A Pilot Study to Evaluate Health Visitor Assessments of Mother-Infant Interactions

Jane Appleton, Margaret Harris, John Oates, Cat Moore
Oxford Brookes University and Open University

Research Team

Dr Jane Appleton
Reader in Primary and Community Care
Department of Social Work and Public Health
Faculty of Health and Life Sciences
Oxford Brookes University
Jack Straws Lane
Oxford
OX3 OFL.

Professor Margaret Harris
Head of Department of Psychology
Faculty of Health and Life Sciences
Oxford Brookes University
Headington Campus
Gipsy Lane,
Oxford
OX3 OBP.

Mr John Oates
Faculty of Education and Language Studies,
The Open University,
Walton Hall,
Milton Keynes,
MK7 6BJ.

Ms Cat Kelly
Formerly Research Assistant
Department of Social Work and Public Health
Faculty of Health and Life Sciences
Oxford Brookes University
Jack Straws Lane
Oxford
OX3 OFL.

Section 1: Table of Contents

1.1 Acknowledgements

Section 2: Executive Summary

Background

This study sought to examine the processes by which health visitors identify problems in mother-infant relationships in the post-natal period. Given the importance of reliably detecting cases where mother-infant relationships are not developing well, it is important that the initial assessment processes are as sensitive and specific as possible. An assessment that correctly identifies, at an early stage, emerging problems in the relationship between mother and infant will enable mothers to be referred for appropriate support that is best matched to their needs.

Methods

The study incorporated two phases of data collection. In Phase One, each mother's interaction with her baby was observed and videoed for 20 minutes in an observation laboratory. The video-recordings were coded and resultant data were analysed to derive a number of quantitative measures interaction quality, including mothers' responsiveness and sensitivity to their infants as rated by the Global Ratings Scales (GRS) of Mother-Infant Interaction (Murray *et al*, 1996). Mothers also completed psychometric questionnaires administered to assess maternal mental health. In Phase Two, twelve health visitors rated and assessed 9 clips of the video-recorded mother-infant interactions. The rationales for their ratings was then explored through in-depth interviews.   Health visitor ratings of the video clips were compared to the GRS ratings. The relationship between the main focus of each health visitor rating, as reported in the interview, and the consistency of ratings with the GRS ratings were then investigated.

Results

Across the health visitors, there was no consensus of agreement around the concern levels for each video clip; and consistency with the Murray ratings was not related to health visitors' years of experience. Correlations between individual health visitors' ratings and the GRS ratings ranged from .18 to .83 and were statistically significant in only four cases. There was a weak relationship with health visitors' years of experience (r_s = .47, NS). When explaining their judgements, health visitors tended to comment on the mother's behaviours or the relationship between the mother and baby and often ignored the behaviour of the baby. There was a highly significant relationship between the consistency of health visitor/GRS ratings and the number of references to the baby in the health visitors' explanations (r_s = .75, p = .005).

Conclusion

This study contributes an understanding of how health visitors make assessments of mother-infant interactions. The frequent lack of attention and reference to the baby's behaviour suggests an area for further training.

Section 3: Introduction

3.1 Mother-Infant Relationships

The establishment and maintenance of a healthy, warm and reciprocal relationship between a mother and her newborn infant is a crucial component in early child development (Bowlby, 1969; Gerhardt, 2004). For a majority of mothers, this is an expected outcome of the first weeks following the birth and, to a greater or lesser degree, most mothers achieve an emotional bond with their infants that provides a sound basis for the future development of their relationships. However, a substantial number of mothers do encounter difficulties in establishing this basic emotional connection with their infant during the post-partum period and beyond, for a variety of different reasons. For example, for some it may be experiences in their own childhood which make it difficult for them to relate to their infant; for others it may be that the infant's temperament poses a challenge that they find hard to meet (Sutter-Dallay et al., 2003), while others may experience postpartum depression (Murray & Cooper, 1996; Morrell & Murray, 2003; Murray et al., 2003). Such difficulties are commonly exacerbated by limited support being available from a partner or wider social network, or other disadvantaging factors.

A large body of research has now established that appropriate early interventions to improve mother-infant relationships can be effective (Berlin et al., 2005; Svanberg, 2009; Robinson, 2010). This is true not only for the short term, in supporting mothers in overcoming the difficulties that they face in bonding with their infants, but also in avoiding the major longer term social and economic costs of children's attachment disorders. A secure attachment between mother and infant is now recognised as a key component in protecting against the effects of other risk factors and leading to positive mental health and good social relationships into adulthood (Oates, 2007).

There is also a growing body of evidence that links the failure to address the needs of children with negative outcomes in terms of their later social and emotional development and their ability to form positive social relationships (Macdonald, 2001). Evidence from neurobiological studies is increasingly showing that brain development is associated with the quality of the emotional support and social environment in which an infant is nurtured (Shonkoff & Phillips, 2000; Hosking & Walsh, 2005; Moulson et al, 2009a, 2009b; Nelson et al, 2009). In particular these studies provide evidence of the deleterious effects on brain function of maltreatment and increases in stress hormones in childhood (Glaser 2000; Teicher 2000; Bremner et al 2003; Hosking & Walsh 2005). The World Health Organisation (2007: 7) has stressed the importance of "the nurturant qualities of the environments where children grow up, live and learn" for early child development.

3.2 Health Visiting

In the UK, the Healthy Child Programme (HCP), led by health visitors, is the core health service for promoting, protecting and improving the health and wellbeing of infants and children (DH, 2009). Health visitors (UK public health nurses) provide a crucial interface with mothers in the period following the delivery of a new infant. These professionals have contact with all new mothers from this time and are uniquely placed to detect incipient problems in the development of the mother-infant relationship (NICE, 2006) and to mobilise appropriate support and intervention at a time when it can be of most benefit (DH, 2011). Typically, these professionals rely on a combination of clinical judgement (Appleton and Cowley, 2008) and tools such as the Edinburgh Postnatal Depression Scale (Morrell et al, 2009) to make an assessment of the extent and nature of a client's difficulties, and to decide on the most appropriate form of further support to offer. At the same time they will be considering safeguarding and other issues as well.

Thus, the decisions made at this point are of key importance to the successful resolution of mother-infant difficulties through the provision of appropriate services. The importance of such early intervention work with children and families has also been outlined in a number of recent high profile reviews including Graham Allen's (2011) work on early intervention, Frank Field's (2010) report on childhood poverty and life chances and Eileen Munro's (2011) review of child protection. Furthermore, given the UK Government's commitment to expand the Health Visiting service by an increase in the number of health visitors by 4,200 by 2015 (DH, 2011), it is essential that health visitors' initial assessment processes are as sensitive and specific as possible. An assessment that correctly identifies at an early stage, problems in the relationship between mother and infant, will enable mothers to be referred to the appropriate support that is best matched to their needs.

The dearth of research evidence about how health visitors assess mother-infant interaction, led us to conduct this pilot study to examine how health visitors assess mother-infant interactions in order to evaluate the processes by which health visitors identify problems in mother-infant bonding and to develop the evidence base for public health nursing in this area.

Section 4: Research Design

This mixed methods study incorporated two phases of data collection. The study involved two Primary Care Trusts (PCT) and two University institutions. Mothers were recruited from PCT 'A' and health visitors from PCT 'B'. In Phase One detailed observations and analyses of mother-infant interactions were conducted.   The video-recordings were coded to derive a number of objective measures of the quality of the interactions using the Global Ratings Scales of Mother-Infant Interaction (Murray *et al*, 1996). In Phase Two, health visitors' assessments of clips from a selection of the video-recorded mother-infant interactions, with infants in the age range of 6-12 weeks were examined by use of rating scales and in-depth interviews.

4.1 Aim
The aim of this pilot research study was to examine health visitor assessments of mother-infant interactions, in order to evaluate the processes by which health visitors identify problems around infant and maternal mental health.

4.2 Objectives
The study objectives were:

1. To examine the processes by which health visitors identify problems in mother-infant relationships in the post-natal period in relation to other measures in comparison to other measures.

2. To determine the parameters which health visitors use in making judgments about the quality of mother-infant interactions.

3. To explore which parameters are most important in determining the accuracy of health visitors' assessments of mother-infant interactions as shown by agreement with objective measures.

4.3 Methods
4.3.1 Ethical review
Ethical approval for the study was initially gained from Oxford Brookes University in December 2008 and from the NHS National Research Ethics Service in March 2009 – ref number **09/H0603/5**. Research governance approvals were sought from both areas and the study began at the beginning of April 2009.

Filming of the mother-infant interaction scenarios required the full and informed consent of the mothers. The provision of information to mothers about the project, their recruitment and video recording followed the appropriate University guidelines for the ethical conduct of research (http://www.brookes.ac.uk/rbdo/research/researchethics.   It was stressed that potential participants (mothers and their infants and health professionals) were not obliged to participate in the study and could withdraw at any time. Prior to the mother-infant observation sessions and the health visitor interviews the researchers obtained written informed consent from all participants.

Ethical dilemmas can arise from the moment a research project is conceived and all researchers have an important obligation to carefully consider ethical issues when conducting research. In this study the well-being of mothers and babies took precedence over the research procedures at all times. Mothers were made fully aware at the beginning of the study of the research team's moral and professional obligations to children and the ethics principle of 'avoiding harm' to study participants. Limits on confidentiality were discussed with mothers in advance. As a team we developed procedures to follow if we had any concerns that an infant may be at risk of significant harm or we had serious concerns about a mother's well-being.

Mothers agreeing to participate in the study were informed that their interactions with their infants might be viewed by health visitors from another PCT.

4.3.2 Phase One - Recruitment and sample
Health visitors working in PCT 'A' were informed about the study through a series of three initial professional development days where their agreement was sought in helping to recruit mothers to the study. In Phase One first time mothers living in PCT 'A' and their 6-16 week old infants were invited to participate in the study. Health visitors working in the PCT were asked to give out an information pack about the project to all first time parents at the new birth visit. The pack contained information about the project and a reply paid envelope to return if mothers were interested in participating. We then invited mothers to come to the university laboratory when their infants were between 6-16 weeks of age. This age was chosen to correspond to the age at which health visitors are likely to make a home visit or have client contact (Hall and Elliman, 2003; DH, 2009).

Our decision to focus on mothers arose from two considerations. First, there are well-known differences in the interaction styles of mothers and fathers and so, in order to simplify the process of comparison of interactions both for the health visitors and for the researchers who are deriving the objective measures, we removed the variation arising from gender. The other consideration was more practical. The majority of health visitor assessments focus around mother-infant rather than father-infant interactions and so our choice of participants also reflects the realities of practice. While research has identified some long-term developmental effects of fathers' interaction styles with their children in early childhood (Grossman et al, 2002), the evidence base is much stronger for the substantial effects of mothers' relationships with their infants in the first 18 months after the birth.

In total 17 mothers and their infants took part in this phase of the study.

4.3.3 Phase Two - Recruitment and sample
In Phase Two, we recruited 12 health visitors from PCT 'B'. Health visitors were approached about their potential participation in the study during a professional development day. Those who expressed interest in participating in the interview phase were asked to complete a response slip and return it to the research team. From those health visitors who agreed to take part, 12 were purposively selected to take part in the video assessments and interview. A maximum variation sampling strategy was used by the research team to recruit practitioners with a range of health visitor experience levels. From our previous research experience, we believed this sample size and selection strategy was likely to offer an adequate range of experience to meet the informational needs of this pilot study (Patton, 2002). As this was an initial phase of inquiry, when we were attempting to determine the parameters by which health visitors arrive at a judgement about the quality of mother-infant interaction, this sample enabled us to undertake a detailed analysis of the interview data and health visitors' ratings of the filmed mother-infant interactions.

4.3.4 Data Collection

4.3.4.1 Phase One – Observation of mother-infant interactions and completion of self-report questionnaires

Mothers who agreed to take part were invited to a purpose-built video observation laboratory when their infant was aged between 6-16 weeks old. Infants and their parents were videoed through a one-way mirror. The observation room was set up and furnished to resemble a room at home with comfortable seating and soft furnishings – toys, baby seat and baby changing facilities, thus 'normalising' the videoing situation. Mothers were also encouraged to bring in and use their own toys and baby changing equipment if they wished.

Mothers were contacted by telephone to arrange a visit at a time convenient for them. On arrival at the laboratory mother and baby were welcomed, the mother was given a brief overview of the procedure to be followed during the visit, offered refreshments, a private room for feeding, baby changing facilities and an opportunity to ask questions.

Self-report questionnaire and demographic data

Once written consent was obtained, mothers were asked to complete some psychometric questionnaires which were administered to assess maternal mental health. These included: (i) the HADs scale (Zigmond & Snaith, 1983) to assess levels of anxiety and depression, and (ii) the Mothers Object Relations Scale - MORS-SF My Baby Scale (Oates and Gervai, 2003) which is a 14 item self-score questionnaire scale that provides information about the mother's views of her baby to assess maternal perceptions of infant warmth and invasion towards the mother and to identify potential attachment difficulties. These assessments were used for screening purposes to ensure that none of the mothers was suffering from clinically significant levels of either anxiety or depression.

The mothers were also asked to provide brief demographic data to include measures of family structure, occupational status and parental age, and to answer a series of background questions relating to herself, the journey to the laboratory, how the baby was feeding and sleeping, and anything unusual that might have happened with the baby in the previous 24-48 hours. This information was used to provide relevant contextual information for the health visitors in Phase Two.

Observation

Mothers were the shown the observation room and encouraged to make themselves comfortable. When mother and baby were settled, videoing began. Each mother's interaction with her baby was observed and video recorded for approximately 20 minutes. Mothers were asked to play, hold and interact with their baby as they would do at home, so we observed a range of care routines (including putting on a cardigan), breast feeding and bottle feeding, nappy changes and play activities/quiet times. A whole morning or afternoon was allocated for each mothers' visit so they did not feel rushed and also had an opportunity to breast or bottle feed their baby if necessary. After the visit mothers were reimbursed for their travel expenses, they were sent a copy of the footage taken of them on a DVD and babies were given a 'touch and feel' book as a thank you.

Data collection in Phase One took place over a period of 4 months. Nine of the filmed interactions were selected by the research team to use for further study by the health visitor sample in Phase Two. The interactions were selected to reflect a range of different interactional styles and all involved infants aged between 6-12 weeks.

4.3.4.2 Phase Two - Assessment of mother-infant (M-I) interactions by health visitors

Twelve health visitors from PCT 'B' were recruited to take part in the second phase of the study, which took place over a six week period. Data were collected at a second university site. Health visitors were invited to come to the university on individual visits. During a visit they were asked to view 3 minute segments of free play and care routines from 9 selected mother-infant interactions, recorded during Phase One, and to make an assessment of the quality of the relationship between mother and infant as if the recording represented observed behavior at a 6−12 week postnatal home visit. Data collection was audio-recorded during this Phase and the researchers made additional notes on a pre-developed video-rating form.

The video clips were shown to each health visitor in random order to avoid order effects. All mother-infant dyads were unfamiliar to the health visitors as they were recruited from a different PCT. The health visitors were provided with some background information about each case, equivalent to what they might have at the time of a home visit (Table 1).

Table 1
Background information provided to health visitors – Mothers and infants

<u>**Mother-infant dyad**</u>

Mother – age
Infant - gender and age

<u>Birth Details</u>
Length of pregnancy
Problems in pregnancy
Type of delivery

<u>Baby</u>
Feeding
Sleeping
Other details last 24-48 hours

<u>Mother</u>
Health
When last saw own health visitor

<u>Observation Laboratory Visit</u>
Mother's report of baby today and on journey to observation lab

After reading the background information about the first mother and infant, the health visitor was shown the related video segment and then asked to rate the M-I interaction. The health visitors were asked to rate each M−I interaction as fitting into one of the following 3 categories:

− no concerns; all aspects of interaction are positive;
− some concern; at least one aspect of the interaction is not positive;
− serious concern; more than one aspect of interaction is not positive.

The interviewer then explored with the health visitors the bases on which they were making their rating and assessments. The health visitors were questioned about the features of the mother-infant interactions that they were taking account of in their assessments. Using a structured interview schedule we were able to gain insights into the perspectives of the health visitors by exploring cues and significant events during the interactions. Research has previously shown that video playback is an effective means of stimulating health visitor recall about client interactions (Bryans, 2004, 2005). We then adopted Kelly's (1955) personal construct theory using 'triadic elicitation' to elicit health visitors' constructs (ideas) about the mother-infant interactions. The 'triadic elicitation' technique involved the video clips being presented in triads (group of three) and health visitor respondents being asked to say which two were most alike and in what ways, and how they differed from the third. The constructs (ideas) which underpin the distinctions are dimensions of the opinion (Bowling, 2002). This approach allowed us to probe the health visitors to provide a rationale for their assessment decisions and judgements (Meek, 1998; Appleton and Cowley, 2008).

Following the rating of the 9 video clips and the exploration of the three sets of triads, the health visitors were asked to rank each of the 9 M-I interactions from the best quality of interaction to the poorest quality, using a still photograph from each video clip as a prompt. The health visitor interviews lasted between 1-2 hours.

4.3.5 Data Analysis:

4.3.5.1 Phase One: Observational data of mother-infant interactions
All the video-recordings from this phase of the study were coded in detail to derive a number of quantitative measures of the quality of the interactions. All analyses were carried out on a 10 minute continuous section of the total session and were subject to checks for inter-rater reliability based on independent coding of a 10% sample of each measure. The key analysis was a rating of quality of the interaction, including maternal sensitivity and intrusiveness, infant engagement and interaction quality using the GRS Scales (Murray et. al., 1996). The GRS scales, which have been used extensively in research into early mother-infant interaction and are well validated, look at how responsive mothers are to the signals from their baby, including their success in engaging their baby in interaction. Each aspect of the interaction is rated on a 5 point scale. Mothers who have a well-attuned relationship will be highly responsive and there are likely to be sustained periods of interaction with the baby smiling and cooing in response to the mother. Such mothers will have high scores on the GRS Scales.

On the basis of the GRS Scale scores, the 9 mother-infant interactions were divided into three equal-sized groups of high quality interaction, medium quality interaction and low quality interaction (see Table 2).

4.3.5.2 Phase Two: Assessment and rating of mother-infant interactions by health visitors
A number of analyses were carried out to examine the consistency of the health visitor assessments of the mother-infant interactions with the assessment produced using the GRS Scales.

4.3.5.3 Phase Two: Interview Data
The interviews were transcribed verbatim and data were analysed using a systematic process of qualitative content analysis. For each transcript members of the research team worked in pairs, initially independently analysing the transcript to facilitate both consistency and rich interpretation. Themes were reviewed and revised until agreement was reached and then interpreted and categorised into higher-order themes. Data analysis incorporated an inductive

and data-driven approach as we were interested in identifying the constructs that health visitors were using in making their judgements about mother-infant interactions. NVivo8 software was used for data organisation, management and retrieval. The data were subjected to Miles and Huberman's (1994) three stage analysis process of data reduction, data display and conclusion drawing. Later in the analytic process interviews were coded by two coders according to whether the primary focus of a health visitor was on the behaviour of the mother, the behaviour of the baby or the interaction between the two.

Section 5: Results

5.1 Health visitor clinical characteristics

The 12 health visitors who participated in the study were all female. The length of time participants had been working as a health visitor, ranged from 0-32 years (mean 17.5 years), with one participant a student health visitor in training and several others being very experienced practitioners. Only three of the health visitors reported recalling having had any formal education and training on the way mothers and babies interact during their health visitor training/education courses. The general view from most of the participants was that this was something that they learned in practice, had discussed with their Community Practice Teachers and/or learned about from their own reading or attendance at presentations post qualifying. None of the health visitors had received any recent education in this area. As one participant stated:

> *"I mean we did infant and child psychology and, you know … how you would hope to see*
> *a positive relationship between mum and baby, and therefore you would recognise when it*
> *wasn't positive. But yeah… it was such a long time ago!"* (HV 38)

During the interviews, no participants displayed a detailed knowledge about attachment theory and the relationship between mother and infant.

5.2 Health visitor concern ratings of video clips in relation to overall GRS Scale rating

The GRS Scales are made up of five subscales that relate to the behaviour of the mother, the baby and the interaction between them. In typical development, where the mother is not suffering from any clinical symptoms of depression, there tends to be a close relationship between scores on the different subscales and so a preliminary analysis was carried out to explore the inter-relation of the subscales. A concordance analysis revealed that there was a high degree of relationship (W =.86, df = 5, p<.001) and so, in subsequent analyses, the score on the interaction subscale was used as a proxy for the overall scale.

Table 2 shows the rating of the 9 mother-infant interactions as of high, medium and low concern according to the GRS interaction subscale and the corresponding health visitor ratings. It can be seen that there was considerable variation among health visitors in their concern ratings and also, in many cases, a considerable difference between health visitor ratings and the GRS ratings.

In order to examine the relationship between the health visitor ratings of the mother-infant interactions and the GRS Scale ratings, a series of correlation analyses were carried out in which the rank orderings given by health visitors were compared with the rank order derived from the GRS Scale. Across the sample of health visitors the correlations varied from .18 to .83, indicating that there was very considerable variability in the health visitor rankings of the mother-infant interactions. In eight cases, the relationship with the GRS rankings was not significant and in the other four cases it was (r_s = .68, p = .045 (two cases), r_s = .72, p = .03, r_s = .83, p = .006).

Table 2: Health Visitor and GRS ratings of each mother-infant video clip

Mother	HV31	HV32	HV33	HV34	HV35	HV36	HV37	HV38	HV39	HV40	HV41	HV42	GRS
BT101	L	L	M	L	L	M	L	M	L	M	M	M	M
BT104	L	L	L	L	M	L	L	L	M	L	L	M	L
BT105	M/H	M	H	M	H	H	M	M	M/H	M	H	H	H
BT106	L	L	L	L	L	L	L	L	L	L	L	L	M
BT107	L	L	L	L	M	M	M	M	M	M	M	M	H
BT108	L	L	M	L	L	L	L	L	L	L	L	L	L
BT109	M	M	L	L	M	L	L	L	M	L	M	L	L
BT110	M	M	H	L	M	M	M	M	M	H	H	H	H
BT113	L	M	L	L	M	H	L	L	H	M	L	L	M

5.3 What explains the variation in health visitor ratings?

Given that there was considerable variability in the judgements that health visitors made about each video clip, the next analyses explored factors that might explain this variation. The first variable we considered was health visitors' years of experience in health visiting practice. Figure 1 shows the relationship between years of experience and level of agreement with the GRS scale rankings. As this figure suggests, there was a non-significant relationship between these two factors ($r_s = .47$, $p = .125$).

Figure 1: Relationship between health visitor years of experience and consistency with Murray Scale ratings
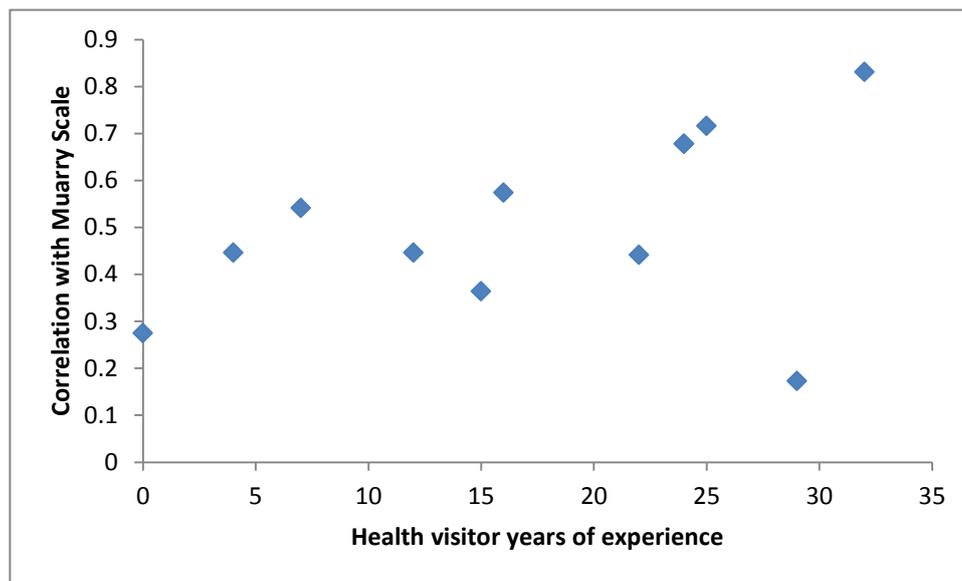

A key aspect of assessing the mother-infant relationship is that it involves looking at the behaviour of both partners in the interaction. This is what the GRS Scales do since they give equal weight to the behaviour of mother and infant and to the response of the mother to the baby and vice versa. Close examination of the pattern of heath visitor assessments of the video clips (see Table 2) highlighted two particular cases where there appeared to be substantial discrepancies between health visitor's judgements and the GRS rating. There was considerable variation in the concern rating of BT113. This was rated at a medium level on the GRS rating because the baby was so unresponsive and inert, while the mother was picking up on cues that the baby gave her and was attempting to engage and interact with him. BT107 was coded on the GRS scale as low quality and therefore High concern and the health visitors all scored this as low or medium concern. This interaction came out as low quality on the GRS Scale because the baby was quite unresponsive, fretting and a bit self absorbed, and the mother was not really picking up on these cues.

This initial examination raised the possibility that some health visitors were not giving due consideration to the subtleties of the mother-infant interaction and, in particular, were not fully considering the cues that were provided by the behaviour of the baby. Across all health visitor accounts of the interactions there were 546 references to the mother, 121 to the baby and 51 to the interaction. In other words there was a predominance of references to the mother. However, there was considerable variation among the health visitors with the smallest proportion of

references to the baby being zero and the highest being 30.5%. To examine the impact that consideration of the baby had on the health visitors' judgments, we carried out a correlation analysis to examine the relationship between the relative frequency with which health visitors referred to the baby when explaining their assessment and the consistency of their judgments with the GRS Scale. The correlation revealed that there was a highly significant relationship (r_s = .75, p = .005) which is depicted in Figure 2.

Figure 2: Relationship between health visitor references to the baby and consistency with Murray Scale rating
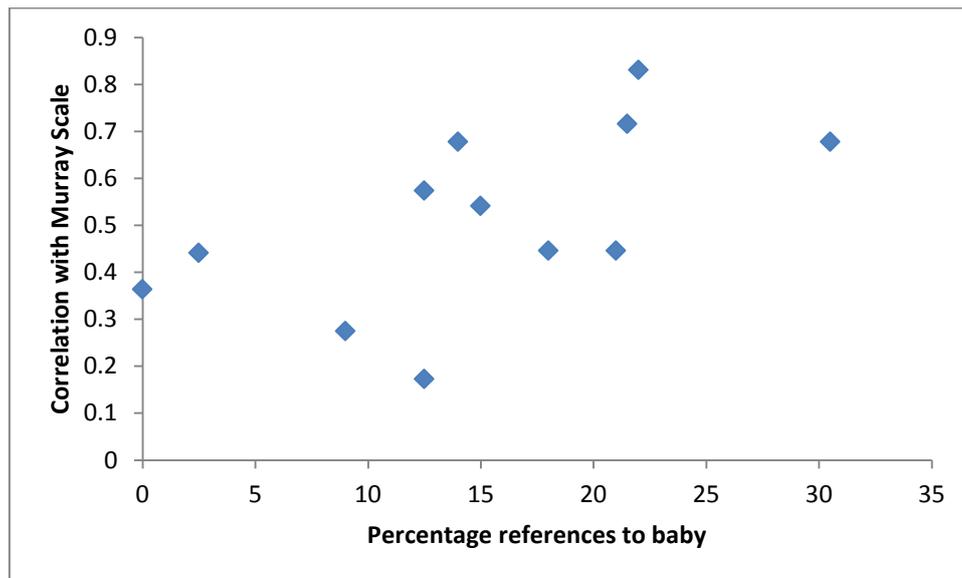
5.4 Health visitors' assessment styles/practices

The health visitors' responses varied considerably in the interviews. Some explored a lot and discussed issues quite deeply, while others made very quick judgements about the rating of each M-I interaction and some did not seem to want to explore any further. This extract illustrates a health visitor drawing on a number of factors in the interaction between mother and baby and apparently adopting a holistic and factual focus to her assessment:

> *"Well I would go for very low concern with this baby, simply because… what I've observed is that there is a good mum/child interaction, she's looking at the child, and she's holding the child confidently. I've also noticed that she's… talked an awful lot and the child has been vocalising back. And everything that they've done so far she's made sure that she's talking to the child and she's… aware that the little girl's looking elsewhere as well and trying to bring her back. And all the time the voice is soft, it's encouraging and I feel quite happy in that, and I think yes, they're certainly getting on well and yes, she's only 8 weeks old but there seems to be good bonding there so"* (HV 36 describing BT104)

A minority of participants appeared to have difficulty in providing detailed examples to justify their concern rating. For example, some health visitors talked about mothers being 'in tune' with the baby but did not actually explain what they meant by this. The following description contrasts with the extract above:

"well I know she's breastfeeding, that's a bit obvious [information contained in background information], I just get the feeling that... she probably doesn't look after her that often... I just get the sort of impression that it could easily be... a woman looking after somebody else's baby... I don't know why, um, and while she was playing with the telephone, the baby just wasn't looking at the telephone and she was engaged very much on the mum's face... and mum didn't really pick up on that until right at the end. Um... I think I would say some concern" (HV 42 describing BT104)

5.5 The main focus of the health visitor assessment

In view of the general lack of agreement with the GRS scales ratings, the interviews were re-examined to look at whether, during the interviews for each video clip, the health visitors' narrative focussed mainly on the mother's behaviour, the baby's behaviour, or the interaction/relationship between the mother and baby. The following data extracts provide examples of data coded in this way.

Mother focused:

"She was loving, she was caring, she was happy to sit there and just talk to her baby…." (HV33)

"She's talking, lots of variation in the tone of her voice and she's… pre-empting what she's going to do." (HV32)

Baby focused:

"That was a tired baby that wanted to go to sleep." (HV35)

Relationship focused:

"So the interaction between the two was very nice, she responded when he made a sound, she made a similar sound back and talked throughout which was really pleasing to see." (HV37)

"So no sort of intimate connection between the two during that episode." (HV42)

"She's quite close to him, and he was vocalising beautifully, he was copying mum….I found myself smiling watching them so it came across as quite a positive, um, positive relationship." (HV38)

One of the interesting features of the results is that during the interviews, when explaining their judgements about the ratings they had given, the Health Visitors' narratives were more likely to focus on the mother's behaviours (46%) or the relationship between the mother and baby (53%), than on the baby. The lack of primary focus on the baby suggests an area for further training. For example one clip, BT108, was an excellent example of positive mother-baby interaction, with lots of talking and response from the baby. A number of the health visitors commented mostly on the degree of physical contact between mother and baby, and did not seem to pick up on the baby's responsiveness to the mother and the amount of interaction that is going on.

Section 6: Discussion

This exploratory study was conducted in two English Primary Care Trusts and sought to find out more about the processes by which health visitors evaluate mother-infant relationships in the early post-natal period. The recruitment of first time mothers and their 6-16 week old infants in Phase One of the study initially proved challenging because of the difficulties in reaching new first time mothers and engaging them in the study. The study also faced the added contextual difficulties of conducting research with babies during a national pandemic of swine flu. Initially we relied on health visitors working in PCT 'A' to recruit mothers and infants to Phase One. Because of cutbacks in the health visitor service nationally which had an impact on the study site, health visitors initially struggled to provide mothers with additional information about the study at the new birth visit, as there was a lot of other information to give out. Thus the recruitment strategy for mothers and infants to the study was adapted, following consultation and permission from the Chair of the ethics committee.

The research team altered the recruitment strategy in a number of ways. Rather than the health visitors distributing an information pack to all first time mothers at the new birth visit, health visitors were asked to give out a colourful flyer about the study instead. One of the research team regularly attended local child health clinics and Baby Cafés (a national network of drop-in centres to support breast feeding) to discuss and provide information about the study for first time mothers, for the purposes of recruitment. Mothers were also recruited through the local university's baby and parent coffee mornings held on a monthly basis.

This report has presented our findings on how a group of health visitors assess mother-infant interactions in the post-natal period. Although small in its scale, the use of the same video material to examine each health visitor's assessments has enhanced the reliability of the research. The study has illustrated the considerable variability in health visitor assessments, when compared with the GRS ratings. One of the key findings of the study was that none of the participants displayed detailed knowledge about attachment theory or the relationship between mother and infant. Indeed, many of the health visitors reported being keen to develop their knowledge base, through continuing professional development training on the assessment of parent-infant relationships. Previous research has also suggested that there is a need for health visitors to develop their practice skills in the understanding and assessment of parent-infant relationships (Wilson et al, 2008, 2010; Pettit, 2008; McAtamney, 2011).

Public health nurses across the world predominantly work with mothers and infants as part of health promotion and early intervention services. Government policy in the UK has recognised that health visitors are well placed to work with new parents and infants and to detect problems early in the development of the mother-infant relationship, to provide appropriate support and to refer on to other early intervention services where necessary (NICE, 2006; DH, 2009;2011). As the Health Visitor Implementation (DH, 2011: 7) plan has summarised: "Intervening early, working with families to build on strengths and improve parenting confidence and, where required, referring early for more specialist help, including specialist mental health services, is the most effective way of dealing with health, developmental and other problems within the family." Yet this study's findings suggest that health visitors would value and benefit from further education in this area and that this would increase health visitors' skills, knowledge and capacity to identify parent-infant relationship problems.

We examined the variation in each health visitors rating of the 9 video clips of the mother-infant interactions and found a non-significant relationship between health visitors' years of experience and level of agreement with the GRS scale rating. We then looked at health visitors' accounts of the behaviours of mother and baby when describing the interactions and found a predominance

of health visitor references to the mother rather than the infant. To examine the impact that consideration of the baby had on the health visitors' judgments, an examination was made of the relationship between the relative frequency with which health visitors referred to the baby when explaining their assessment and the consistency of their judgments with the GRS Scale. The correlation revealed that there was a highly significant relationship.

A further qualitative examination of health visitors' assessment styles and practices also revealed differences in health visitors approaches to the assessment of mother-infant interactions. This showed that some health visitors adopt a holistic and factual focus to the assessment, while others appeared to be more vague in their reporting and seemed to have difficulty articulating the basis of their judgements about a particular video-clip. The lack of reference to the baby is indicative of the need for further training in this area. A particular focus of such health visitor training could be on recognising the behavioural indicators in infant behaviour of engagement with and emotional relating to the mother, as well as increasing sensitivity to observing infant behaviours to which a mother's sensitive responding would be appropriate.

Section 7: Conclusion

This study has contributed to an understanding of how health visitors make assessments of mother-infant interactions. It has provided empirical evidence which can be used to develop the evidence base for public health nursing practice in this area. In spite of the need for reliable identification of risk in mother-infant interactions, and assessments that are both sensitive and specific, our study found little consensus across a sample of health visitors in their ratings of a series of video clips of mother-infant interactions according to the perceived level of risk. The health visitors whom we interviewed often reported that their initial training and subsequent continuing professional development had left them ill-prepared to assess the intricacies of mother-infant relationships. Identifying risk in mother-infant interaction is regarded as a core health visiting skill, yet our study findings indicate the need for improved training for health visitors in the formation of judgments about the quality of mother-infant interactions is evident. Our aim now is to develop a programme of training materials for these front-line workers and we are actively seeking further funding to support this development work. The programme will build directly on this research study's findings about the factors that characterise good practice among health visitors in the formation of judgments about the quality of mother-infant interactions.

Section 8: Findings Dissemination

Findings have been presented at the following conferences:

13th Annual Research Conference, School of Health and Social Care, Oxford Brookes University
Oral presentation: Appleton J.V, Harris M, Moore, C. and Oates, J. (2010) A Pilot Study To Evaluate Health Visitor Assessments Of The Quality Of Mother-Infant Interactions. *13th Annual Research Conference, School of Health and Social Care.* Oxford Brookes University, Oxford Thursday. 1st July.

Healthy Family, Healthy Child. Community Practitioners' and Health Visitors' Association (CPHVA) Annual Professional Conference
Oral presentation: Appleton J.V, Harris M, Oates, J. and Moore, C. (2010) A pilot study to evaluate health visitor assessments of mother-infant interactions. *Health Family, Health Child. CPHVA Annual Professional Conference.* Harrogate International Centre, Harrogate. 21st October.

The 2011 RCN Annual International Nursing Research Conference
Oral presentation: Appleton J.V, Harris M, Oates, J. (2011) Evaluating health visitor assessments of mother-infant interactions. *The 2011 RCN Annual International Nursing Research Conference.* Harrogate International Centre, Harrogate. 17th May.

Publications:
Appleton J.V. and Harris M. (2010) *Bonding with baby: health visitor assessments of mother-infant interactions.* Oxford Brookes research Forum. 6(2); 9.

Appleton J.V, Harris M, Oates, J. and Kelly, C. (Under Review) Evaluating Health Visitor Assessments of Mother-Infant Interactions: A mixed methods study. *International Journal of Nursing Studies.*

Section 9: Statement of Expenditure

Oxford Brookes University							
Health Visitor Interactions							
Funded by:	**Burdett Trust for Nursing**						
Activity Code:	**AQLG**						
	Indexed	Actual Results				Total	Variance
	Budget	2007-08	2008-09	2009-10	2010-11		
	£	£	£	£	£	£	£
Costs incurred in School of Social Sciences and Law						0	0
Research Asst - C Moore	13,919		3,817	16,221	681	20,719	6,800
Internal charges (library, printing, catering)				31	147	178	178
Travel & Subsistence			125	284		409	409
						0	0
Costs incurred in School of Health and Social Care						0	0
Research Asst - C Moore	7,095					0	(7,095)
Subcontracting costs - John Oates	2,000				2,195	2,195	195
Training Days	2,240		183		146	329	(1,911)
Transcription Costs	1,296			846		846	(450)
Office Costs	150			113	85	198	48
Travel & Subsistence	1,799		113	161	289	563	(1,236)
						0	0
PI Costs Recovered - J Appleton	12,681		7,274	5,407		12,681	0
Estates Costs Recovered	2,640		924	1,716		2,640	0
Indirect Costs Recovered	23,712		8,301	15,411		23,712	0
OBU contribution	(27,043)		(11,092)	(15,952)		(27,044)	(1)
						0	0
Expenditure	**40,489**	**0**	**9,645**	**24,237**	**3,543**	**37,426**	**(3,063)**
Income Received							
2007-08						0	0
2008-09	(40,489)		(40,489)			(40,489)	0
2009-10						0	0
2010-11						0	0
Income Received	**(40,489)**	**0**	**(40,489)**	**0**	**0**	**(40,489)**	**0**
(Surplus)/Deficit	**0**	**0**	**(30,844)**	**24,237**	**3,543**	**(3,063)**	**(3,063)**
Cumulative (Surplus)/Deficit		**0**	**(30,844)**	**(6,606)**	**(3,063)**		

Section 10: References

Allen, G.*,* 2011. Early Intervention: The Next Steps An Independent Report to Her Majesty's
  Government report on early intervention. HMG, London.

Appleton, J. V., Cowley, S., 2008. Health visiting assessment principles - unpacking critical
  attributes in health visitor needs assessment practice: a case study. International Journal of
  Nursing Studies 45: 232-245.
Berlin, L.J., Ziv, Y., Amaya-Jackson, L., Greenberg, M.T., 2005. Enhancing Early Attachments:
  Theory, research, intervention and policy. The Guilford Press, New York.
Bowlby, J., 1969. Attachment and loss: Vol. 1. Attachment. Basic Books, New York.
Bryans, A., 2004. Examining Health Visiting Expertise: combining simulation, interview and
  observation. Journal of Advanced Nursing 47 (6), 623-630.
Bryans, A., 2005. At home with clients: a study of Health Visiting Expertise. Community
  Practitioner 78 (10), 358-362.
Bremner, J.D., Vythilingham, M., Vermetten, E., Southwick, S.M., McGlashan, T., Nazeer ,A., et
  al. 2003. MRI and PET Study of Deficits in Hippocampal Structure and Function in
  Women with Childhood Sexual Abuse and Posttraumatic Stress Disorder. American
  Journal of Psychiatry 160(5), 924-932.
Department of Health, 2009. The Child Health Promotion Programme: Pregnancy and the first
  five years of life. Department of Health, London.
Department of Health, 2011. Health Visitor Implementation Plan 2011–15 A Call to Action
  February 2011. Department of Health, London.
Field, F., 2010. The Foundation Years: preventing poor children becoming poor adults. The
  report for the Independent Review on Poverty and Life Chances. Cabinet Office, London.
Gerhardt, S., 2004. Why Love Matters: How affection shapes a baby's brain. Brunner-Routledge,
  Hove.
Glaser, D., 2000. Child Abuse and Neglect and the Brain – A Review. Journal of Child
  Psychology and Psychiatry and Allied Professions 41(1), 97-116.
Grossmann, K., Grossmann, K.E., Fremmer-Bombik, E., Kindler, H., Scheuerer-Englisch, H.,
  Zimmermann, P., 2002. The uniqueness of the child-father attachment relationship: Fathers'
  sensitive and challenging play as the pivotal variable in a 16-year longitudinal study. Social
  Development 11, 307-331.
Hall, D.M.B., Elliman, D., 2003. Health for all children (4th ed.). Oxford University Press,
  Oxford.
Hosking, G., Walsh, I., 2005. The WAVE Report 2005. Violence and what to do about it. Wave
  Trust, Croydon, Surrey.
Kelly, G.A., 1963. A theory of Personality: the psychology of personal constructs. Norton, New
  York.
McAtamney, R., 2011 Health visitors' perceptions of their role in assessing parent-infant
  relationships. Community Practitioner 84(8), 33-37.
Mcdonald, G., 2001. Effective Interventions for Child Abuse and Neglect. An Evidence-based
  Approach to Planning and Evaluating Interventions. John Wiley & Sons Ltd, Chichester.
Meek, I., 1998. Evaluation of the role of the health care assistant within a community mental
  health intensive care team. Journal of Nursing Management 6, 11-19.
Miles, M.B., Huberman, A.M., 1994. Qualitative Data Analysis. An Expanded Sourcebook. Sage
  Publications, California.
Morrell, J., Murray, L., 2003. Postnatal depression and the development of conduct disorder and
  hyperactive symptoms in childhood: a prospective longitudinal study from 2 months to 8
  years. Journal of Child Psychology and Psychiatry 44 (4), 489-508.

Morrell, J.et al., 2009. Clinical effectiveness of health visitor training in psychologically informed approaches for depression in postnatal women: pragmatic cluster randomised trial in primary care. British Medical Journal 338: a3045.

Moulson, M.C., Fox, N.A., Zeanah, C.H., Nelson, C.A., 2009. Early adverse experiences and the neurobiology of facial emotion processing. Developmental Psychology 45, 17-30.

Moulson, M.C., Westerlund, A., Nelson, C.A., 2009. The effects of early experience on face recognition: An event-related potential study of institutionalized children in Romania. Child Development 80, 1039-1056.

Nelson, C.A., Furtado, E.A., Fox, N.A., Zeanah, C.H., 2009. The deprived human brain. American Scientist 97, 222 – 229.

Munro, E., 2011. The Munro Review of Child Protection: Final Report. A child-centred system. Cm 8062. Department of Education, London.

Murray, L., Cooper, P.J., 1996. The impact of postpartum depression on child development. International Review of Psychiatry 8 (1), 55-63.

Murray, L., Fiori-Cowley, A., Hooper, R., Cooper, P., 1996. The impact of postnatal depression and associated adversity on early mother–infant interactions and later infant outcome. Child Development 67, 2512–2526.

Murray, L., Cooper, P.J., Wilson, A., Romaniuk, H., 2003. A controlled trial of the short and long term effect of psychological treatment of postpartum depression: II impact on the mother child relationship and child outcome. British Journal of Psychiatry 182: 20-427.

National Institute for Health and Clinical Effectiveness, 2006. Clinical Guidelines and Evidence Review for Post Natal Care; Routine Post natal Care of Recently Delivered Women and their Babies. National Collaborating Centre for Primary Care and Royal College of General Practitioners, London.

Oates, J., Gervai, J., 2003. 'Mothers' Object Relations Scales', poster presented at the XIth European Conference on Developmental Psychology, Milan, Italy.

Oates, J., (ed) 2007. Quality of Care for Young Children: Attachment Relationships. The Open University, Milton Keynes.

Patton, M.Q., 2002. Qualitative Research & Evaluation Methods. Sage Publications, London.

Pettit, A., 2008. Health visitors' experiences of using a tool in assessing infant attachment. Community Practitioner. 81(11), 23-26.

Robinson, M., 2010. Infant mental health: effective prevention and early intervention. London, CPHVA.

Schonkoff, J.P., Phillips, D.A., eds. 2000. From neurones to neighbourhood: the science of early childhood development. National Research Council Institute of Medicine. National Academy Press, Washington DC.

Sutter-Dallay, A.L., Murray, L., Glatigny-Dallay, E., Verdoux, H., 2003. Newborn behaviour and risk of postnatal depression in the mother. Infancy 4(4), 589-602.

Svanberg, P.O., 2009. Promoting a secure attachment through early screening and intervetions. A partnership approach. In Barlow, J., Svanberg P.O., Keeping the Baby in Mind. Infant Mental Health in Practice. Routledge, London.

Teicher, M. H., 2002. Scars that won't heal: The neurology of child abuse. Scientific American 3, 54-61.

Wilson, P., Barbour, R.S., Graham, C., Currie, M., Puckering, C., Minnis, H., 2008. Health visitors' assessments of parent-child relationships: A foucs group study. International Journal of Nursing Studies 45: 1137-1147.

Zigmond A.S., Snaith, R.P., 1983. The Hospital Anxiety and Depression Scale. Acta Psychiatr Scand 67, 361-70.