O	O
3	Find myself preoccupied with food	O	O	O	O	O	O
4	Have gone on eating binges where I feel that may not be able to stop	O	O	O	O	O	O
5	Cut my food into small pieces	O	O	O	O	O	O
6	Aware of the caloric content of foods that I eat	O	O	O	O	O	O
7	Particularly avoid foods with high carbohydrate content	O	O	O	O	O	O
8	Feel t at others would prefer if I ate more	O	O	O	O	O	O
9	Vomit after I have eaten	O	O	O	O	O	O

10	Feel extremely guilty after eating	O	O	O	O	O	O
11	Am preoccupied with a desire to be thinner	O	O	O	O	O	O
12	Think about burning up calories when I exercise	O	O	O	O	O	O
13	Other people think that I am too thin	O	O	O	O	O	O
14	Am preoccupied with the thought of having fat on my body	O	O	O	O	O	O
15	Take longer than others to eat meals	O	O	O	O	O	O
16	Avoid foods with sugar in them	O	O	O	O	O	O
17	Eat diet foods	O	O	O	O	O	O
18	Feel that food controls my life	O	O	O	O	O	O
19	Display self control around food	O	O	O	O	O	O
20	Feel that others pressure me to eat	O	O	O	O	O	O
21	Give too much time and thought to food	O	O	O	O	O	O
22	Feel uncomfortable after eating sweets	O	O	O	O	O	O
23	Engage in dieting behaviour	O	O	O	O	O	O
24	Like my stomach to be empty	O	O	O	O	O	O
25	Enjoy trying new rich foods	O	O	O	O	O	O
26	Have the impulse to vomit after meals	O	O	O	O	O	O

ITQ

On the following questions please circle the number that is most typical of your baby. "About average" means how you think the typical baby would be scored.

1. How easy or difficult is it for you to calm or soothe your baby when he/she is upset?

1	2	3	4	5	6	7
very easy		above average		difficult		very difficult

2. How many times per day, on the average, does your baby get fussy and irritable—for either short or long periods of time?

1	2	3	4	5	6	7
never	1-2 times a day	3-4 times a day	5-6 times a day	7-9 times a day	10-14 times a day	more than 15 times

3. How much does your baby cry and fuss in general?

1	2	3	4	5	6	7
very little	much less the average baby	less than the average baby	about as much as the average baby	more than the average baby	a lot more than the average baby	much more than the average baby

4. When your baby gets upset (e.g., before feeding, during diapering, etc.), how vigorously or loudly does he/she cry and fuss?

1	2	3	4	5	6	7
very mild intensity or loudness			moderate intensity or loudness			very loud intensity or loudness

5. How changeable is your baby's mood?

1	2	3	4	5	6	7
changes seldom/slowly			about average			changes often and rapidly

5. Please rate the overall degree of difficulty your baby would present for the average mother.

1	2	3	4	5	6	7
super easy			ordinary, some problems			highly difficult to deal with

Postnatal Questionnaire (7 month)

Postcode_____

What is your GP name and address?
_____
_____
_____

My (youngest) baby's date of birth

_____

We are interested in what you think about what has helped and not helped you to be successful and happy in feeding your baby.

1. What do you think has helped you with feeding, in terms of experiences, attitudes or support in feeding your baby?

_____
_____
_____
_____

2.What has got in the way of feeding, or made it more difficult to feed your baby?
_____
_____
_____
_____

3. What would help you to improve you and your baby's experience of feeding?
_____
_____
_____
_____

4. Does your baby have any health difficulties? (if so, please specify)

_____

5. Do you have a history of, or a current problem with:

Bulimia	Past	☐	Current	☐
Anorexia	Past	☐	Current	☐
Depression	Past	☐	Current	☐
Anxiety	Past	☐	Current	☐

Other mood difficulty: Past ☐ Current ☐

6. Have you sought help for your baby's feeding difficulties, if relevant? (please circle) Yes / No

7. If yes, who have you sought help from?

Midwife ☐
Health Visitor ☐
Paediatrician/Consultant ☐
Speech & Language Therapist ☐
Dietician ☐
Psychologist ☐

8. If yes, how satisfied are you with the help you have received?

Very Satisfied	Satisfied	Neutral	Unsatisfied	Very Unsatisfied
☐	☐	☐	☐	☐

9. Have you been made aware of local professional support for feeding your baby? (please circle)

Yes / No

10. Do you and your partner (if relevant) agree on the best way of feeding your baby?
(please tick)

Perfectly	Mainly agree	Not sure	Mainly disagree	Totally Disagree
☐	☐	☐	☐	☐

11. Have you moved your baby on to eating semi-solid/solid foods (weaning)?
(please circle)

Yes / no

12. If yes, how easy was weaning your baby?
(please tick)

Very easy	Easy	Neither easy nor difficult	Difficult	Very difficult
☐	☐	☐	☐	☐

13. Would you be likely to seek support if your baby has any difficulties feeding?
(please tick)

Very likely	Likely	Not Sure	Probably not	Definitely not
☐	☐	☐	☐	☐

14. Would you mind being contacted in the future to participate in a follow up study to find out how you and your child are getting on?

No thank you	I don't mind being contacted
☐	☐

<u>CFAQ</u>

Does your child have any of the following problems? ☐

Has a poor appetite □
Is slow to feed □
Swallowing difficulties □
Food intolerance □
Irregular eating habits (e.g. not 3 meals a day, eating unusual amounts or at unusual times) □
Other (please state) □

No eating difficulties □

2. Does your child suffer with
Vomiting □
Constipation □
Diarrhoea □
Abdominal pain/colic □

3. Has your child ever been hospitalised for a major problem? Yes/No
If so, Please give details.....

Section 2.
Please mark the box to show how you feel.
Example |_|_|_|_|x|_|_|_|_|

Is your child's appetite poor |_|_|_|_|_|_|_|_|good

Do you think your child eats enough? Yes |_|_|_|_|_|_|_|_|no

Is your child difficult to feed? Not difficult |_|_|_|_|_|_|_|_|difficult

4. Are mealtimes

relaxed |_|_|_|_|_|_|_|_|stressful

unrushed |_|_|_|_|_|_|_|_|rushed

tearful for parents |_|_|_|_|_|_|_|_|happy for parents

happy for child |_|_|_|_|_|_|_|_|tearful for child

5. If your child doesn't finish his/her feed what do you do?

a) Take it away □
b) Attempt to make child take milk □
c) Distract child to take milk □
d) Offer next course □

e) Offer child reward for eating □

6. If your child is a messy eater, does it bother you? (please circle)

usually sometimes rarely never not messy

7. Does your child cry/scream during meals?

usually sometimes rarely never

8. How many people does it take to feed your child?

feeds self one two three more

Section 3.
Please think about the following things your child may do at mealtimes and tick the box to show often they do this.

	Never	**Once a week**	**Once a day**	**Most meals**
Throws/pushes food away	□	□	□	□
Spits food	□	□	□	□
Chews food but wont swallow	□	□	□	□
Turns head away repeatedly	□	□	□	□
Closes mouth when offered food	□	□	□	□
Knocks spoon away	□	□	□	□
Vomits after/during meal	□	□	□	□
Dribbles food out of mouth	□	□	□	□

CEBQ

	Never	Rarely	Sometimes	Often	Always
My child enjoys tasting new foods	□	□	□	□	□
My child decides that s/he doesn't like food, even without tasting it	□	□	□	□	□
My child enjoys a wide variety of foods	□	□	□	□	□
My child refuses new foods at first	□	□	□	□	□
My child is difficult to please with meals	□	□	□	□	□
My child is interested in tasting foods s/he hasn't tasted before	□	□	□	□	□

SOS-S

Listed below are two sources of personal and social support on which you may be able to draw. For each person please CIRCLE a number from 1 to 7 to show how well support is provided.
The second part of each question asks you to rate how you would like things to

be if they were exactly as you had hoped for. As before, please put a CIRCLE around a number to show what your rating is Please note: If a particular source of support does not exist for you please substitute the name of 'an other' who acts to provide this support.

Person 1: Husband or partner (Substitution please STATE THE RELATIONSHIP.....)

	Never		Sometimes				Always
1a. Can you trust, talk to frankly and share your feelings with this person?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7
2a. Can you lean on and turn to this person in times of difficulty?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7
3a. Do they give you practical help?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7
4a. Can you spend time with them socially?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7

Person 2: Mother (Substitution please STATE THE RELATIONSHIP.....)

1a. Can you trust, talk to frankly and share your feelings with this person?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7
2a. Can you lean on and turn to this person in times of difficulty?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7
3a. Do they give you practical help?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7
4a. Can you spend time with them socially?	1	2	3	4	5	6	7

b. What rating would your ideal be?	1	2	3	4	5	6	7

Please list below TWO other people who are important in your life. Typical other relationships include brother, sister, close friend etc. As before for these people please CIRCLE a number from 1 to 7 to show how well support is provided.

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

Person 3: (Please STATE THE RELATIONSHIP e.g. - best friend or sister).....

1a. Can you trust, talk to frankly and share your feelings with this person?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7
2a. Can you lean on and turn to this person in times of difficulty?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7
3a. Do they give you practical help?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7
4a. Can you spend time with them socially?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7

Person 4: (Please STATE THE RELATIONSHIP e.g. - best friend or sister).....

1a. Can you trust, talk to frankly and share your feelings with this person?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7
2a. Can you lean on and turn to this person in times of difficulty?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7
3a. Do they give you practical	1	2	3	4	5	6	7

help?

b. What rating would your ideal be?	1	2	3	4	5	6	7
4a. Can you spend time with them socially?	1	2	3	4	5	6	7
b. What rating would your ideal be?	1	2	3	4	5	6	7

DASS 21

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you *over the past week*. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:
0 Did not apply to me at all
1 Applied to me to some degree, or some of the time
2 Applied to me to a considerable degree, or a good part of time
3 Applied to me very much, or most of the time

1	I found it hard to wind down	0	1	2	3
2	I was aware of dryness of my mouth	0	1	2	3
3	I couldn't seem to experience any positive feeling at all	0	1	2	3
4	I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5	I found it difficult to work up the initiative to do things	0	1	2	3
6	I tended to over-react to situations	0	1	2	3
7	I experienced trembling (e.g., in the hands)	0	1	2	3
8	I felt that I was using a lot of nervous energy	0	1	2	3
9	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
11	I found myself getting agitated	0	1	2	3
12	I found it difficult to relax	0	1	2	3
13	I felt down-hearted and blue	0	1	2	3

14	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
15	I felt I was close to panic	0	1	2	3
16	I was unable to become enthusiastic about anything	0	1	2	3
17	I felt I wasn't worth much as a person	0	1	2	3
18	I felt that I was rather touchy	0	1	2	3
19	I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat)	0	1	2	3
20	I felt scared without any good reason	0	1	2	3
21	I felt that life was meaningless	0	1	2	3

(EAT-26)

Please shade in the response in the column which applies best to each of the numbered statements. All of the results will be strictly confidential. Please answer each question carefully. Thank you.

		Never	Rarely	Sometimes	Often	Very often	Always
1	Am terrified about being overweight	O	O	O	O	O	O
2	Avoid eating when I am hungry	O	O	O	O	O	O
3	Find myself preoccupied with food	O	O	O	O	O	O
4	Have gone on eating binges where I feel that I may not be able to stop	O	O	O	O	O	O
5	Cut my food into small pieces	O	O	O	O	O	O
6	Aware of the caloric content of foods that I eat	O	O	O	O	O	O
7	Particularly avoid foods with high carbohydrate content	O	O	O	O	O	O
8	Feel that others would prefer if I ate more	O	O	O	O	O	O

9	Vomit after I have eaten	O	O	O	O	O	O
10	Feel extremely guilty after eating	O	O	O	O	O	O
11	Am preoccupied with a desire to be thinner	O	O	O	O	O	O
12	Think about burning up calories when I exercise	O	O	O	O	O	O
13	Other people think that I am too thin	O	O	O	O	O	O
14	Am preoccupied with the thought of having fat on my body	O	O	O	O	O	O
15	Take longer than others to eat meals	O	O	O	O	O	O
16	Avoid foods with sugar in them	O	O	O	O	O	O
17	Eat diet foods	O	O	O	O	O	O
18	Feel that food controls my life	O	O	O	O	O	O
19	Display self control around food	O	O	O	O	O	O
20	Feel that others pressure me to eat	O	O	O	O	O	O
21	Give too much time and thought to food	O	O	O	O	O	O
22	Feel uncomfortable after eating sweets	O	O	O	O	O	O
23	Engage in dieting behaviour	O	O	O	O	O	O
24	Like my stomach to be empty	O	O	O	O	O	O
25	Enjoy trying new rich foods	O	O	O	O	O	O

26	Have the impulse to vomit after meals	O	O	O	O	O	O

ITQ

On the following questions please circle the number that is most typical of your baby. "About average" means how you think the typical baby would be scored.

1. How easy or difficult is it for you to calm or soothe your baby when he/she is upset?

1	2	3	4	5	6	7
very easy		above average		difficult		very difficult

2. How many times per day, on the average, does your baby get fussy and irritable—for either short or long periods of time?

1	2	3	4	5	6	7
never	1-2 times a day	3-4 times a day	5-6 times a day	7-9 times a day	10-14 times a day	more than 15 times

3. How much does your baby cry and fuss in general?

1	2	3	4	5	6	7
very little	much less the average baby	less than the average baby	about as much as the average baby	more than the average baby	a lot more than the average baby	much more than the average baby

4. When your baby gets upset (e.g., before feeding, during diapering, etc.), how vigorously or loudly does he/she cry and fuss?

1	2	3	4	5	6	7
very mild intensity or loudness			moderate intensity or loudness			very loud intensity or loudness

5. How changeable is your baby's mood?

1	2	3	4	5	6	7
changes seldom/slowly			about average			changes often and rapidly

5. Please rate the overall degree of difficulty your baby would present for the average mother.

1	2	3	4	5	6	7
super easy			ordinary, some problems			highly difficult to deal with

Appendix 6: Responses to open ended questions

Table 3.25: Key to target concepts included in coding

Theme	Concepts included in coding
Support/advice from family/friends	Reference to family members/friends/peers in addition to support/advice/discussion.
Professional support	Reference to health professional, in addition to discussion/advice/reassurance/support.
Child	Reference to qualities or appearance of child.
Seeking out knowledge/advice/resources	Reference to seeking out support or literature/media.
Own approach/attitude/experience	Reference to own approach /attitude taken, or to previous experience of feeding children.
Feeding method/materials or environment	Reference to method of feeding, equipment used or feeding environment.
Medical condition/illness	Reference to medical condition or illness.
Unsuccessful breast feeding	Reference to unsuccessful/painful/difficult experience of breast feeding.
Attitudes/pressure from health professionals	Reference to attitude of health professionals or perceived pressure in relation to feeding method.
Variation in support	Reference to conflicting/variable support/advice from professionals.
Lack of knowledge/practical advice	Reference to poor knowledge on infant feeding or poor access to practical advice.
Unwanted advice/support	Reference to unwanted advice/support from people other than health professionals.
Privacy	Reference to problems with privacy in hospital settings.
Public attitudes	Reference to negative public attitudes to breast feeding.
Knowledge/flexibility of health professionals	Reference to poor knowledge or flexibility of advice of health professionals.
Resources/information	Reference to access to resources or information.
Happy with support	Positive comments about experiences of support.

T2 Participants' Responses to Q1

(note – b/f=breastfeeding)

T2: What do you think has helped with feeding, or made it more comfortable to feed your child?

Support/advice from family/friends

P66	Sister fed her child successfully.
P61	Support of family/friends, friends who b/f gave me confidence.
P30	Support in b/f from husband.
P12	Advice from friends/family helped.
P56	Speaking with friends and feeling supported by husband.
P1	Support of husband and mother-in-law
P41	Discussing issues with close friends and family, supportive partner.
P46	My partner's support.
P39	Family support.
P35	Supportive husband.
p48	Family and friend's support
P33	Support from family members re. b/f
P21	Support from peers and family
P29	Support from partner and family
P4	The support and encouragement from my family and husband to continue to b/f.
P36	Support from family and friends, particularly my husband.
P51	Support from family
P35	Well behaved sibling

Professional Support

P26	Advice from health visitor
P18	Health visitors were encouraging and supportive of my decisions
P56	Speaking with some (not all) health visitors
P1	Health visitors, midwife
P41	Discussing issues with midwives, superb health visitor, one off advice from infant feeding advisor
P53	Advice from health visitor gave me some reassurance at start regarding establishing milk supply
P39	Support of staff in neonatal ward
P48	Health visitor
P33	Support from midwives/health visitors re breastfeeding
P17	Reassurance from the midwife and health visitor
P36	Support from midwives in hospital
P51	Support from midwife
P52	Initial support from midwives

	Child
P69	Child latched on very easily
P25	Child appearing happy
P6	She is very content whilst feeding
P33	The fact my baby is content encourages me
	Seeking out knowledge/advice /resources
P42	Speaking to other mums about difficulties and getting advice, internet forums
P70	Being able to ask for help and got it
P30	Informing self/being aware of normal baby behaviour
P54	Books helped
	Own approach/attitude/experience
P15	Previous experience
P48	Being a second baby
P14	Child had colic, staying relaxed has helped
P32	Experience with other children
P20	Past experiences made me more confident
P24	Child had colic; patience and love makes it easier to get through
P39	Previous experience
P31	Being organised
P53	B/f first child; knew what to expect; easier to persevere through difficulties
P49	Experience from previous pregnancies
P68	Confidence
P55	Experience of previous children, confidence.
P30	Already b/f one child, having a clear goal e.g. b/f is essential
P40	Experience - as this was my second child I knew what to expect
P65	Following the baby's lead and routine
P66	Knowing it's the best for the baby and understanding how much easier it is than bottle feeding
P69	Enjoy the bonding
P49	Knowledge it is good for them
P19	Biggest incentive- sense of achievement/accomplishment at succeeding (b/f)
	Feeding method, materials or environment
P51	Good b/f bras and tops on sale, fact you can b/f anywhere
P29	Good equipment
P5	Ensuring the milk is warm
P52	Dream-geni pillow
P45	Bottle feeding
P67	Colic bottles, infacol, hungry baby food milk, rusks
P31	Preparing feeds in advance, having tubs to weigh out formula
P46	Feeding room facilities in stores
P67	Bottle feeding my child as not satisfied with breast milk. Lactose free formula.
P19	Lanisoh cream
P25	Comfortable place to feed
P56	Being in my own environment
P30	Co-sleeping

P10	Good feeding pillow, keeps your child comfortable
P65	Establishing 4 feeds a day, routine with evening bath
P61	Expressing, partner could help. Bottles of expressed milk meant could feed baby more in evenings
P26	Nipple shield, support pillow

T3 responses to Q1

T3: What do you think has helped with feeding, or made it more comfortable to feed your child?

Own approach/attitude/experience

P19	Being consistent and staying positive at mealtimes.
P30	Being a confident mum as this is my second child
P65	Go with what suits your child and use common sense
P33	B/f was rewarding and fulfilling and encouraged me to continue and actively ensure he has a healthy introduction to foods
P51	Second time around more relaxed and confident
P18	Accepting that although breast is best, formula is not poison
P66	Believed breast milk was best for my baby
P26	Being flexible
P25	Previous experience
P55	Third time baby, better knowledge, experience and self confidence
P36	Previous experience in working with disabled children has given me patience and ideas/strategies to encourage her to eat
P4	Feeling confident within myself
P32	Previous experience with my other children
P15	Confidence, being experienced and more relaxed; second child
P53	Experience from first child feeding
P22	Previous experience with daughter

Seeking advice/knowledge/resources

P31	Speaking to other mums for advice and to compare notes. Books, internet and magazines have played a part
P53	Fun first foods booklet. Discussion forums on internet
P65	Practical approach in reading material and parent guidebooks
P54	Annabel Karmel recipe book
P42	Reading up on it-using child recipe books. Talking to other mums and finding out what they are doing
P25	Reading books/websites
P30	Being aware of the normal feeding patterns of b/f babies e.g. Cluster feeding/ growth spurts

Support/advice from family/friends

P49	Friends to talk about b/f
P29	Support of family and friends
P66	It helped knowing someone who was successful in b/f
P54	Advice from others

P36	Advice from friends
P4	Support from family
P45	Encouragement from other people
P52	Relaxed attitude of husband, family and friends to b/f
P41	Talking to family and friends
	Feeding Method/materials/environment
P61	Making my own baby food. Encouraging her to self feed
P19	Feeding child at the same time as adults
P47	Cooking from scratch means she has fresh food which tastes good
P54	Trying new foods
	Child
P6	My child is very content and feeds very well
P49	Baby keen to b/f, hungry and figured out what to do quickly
P10	Baby is of an age where is can tell if she's hungry and is in a routine
P20	My baby's willingness to try different foods
	Support from health professionals
P53	Discussion with health visitor
P4	Encouragement from health visitor
P36	Useful information from health visitor
P18	Health visitors being supportive of me stopping expressing milk and when I decided to wean at 17 weeks
P46	Reassurance about bottle feeding after I had to change
P41	Talking to health visitors

T2 responses to Q3

T2: What, if anything got in the way of happy/successful feeding, or made it more difficult to feed your child?

	Medical Condition/Illness
P23	Daughter's diagnosis (Down's Syndrome) - difficulty in latching on
P70	Tongue tie
P6	Lactose intolerance
P41	Weight loss
P53	Mastitis 3 times and thrush twice made feeding more difficult
P24	Colic
P43	Baby has had reflux/oral thrush, screams in pain
P56	Low birth weight
P26	Child was premature with no sucking reflex, initially very challenging
P18	Baby's heart rate dropped before birth, emergency C-section, had to go to neo-natal unit and had problems latching on
P10	Baby went off milk for a number of weeks due to illness and it was difficult to build up a routine again

P1	A rare syndrome. I had never experienced this before
P17	At first he was a very sickly baby and it was off-putting
	Unsuccessful/difficult/painful breastfeeding
P65	Wind
P25	I hated the feeling of b/f (the letdown I think). My negative feelings about b/f stopped me enjoying my baby as much as I could have
P12	I wanted to b/f but milk was late coming in. Baby was starving and got no sleep so bottle fed on Day 4
P42	Baby wouldn't stay on the breast, unsettling for both of us
P31	Gave up b/f after a week as difficulties latching
P19	Pain when feeding
P6	Child not satisfied on breast milk
P36	I found b/f painful - literature implies it shouldn't be - assumed I was not feeding my baby properly
P54	When windy difficult to feed and when distracted
P29	Son would not b/f so had to resort to bottle feeding
	Pressure from health professionals/media
P6	Pressure to b/f - felt uncomfortable telling midwife and health visitor that I stopped
P42	Pressure from medical professionals and others to b/f when it was so hard is difficult
P56	Low birth weight/weight loss meant health professionals suggested 'observational' feeding in hospital. I knew there were no attachment issues.
P25	I hated b/f but carried on due to pressure from health professionals and the media.
	Attitudes of public
P49	Discomfort of others in public
P48	One negative comment from a man when feeding in a cafe and he walked out in disgust
	Lack of sleep/night feeding
P66	Doing the majority of night feeds - if bottle fed my husband would probably do more feeds
P61	Baby would not take full feed and would wake up shortly after for another feed
P49	Sleep deprivation
	Equipment
P14	Bottles with slow flow teats
	Own feelings
P40	He started demand feeding every hour, made me worried he was not getting enough milk
P33	Knowing for the next few months I am very much attached to baby sometimes feels frustrating
P21	General anxiety that he was not feeding enough

T3 participant's responses to Q2

T3: What, if anything got in the way of happy/successful feeding, or made it more difficult to feed your child?

	Medical condition/illness
P46	Baby had pyloric stenosis at 7 weeks and needed an operation
P10	Slight milk intolerance at 3/4 months and it took months to get back on track
P33	Found out baby had acute dairy allergy at 6 months. Made weaning more difficult
P29	Baby had colic so this caused stress for first few months
P26	Baby premature, establishing feeding at the start very difficult
	Unsuccessful/difficult/painful breastfeeding
P49	Baby wouldn't take a bottle, making slowing/stopping breastfeeding more difficult
P54	When baby tired, lumps in food
P4	Couldn't get the hang of expressing so have found it hard to leave her with anyone
P18	Not latching on to my breast
	Attitudes /Pressure from health professionals
P65	The complete self-weaning attitude
P25	I did not enjoy breastfeeding - did it because felt under pressure from health visitor/ midwife etc.
	Variation in support/advice/lack of support
P41	Conflicting advice from professional. Unsupportive hospital staff sadly
	Lack of knowledge/practical advice
P19	Weaning - difficult to know what to feed/avoid. Leaflet given at 4 months was not fresh in my mind
P65	Lack of practical advice about feeding by spoon
	Unwanted advice/support
P61	My grandparents and mum because they are keen to feed the baby chocolate and ice- cream, milk, weetabix
P31	Other people's advice or opinions especially older people. Unwanted advice

T2 Responses to Q3

T2: Is there specific support/knowledge or attitude changes among others (e.g.) health professionals that would help you to feed your baby?

	Attitudes/pressure from health professionals
P6	Less pressure to breastfeed would help
P19	When I had problems b/f, some midwives/health visitors made me feel worse for not feeding him directly myself. Fine line between explaining pros/cons and

	lecturing
P42	Pressure to b/f, I ended up expressing milk then changing to formula, I am so much happier and so is my baby
P14	One practice nurse was very cheeky, commented colic was a result of my son not being b/f
P65	Better knowledge and acceptance of formula feeding pre-birth. It is all breast related
P25	Pressure to b/f from the health profession is very difficult
P1	Support for mothers who express entirely, bottle feed the baby breast milk
P36	Huge pressure from all health professionals to breastfeed
P54	Bottle feeding would have been looked down upon by health professionals
	Variation in support/advice/lack of support
P53	Better encouragement from ward staff re breastfeeding and support
P30	An understanding of long term b/f, and on demand/baby led feeding. Basic knowledge, was told things that were wrong
P10	Health visitors gave advice which helped although their advice was general - they would not commit themselves
P31	Would like more one on one help breast feeding in hospital
P19	Most midwives/health visitors were supportive, others made me feel worse
P49	My health visitor this time was far from a breastfeeding expert - ditto for the midwives in the first 10 days
P41	Huge difference in attitudes to b/f within hospital based staff. Some made me feel as if I was difficult, not aggressive enough with b/f technique, others were great, helpful and supportive. Why no follow up from infant feeding advisor?
P1	Wider knowledge of medical condition
P51	Not everyone supportive, but I have found it easier this time so needed less support
	Privacy
P23	Being left alone and given privacy in hospital
P18	In hospital, especially neonatal unit, too many people trying to help and felt overwhelmed whilst trying to b/f
	Public Attitudes
P48	Making it acceptable to feed in public to all
	Other
P48	Take your time, don't rush or worry if you can't do it
P17	Just encouragement that I was doing the right thing

T3 responses to Q3

T3: Is there specific support/knowledge or attitude changes among others (e.g.) health professionals that would help you to feed your baby?

	Knowledge/ flexibility of advice from health professionals
P30	Greater knowledge of health professionals in establishing feeding with premature

babies who have a cow's milk allergy

P10 Health visitors should be more "clued up" - they couldn't discuss bottle feeding as they had to promote b/f

P30 B/f knowledge from health visitors and midwives is inconsistent. Bad advice could have ended b/f. Knowledge lacking especially in b/f older babies and toddlers

P25 Would have helped if bottle feeding had been presented as an option

P31 Health visitors have attitude if baby is happy and putting on weight everything you're doing is fine. Everyone feeds their baby differently, what works for one may not work for another

P65 Health visitors should be able to give guidance on spoon feeding as well as self weaning.

P51 Very fixed on six months for weaning and reluctant to recommend earlier start

Resources/Information

P54 A weaning pack would have been useful

P65 More practical dietary advice on types of foods, amounts, websites or books.

Pressure from health professionals

P32 Not to be made to feel guilty when choosing not to breastfeed

P49 My friends who are mothers and I joke that you don't tell health visitors and GPs that you are considering stopping breastfeeding or weaning before 6 months. The negative response to not do either is robotic

P41 One midwife told me I wasn't aggressive enough with feeding. I was admitted as baby had failure to thrive but staff were 'too busy' to help

P61 A relax in the six month b/f would help. There is confusion between mums in general.

Happy with support

P19 No - my health visitor is helpful and accessible

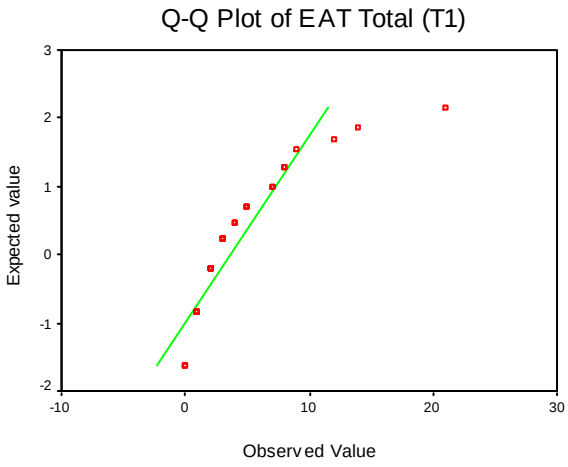
P33 Gained practical support from health visitors and a dietician at hospital regarding baby's allergy. They are helpful, no need to adjust information they provide

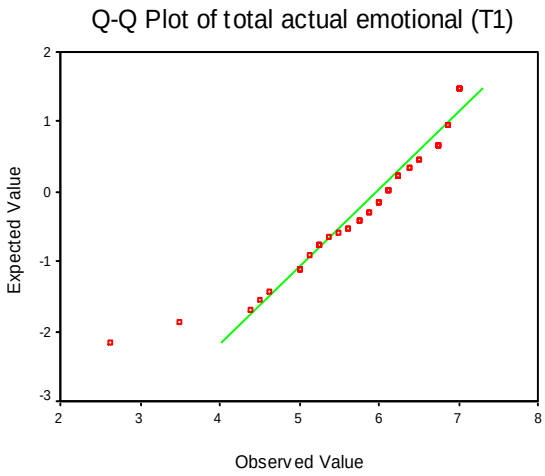
P18 Health visitors have been supportive of me expressing and then using formula

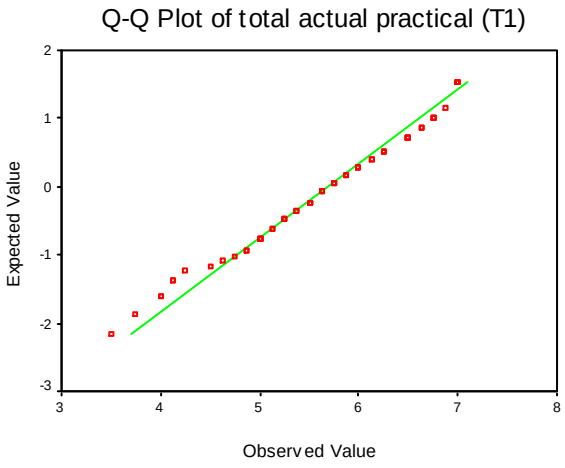
Barriers between mothers and health visitors

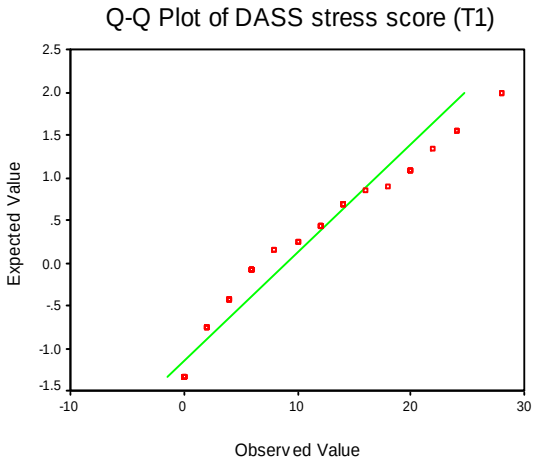
P66 Don't know why some mothers are set against b/f and work should be done to change attitudes. There seems to be barriers between mothers/health visitors I don't understand

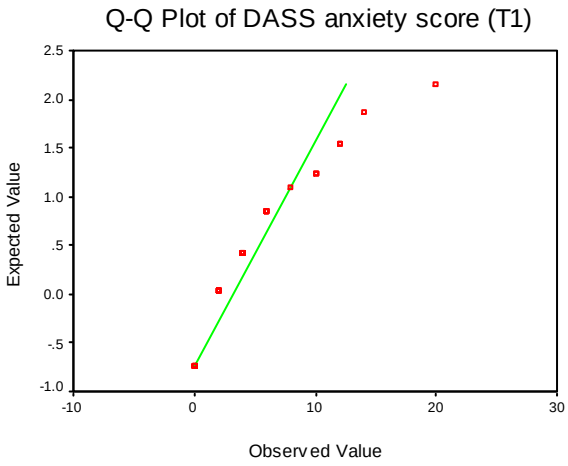
Appendix 7: Q-Q plots of main variables and standardised residual plot

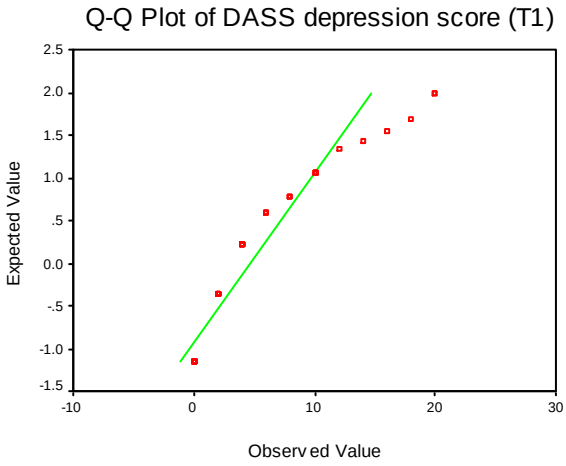


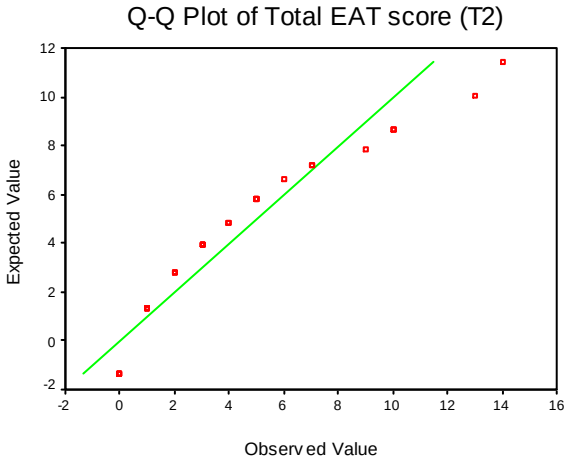


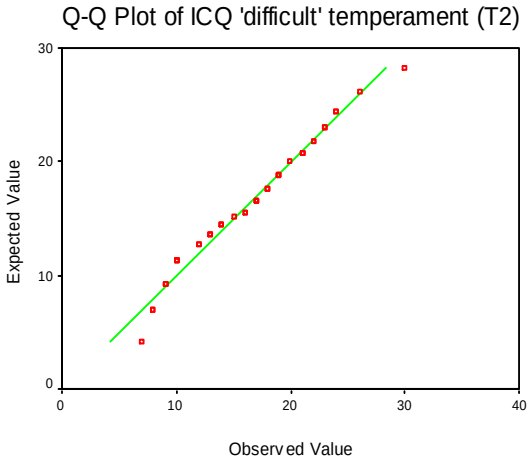


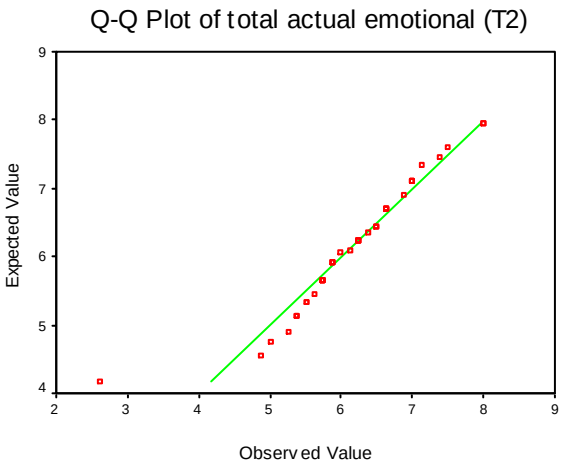


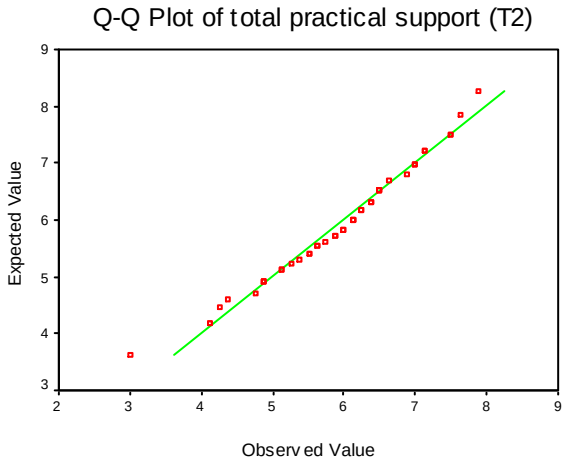

Q-Q Plot of DASS anxiety score (T1)
Expected Value
Observed Value

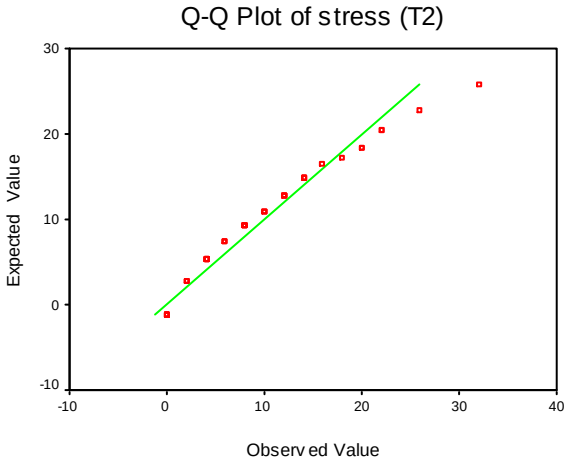

Q-Q Plot of DASS depression score (T1)
Expected Value
Observed Value

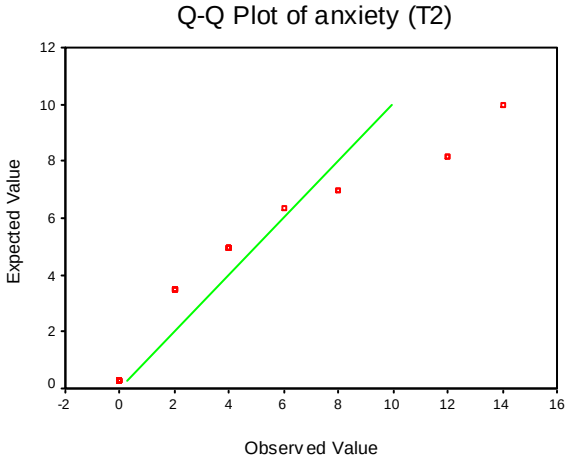

Q-Q Plot of Total EAT score (T2)
Expected Value
Observed Value

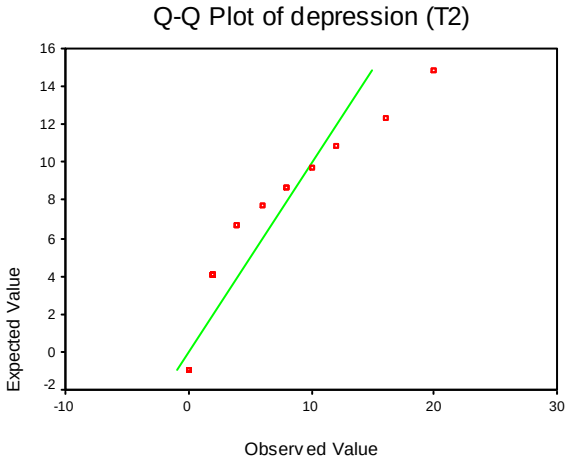

Q-Q Plot of ICQ 'difficult' temperament (T2)
Expected Value
Observed Value

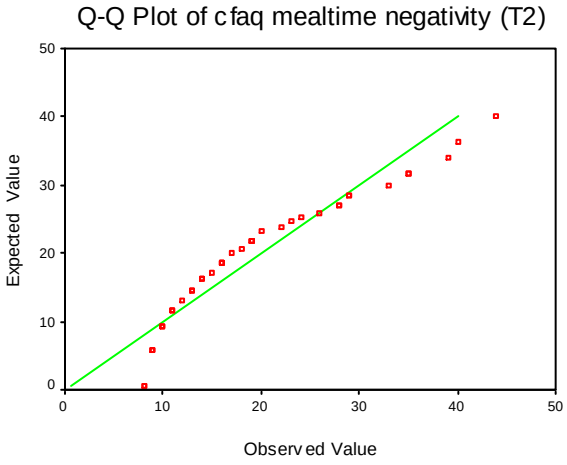

Q-Q Plot of total actual emotional (T2)
Expected Value
Observed Value

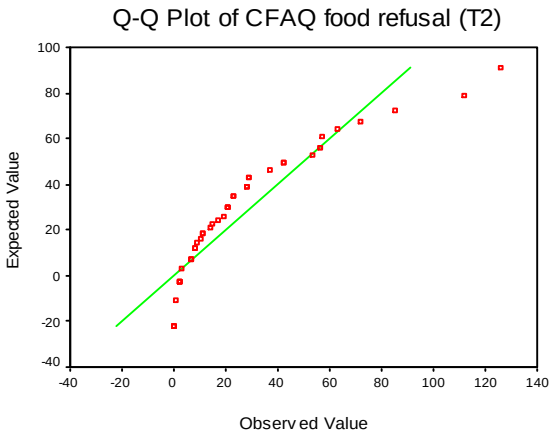

Q-Q Plot of total practical support (T2)
Expected Value
Observed Value

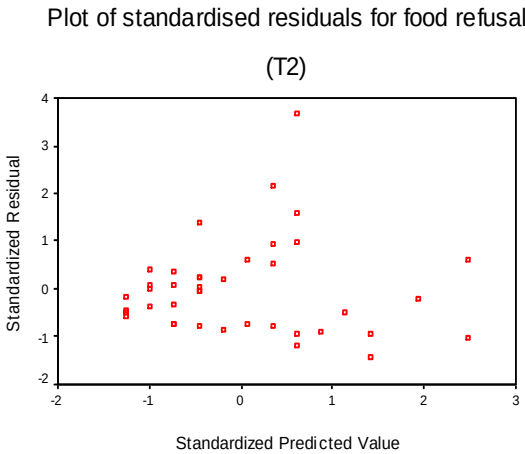

Q-Q Plot of stress (T2)
Expected Value
Observed Value


Q-Q Plot of anxiety (T2)
Expected Value
Observed Value


Q-Q Plot of depression (T2)
Expected Value
Observed Value


Q-Q Plot of cfaq mealtime negativity (T2)
Expected Value
Observed Value


Q-Q Plot of CFAQ food refusal (T2)
Expected Value
Observed Value


Plot of standardised residuals for food refusal (T2)
Standardized Residual
Standardized Predicted Value