The Development of the Maternal Looking Guide, a Clinical Tool for Midwives to Assess Mothers' Interactions with their Newborns

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Table of Contents

NOTE:
A DVD containing 'MLG Training Video' is included with the print copy of the thesis held in the University of Adelaide Library.

Tables

Figures

Boxes

Abstract

The healthy physical, cognitive and social development of infants depends on nurturing relationships. The earliest relationship is usually between the mother and her infant, and mother-infant gaze plays a crucial role.

This thesis examines maternal looking—the unidirectional looking by a mother at her newborn baby over the first hours and days post birth—as a precursor to bi-directional mother-infant gaze. Maternal looking allows the mother time to adjust to her actual baby, which may be pivotal for the mother-infant relationship.

Midwives work closely with mothers and their babies perinatally. They are well placed to identify those mothers who struggle to look at their babies and respond with an appropriate intervention to support the crucial but vulnerable mother-newborn relationship. However, they have not had specific tools to assist them to do this.

The research explores how the more subtle features of a mother's looking at her newborn may mirror the meaning she makes of that newborn. By identifying or characterising these features, midwives can recognise mothers at risk and help them to look at their babies.

Two studies were conducted. Study 1 used video to examine how mothers look at their newborns. Using an iterative design, intensive analysis identified and categorised patterns of looking and looking-related behaviours. This resulted in a typology of looking, which in turn generated a one-page clinical tool for midwives. Study 2 subjected the tool to inter-rater reliability testing using midwives as multiple raters. The results of this study show that the tool has moderate reliability.

The tool, which has subsequently been named the Maternal Looking Guide, enables the assessment of mothers' looking behaviour over six constructs and then allocation to one of three overall categories of looking: comfortable, uncomfortable, and worrisome. These categories distinguish women who are doing well (comfortable), those who need a referral to an expert perinatal service (worrisome) and those to whom midwives could offer something extra (uncomfortable). It is this third intermediate group, the uncomfortable mothers, that the research aims to help midwives identify.

The Maternal Looking Guide is a practical, reliable tool that can be used for early assessment and decision-making about the mother-infant relationship.

This research raises the profile of infant mental health in the midwifery profession. Implications of the research and ways that it may stimulate further research in the field of infant mental health are identified.

Declaration

I certify that this work contains no material which has been accepted for the award of any other degree or diploma in my name in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text.

In addition, I certify that no part of this work will, in the future, be used in a submission in my name for any other degree or diploma in any university or other tertiary institution without the prior approval of the University of Adelaide and, where applicable, any partner institution responsible for the joint award of this degree.

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I acknowledge the support I have received for my research through the provision of an Australian Government Research Training Program Scholarship.

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Patricia O’Rourke

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Preface

For a number of years, I have wondered about the role that looking has in the mother-infant relationship. I have listened to mothers despairingly describe their children as monsters or little devils or rapacious grasping feeders, as they provide a developmental history of their child who meanwhile is playing quietly and self-consciously on the other side of the room or lying sleeping in a pram.

I wondered how they came to see the reality they were trying to convey to me. In those moments I knew I needed to see with them what they had seen and were currently seeing, or I would be another professional who 'just didn't get it'.

But I was always curious about what lay underneath these stories—where did they begin and how did they come to have such life and create such meaning and threaten so much relationship and development?

I increasingly thought that if someone had just helped that mother to look more at her newborn baby, had supported her to just be with her baby and take the baby in—no more no less—would this have made a difference for them and their child? Would this seemingly small intervention have set them off on a different trajectory?

Certainly in therapy, helping a mother to look at her actual child or baby in the room from another perspective and in a new way usually begins a change in the relationship between them and their child. But this takes time and effort, and there has been so much hurt. Why not circumvent all that by helping mothers to look at their newborn and assist them to bring together the baby they have been imagining with the baby they have just given birth to? It seemed too simple to be possible…

I am grateful that I have had the opportunity to fully explore these ideas at this time of my life when I have been able to bring all of my experience to this project.

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In particular I would like to thank my primary supervisor Professor Jon Jureidini for the regular meetings and for his integrity, his belief in me and his kindness.

And finally I thank my husband Chris Rawlinson for his relentless optimism and being my constant companion.

Chapter 1
Introduction

'I have always thought you were born frost-tender. I remember your cries piercing the hospital nursery as you fought us. We enraged you terribly.'

Linda Connell

Becoming a mother can be transformational. Life changes fundamentally with a new mother's acceptance that her baby is wholly dependent on her. The course of pregnancy offers her time to adjust to both the physical and psychological changes required (Spielman 2002) and this intensifies around birth. At birth a new mother must adjust to her changed identity and to her new baby if their relationship is to get off to a good start (Bruschweiler-Stern 2010; Stern 1998).

This thesis explores the mother's looking at her newborn infant (maternal looking) as the process by which a new mother meets her new baby and begins to form this relationship. The term 'looking', as used in this thesis, involves choosing where to direct visual attention. It is further defined at the beginning of Chapter 2 where its use is differentiated from other similar commonly used terms. 'Maternal looking' in this work is unidirectional looking. This differs from mutual gaze which is a dyadic interaction between mother and infant and both have been well researched in the infant mental health literature.

The premise of this thesis is that maternal looking allows the mother time to adjust to her actual baby and is a precursor to shared mother-infant gaze. This opportunity for reconciliation may be pivotal for the mother-infant relationship and thus for the infant's developmental trajectory.

Some mothers begin the relationship on a positive trajectory, others are already in significant difficulty, while an intermediate group may be uncomfortable with their first looking experiences but are open to simple corrective interventions. Midwives are well placed to provide such interventions.

The thesis establishes a typology of maternal looking that in turn has been used to generate a practical tool. It then demonstrates that this tool can be reliably used by

midwives to identify those mothers who might benefit from their immediate intervention.

Context

This thesis is based on the well-established body of knowledge that the early interaction between a mother and her baby shapes the mother-infant relationship and in turn the developmental trajectory of the baby (Blehar, Lieberman & Salter Ainsworth 1977; Bowlby 1988; O'Connor & Parfitt 2009). This is the cornerstone of a relational model of infant development that has emerged from the growing recognition that newborn infants are social beings who are born actively seeking relationship, and that the environment into which they are born and begin to develop has a profound effect on that development.

The infant's brain develops most rapidly in the first three years of life, when it is highly sensitised to and influenced by the social environment—'a matrix of the traffic with other minds' (Stern 2008, p. 183). Interactions that are responsive and contingent promote healthy development, while those that are repeatedly misattuned impact negatively on the baby's development (Slade 2002).

As will be described in Chapter 2, newborns communicate through their state and behaviour and this communication in turn needs to be recognised and understood by those working with them and their parents. Newborn infants' subjectivity arises out of their innate inter-subjective ability to engage with others, imitating and rhythmically coordinating their own movements with those of other people. Healthy, alert newborns are able to act expressively, demonstrating a high sensitivity to the presence of another (Papousek 2007; Trevarthen 2011).

Recent research has identified the neurological underpinnings of this relational context. Early in life when connectivity is being rapidly established, experience influences both how the brain functions and the actual neural structuring of the brain's development (Gunnar 1998). The interaction with caregivers, usually mothers at the beginning, provides the scaffolding that enables the infant's communicative bids to be recognised and responded to in a sensitive and contingent way.

The inter-subjective experiences of the newborn are critical because they increasingly shape the infant's emerging unique pattern of responses. Before that, a mother's thinking and feeling about her infant and her relationship with her infant shapes her responses to that infant (Zeanah & Benoit 1995) and this begins in utero (Ammaniti et al. 1992; Stern 1998; Van den Bergh & Simons 2009).

The mother-infant relationship is crucial[1]. A mother who is emotionally available and able to hold her infant and their experience in her mind facilitates optimal healthy development. While all mothers want to provide this for their babies, there are numerous obstacles that can get in the way. These are outlined in Chapter 2.

This thesis is concerned with identifying the earliest manifestations of a positive meeting with the newborn and early obstacles to this meeting in terms of a mother's looking. Looking was chosen because of the importance accorded to mother-infant gaze in the infant mental health literature over many years. The salient features of the mother-infant relationship are that it is dyadic, transactional and co-regulated. These features, the importance of gaze behaviour, and other factors that contribute to and impinge on the early mother-infant relationship, are discussed in depth in Chapter 2.

In summary, the earliest relationship—most often the newborn's relationship with their mother—is the cornerstone of all later development and the success of that relationship is contingent on the way the new mother meets her infant.

Prompts from clinical experience

This research emerged mainly from my clinical experiences as a child psychotherapist, my more recent experiences working in infant mental health in a women's and children's hospital, and setting up a therapeutic reunification service for infants under three who have been maltreated or neglected by their parents.

In the course of my clinical work with troubled parent-child relationships, many mothers have told me that their troubles starting during pregnancy or soon after birth. One mother presented with her small daughter who couldn't separate from her and who refused to speak outside of the home. This mother, who had immigrated early in the pregnancy with this child, talked of her aloneness in the new country, her grieving for her family and friends, and how throughout the pregnancy she would sit crying on the stairs in her new home, watching the door and waiting for her husband to return. When a small hypersensitive baby arrived, she found she couldn't look at the baby without remembering her fear and anxiety and the doubts that overwhelmed her.

Another mother recalled her actual baby being so different from the one she carried through pregnancy. That imagined baby was going to love her—to smile and be delighted and delightful—and was nothing like the actual screaming stranger that she

[1] This research preferences the mother-infant relationship because in most cases the first relationship the infant forms is with their mother. While a father or another can be the primary carer, it is the mother who is biologically and physiologically primed to birth and suckle the infant she has carried for nine months.

remembered as ‘gnawing’ at her breasts and ‘rejecting’ her whenever she picked him up.

In these stories of remembered fears and anxieties, mother and baby missed one another from the beginning. These experiences had had a pervasive negative impact on the mother’s sense of herself as a mother, the child’s sense of themselves as a person, and on their relationship, which was often experienced as an ordeal.

The lack of attention to the relationship in those early days appeared to have had a profound impact.

Would bringing the imagined and the actual baby together early help a first-time mother adapt to her real baby, assisting her transition to parenthood and enhancing the mother-infant relationship? Could this in turn positively affect the baby’s developmental trajectory? It became important to me to understand more of a mother’s experience of getting to know her newborn baby.

The perinatal period - a window of opportunity and the untapped potential of midwives

The perinatal period is a very vulnerable time with the potential to be transformative but one where old relational patterns are more likely to be repeated (Slade 2002).

It is important that this potential for transformation is actively harnessed through finding non-intrusive, supportive ways to assist women. Any contact women have with health services at this time can be influential, and can support new ways of being in relationship.

Midwives work closely with mothers and their babies perinatally and are well placed to facilitate the development of this crucial yet vulnerable relationship.

Early in this research, I had a number of clinical experiences that led me to believe that brief intervention from midwives could significantly influence the mother-infant relationship for better or worse. First, I was with another infant mental health worker on the postnatal ward. As usual at that time of the morning, the ward was very busy, with different workers coming and going from various rooms and midwives generally run off their feet. It felt, as it has on other mornings, like a busy train station, all hustle and bustle.

Our plan was to do a Newborn Behavioural Observation (NBO) (Nugent et al. 2007); and eventually the parents and baby we’d come to see were found, but they were having photos taken with the baby. We waited, watching the baby being treated as if an

inanimate object, dressed, undressed, and turned various ways, in various poses, all for the camera shots.

An experienced midwife arrived to help this new mother breastfeed. The mother was struggling with feeding and settling, although I noted that the father could settle the baby. I saw a young woman looking so disempowered and trying in vain to 'learn'. The midwife picked up the baby with no support for the baby's head, and turned to the mother, who sat helplessly in the bed. The baby began to cry. The midwife abruptly dropped her back in the cot and tried to rearrange the mum's position. The baby was crying in earnest, the desperate wail of the neonate. We decided to wait outside to reduce the pressure on the mother (and perhaps the midwife). As we were standing there, we heard the midwife trying to reassure the mother saying: 'it's good for your baby to cry, it's good for her heart. Now you *[to baby]* don't you give your mum that evil eye…'.

We walked away. I felt very disheartened. It seemed that what was being set up, probably with the best intentions and the midwife making extra time in her busy schedule, was not only an unpleasant feed but a difficult path forward for this mother and her baby. Not only would this baby have to deal with whatever representations her mother had of her, she would have the additional layer of the midwife's unwitting contribution.

Another woman told me of her experience following a particularly traumatic birth. She had had a caesarean with an epidural block that hadn't taken fully. She had ended up screaming and screaming as she could feel the procedure, but with the baby in some distress, the medical staff had pushed on to complete the caesarean section. She could hear that the baby was struggling with breathing, but she felt completely detached and non-caring. She was told 'Congratulations! You have a little boy'; but this mother, with tears streaming down her face, said how she remembered feeling so disconnected from her baby that she answered 'I don't care if it's a fucking fish!'.

She told me she couldn't remember anything more after that as they anaesthetized her to finish the procedure. She came around alone in recovery and was being wheeled to the ward when the midwife with her asked if she had seen her baby yet. Hearing that she hadn't, the midwife detoured to the nursery and brought the baby to her on the gurney, laying him in her arms.

The mother's face flushed a smile remembering. She said how she looked at the baby and, seeing him for the first time, felt a 'rushing warm sensation' that she remembered as a flow through her body from her head—this was her baby. The sensitivity of that

midwife possibly rescued her relationship with her baby. Her natural feelings for and connection with her baby were re-established by this simple act of kindness.

Research aims

Exploring the role of maternal looking

My motivation for this research was a growing belief that if mothers could be supported to look at their babies, this simple act would make a difference to their relationship and to the baby's development.

The research emerged from an interest in how the newborn might be prenatally represented in a mother's mind, how this representation might be enacted in the early hours after birth as she meets the actual baby in her arms, and what observable behaviours might demonstrate this representation.

Initially my aim was to investigate how internal representations of the baby and the relationship affected a mother's actual interaction with her newborn. My idea was that if a mother could reconcile the baby who had been imagined over the previous nine months with the newborn in her arms, then this would positively affect their relationship and therefore the baby's development.

The intention was to identify how a mother looks at her newborn, to see if this could be categorised and then to explore associations between the looking and a mother's internal representations of the baby and her relationship with the baby.

However, in the course of reviewing the literature and developing a methodology, it became clear this was not the most useful thing to do. The primary aim then became to explore the categorisation of the mother's way of looking, to see if this could provide some indication of her state of mind, in a way that might usefully signal to midwives which mothers need help.

Although a mother meets her newborn with all of her senses alive to this life-changing experience, looking was chosen as the specific area of investigation because it is central in the process of how she gets to know her baby.

The subject of this research is the beginning of this actual relationship—how a mother looks at her newborn, what she sees, the meaning she makes of this experience, and how this is enacted in their early relationship.

I decided to test whether maternal looking could be categorised and, if so, how this could be expressed in some form of typology, which could then be used to generate a clinical tool that would be useful to midwives.

Promoting midwifery practice to support mother-infant relationship

Recognising the importance of the earliest intersubjective experiences in shaping the mother-infant relationship led me to think about how to bring about change at the beginning of the relationship.

My aim was to explore a mother's earliest experience of her infant and find some way to apply pertinent research findings in a practical way. Midwives are better placed for any perinatal intervention than most health professionals. They help birth babies and they can be in and out of rooms and homes where new mothers, getting to know their babies, are waiting for their babies to wake, trying to help them sleep, trying to work out why they're crying and gazing at them as they lie in their arms contentedly feeding. Therefore it seemed likely that midwives could be helpful to those mothers who, while not severely impaired, were uncomfortable with their new infants.

Selma Fraiberg and her colleagues (1975, p. 394) wrote of the benefits of 'psychotherapy in the kitchen'. In this everyday environment workers would hear mothers' past and present anxieties and provide confidence-building support for women to be with their babies as they were involved with them in every-day situations. Midwives are in this prime position of providing moment-by-moment care for mothers and their babies who may both be reeling from that life-changing experience of giving birth and being born.

Therefore a secondary aim was to engage midwives' interest in infant mental health by involving them in the research and promoting practice that could lead to more positive early meeting of new mothers and their newborns.

Background to this research

The Women's and Children's Hospital (WCH) is a training hospital servicing the state of South Australia. As a tertiary referral hospital the WCH has a relatively high number of complex birthing admissions. In 2014 a total of 4823 babies were born at the hospital. Nearly 30% of these deliveries were delivered by caesarean section (1401), comprised of 16.5% (773) emergency and 13.4% (628) elective caesarean sections. Nearly 40% of all women had induced labour, 23% of vaginal births had an episiotomy and 49% of women suffered tearing, from 1st to 4th degree.

Over the same time period, 8.9% (430) of the women who birthed at the hospital were identified by the National Perinatal Depression Initiative (NPDI)[2] screening process to be at high-risk for mental health problems. Mental health and birthing difficulties are two known risk factors of relational disturbance in mothers and infants (Di Matteo et al. 1996; Murray et al. 1996). This demonstrates the value of identifying those mothers and newborns who are at risk of relational difficulties, in order to intervene early to enhance the mother-infant relationship.

At the outset of this research, the midwives working at the WCH had had very little formal training of the importance of the mother-infant relationship except as it relates to bonding and breastfeeding. Intuitively they understood the significance of the relationship but their training and hospital systems generally focus on the care of the mother and provide very little explicit recognition of the importance of the mother-infant relationship.

Overall aim of the research

The overall aim of this research is to help midwives use the way a mother looks at her baby to guide intervention early in the mother-infant relationship. The first study set out to create a typology or set of characteristics that could potentially help midwives to identify mothers who were struggling with looking at their newborn babies and differentiate those they could help from those who needed expert intervention. A second study was designed to test the inter-rater reliability of the tool generated from the resultant typology, initially named 'Patterns of Looking' and later named the Maternal Looking Guide.

The structure of this thesis

This introduction outlines the context of the research which is based on a relational model of human development in the field of infant mental health. The reasons for choosing maternal looking in the early perinatal period and highlighting the role of midwives in this are discussed. The overarching goal of the research and the professional and personal aims of the research are also outlined.

Chapter 2 uses a review of the relevant literature to discuss the nature of maternal looking and its important role in the developing mother-infant relationship during

[2] A collaboration of the state and territory governments and the Australian Federal Government agreed on in 2008, the National Perinatal Depression Initiative was a five-year programme providing routine screening for postnatal depression and follow-up care for all birthing women. The initiative received an additional two years funding but was not refunded in June 2015.

pregnancy and the perinatal period. It also highlights the critical nature of maternal looking in relation to all subsequent mother-infant interaction. The importance of maternal looking for the infant, how this is enacted around birth and the major role midwives can have in this vital meeting is also explored.

Chapter 3 details the development of a typology of looking. This typology emerged from the intensive analysis of the videotaped experiences of mothers looking at their newborns by the researcher and a group of infant mental health experts. It was used to develop what came to be called the Maternal Looking Guide, a clinical tool for midwives.

Chapter 4 outlines the process used with multiple midwife raters to test the clinical tool for inter-rater reliability in order to establish whether they could consistently and predictably use the measure as a clinical tool. This reliability was deemed essential for midwives to be able to use the Maternal Looking Guide in their everyday work. At the end of this chapter, the results, which demonstrate moderate reliability for the measure, are discussed and sources of variability are further investigated.

Finally in Chapter 5, the implications of the research for the field are discussed and the potential for the application of the Guide in practice is outlined. Limitations and strengths of both studies are identified and future directions for this project are presented.

Chapter 2
Maternal looking – a review of the literature

'The mother gazes at the baby in her arms, and the baby gazes at his mother's face and finds himself therein'

D.W. Winnicott

'We are who we see looking at us ...'

Valerie Sinason

The primacy of looking

Eye contact and gaze are central to early interactions between mother and infant. Newborns are primed to look and show preference for face shapes. How a new mother receives the infant's looking must influence subsequent mother-infant interaction. My proposition is that maternal looking is the primary modality used by most mothers to get to know the actual baby they have given birth to and that identifying and evaluating the quality of that looking can enhance our understanding of that relationship.

This research focuses on maternal looking—how a first-time mother looks at her newborn baby. I examine maternal looking as a key element of a new mother's functioning. I am curious about how a first-time mother looks at her newborn baby and in particular how that looking is shaped by her internal representations of the baby and how she imagines that relationship will be. I am interested in how those internal representations may affect her capacity to look at her baby and thereby help shape her relationship with her baby.

Defining looking and related terms

I keep as close as possible to the common usage of the term looking and distinguish it from other common related terms: gazing, watching, and seeing[3].

[3] These terms too have parallels in other languages and similarly to English they share quite distinct meanings. For example, in French 'voir' is to see, 'regarder' is to look and 'veiller' is to watch. In German the equivalent terms are 'sehen', 'blicken' and 'wachen' or 'beobachten' respectively.

To see is defined in the Macquarie Dictionary (Macquarie Complete Dictionary 2015) as 'to be aware of, or perceive with the eyes'. Seeing here applies to our passive use of sight, when our eyes are open, our sight automatically functions[4]. Watching is used to denote focused attention, 'to be on the lookout, or be closely observant' (ibid.). We watch TV or a sports match. Looking is similarly defined as 'to fix the eyes upon something or in some direction in order to see'. It too describes a more directed or active use of sight.

Both watching and looking denote focused attention and in some contexts they could be used interchangeably. Watching implies an active alertness perhaps with more of a scanning quality. It has more of a quality of monitoring, a watching out for, at times a watching over. Watching implies the possibility of having to do something or make something of what is being watched at some later point in time. We watch for changes. Watching can also be passive, as in watching television.

Watching does not convey the idea of deep receptivity that is invoked by the term looking. While looking also requires an active alertness, it is more about taking in, or absorbing what was one is looking at. We look at a painting or a view, we don't watch them. There is more of a sense of receptivity invoked by the term looking. The person who looks, takes in what is being looked at with no view to acting upon what is being looked at that time. We need to look at something in order to really see it.

The terms looking and seeing also have parallels in other dominant sensory modalities. Specifically words that apply to the passive use of our three dominant senses are seeing, hearing and touching. This contrasts with a more active directed use of looking, listening and feeling as it applies to these same three senses respectively.

Gazing is, however, defined as 'to look steadily or intently' (ibid.); a particular type of more prolonged looking. It is a slower process that involves taking in the subject in some way and may include some form of reverie or reflective process that attempts to make sense of our experience in terms of our feeling state or our sensations or thoughts in response. Gazing implies we are attempting to make meaning of or to understand the experience.

Kleinke (1986), in a research review aiming to systematise gaze and eye contact research, writes that in the literature both looking and gazing at another's face are distinguished from mutual gaze and eye contact which refer to two people

[4] This is the definition I use in this thesis. However, 'see' can also denote a deeper experience where something is really 'seen' rather than 'noticed'. 'Being seen' implies feeling deeply understood, having one's feelings and perspective validated.

simultaneously looking at each other. He defines the parameters of gaze as duration and frequency and outlines methods for measurement.

While Kleinke's research does not directly relate to mothers and infants, some of his findings are relevant to this research: gaze communicates intensity but not valence of feelings; moderate amounts of gaze are preferred over constant or no gaze; gaze increases as a function of positive attraction, but high levels of gaze do not always indicate intimacy and liking; gaze functions most commonly to express intimacy in unstructured and non-evaluative interactions; there is evidence of synchronisation between gaze and other behaviours and prolonged and unexplained gaze can function as a stimulus for eliciting escape and avoidance.

Mother-infant Interaction and the importance of gaze

The quality of the face-to-face interaction between mother and infant defines the nature of the early mother-infant relationship (Beebe 2003; Grienenberger, Kelly & Slade 2005; Murray et al. 1996). The importance of eye contact between mother and infant as the context for interactional exchange has long been established (Blehar, Lieberman & Salter-Ainsworth 1977; Brazelton, Koslowski & Main 1974; Field 1981; Stern 1974) and continues to be researched (Ammaniti & Ferrari 2013; Trevarthen 1993; Tronick & Reck 2009).

More specifically, infants use gaze behaviours to regulate both arousal and affect (Field 1981; Stern 1974) and signal to their mothers that they are available for interaction (Brazelton, Koslowski & Main 1974). Unlike other species, including primates, human parents intuitively work to achieve and maintain direct visual contact with their infants, rewarding such visual contact with 'greeting responses' of widened eyes, raised eyebrows and a half open mouth (Papousek & Papousek 2002, p. 193).

Gaze is central to mother-infant interaction and its quality has major implications for the infant's social and emotional development (Crockenberg & Leerkes 2004; Gergely & Watson 1996; Stern 1985). Through bi-directional co-regulated experiences, infants and mothers establish unique routines of communicative patterns that affect ongoing development (Tronick & Beeghly 2011).

Bigelow and Rochat (2006) demonstrated that infants as young as two months are sensitive to familiar contingency levels in their mother's face and voice. Furthermore this sensitivity affected how they engaged with strangers. The baby's responses in face-to-face interaction with a stranger was determined by the level of contingency of the stranger's smiles and vocalisation with the baby's mother. They concluded that the

infant's interactions with others are already at two months shaped by the relationship with the mother.

Lavelli and Fogel (2013), in a small (n=24) study involving babies from birth to three months, recorded weekly observations to examine differences over time and track the developmental pathways of early mother-infant face-to-face communication with a focus on processes underlying the relationship system. They found that maternal mirroring and infant responsivity are both central in shaping developmental progress.

The sheer volume of studies devoted to mutual gaze between mother and infant compared to other sensory modalities supports the argument that looking is the primary sensory modality. Gaze is an intuitive form of communication for most mothers and infants and is a crucial, integrative developmental activity for infants.

Maternal looking

However, very few studies explore mothers' looking at their new babies, or 'maternal looking'—the primary way that most mothers begin to know their babies and an important component in the early development of mother-infant gaze. Maternal looking is foundational because looking is a primary way of perceiving something, especially something that is new. When we come across a new thing, we generally look at it before we touch it or listen to it or sniff it. 'Looking' is a primary way of experiencing the world.

It is therefore likely that most mothers, when confronted with the baby they have imagined on and off for nine months, and are now holding in their arms, use looking to begin to make meaning of this experience. As will be seen below, looking sends a powerful message to the baby that the mother is interested and wants to meet and get to know them.

This thesis argues for the primacy of maternal looking. If looking is a primary way of perceiving something, especially something that is new, then maternal looking lays the foundation for mother-infant gaze, and is the cornerstone of all subsequent relating.

Maternal looking and its role in internal representations

The way a mother perceives her baby and represents that baby and their relationship in her mind—her internal representations of her baby—is known to predict subsequent infant attachment security (Benoit et al. 1997; Zeanah et al. 1994). Cox, Hopkins and Hans (2000), in their work with preterm infants and their mothers, report that, consistent with previous findings (van IJzendoorn et al. 1992), maternal factors are more important

than infant factors in determining infant attachment security. More specifically, the ability of a mother to understand the affective and mental states of her baby is now understood to be a key factor in the establishment of an infant's attachment capacity (Fonagy et al. 1991). This reflective capacity facilitates the mother's communication with her infant as she interprets the infant's communicative bids, initially conveyed by looking, gesture and crying. Over time these interactions create shared meaning (Tronick 2003). Attachment security in turn is related to numerous child developmental outcomes (Sroufe et al. 2005).

First conceived by Bowlby (1969) as dynamic mental structures that are open to modification and guide an individual's subjective experience, internal representations have since been the focus of much research in relation to infant, child and adult attachment. The essence of internal representations is their interactional nature and their role in a child's cognitive, social and emotional development.

Internal representations of the infant before birth

The story about maternal looking begins long before the baby is born, when a mother as a baby internalises her own experiences of interacting with and being cared for by her own mother. These experiences and later childhood experiences such as playing with dolls, imagining herself as the mother and the baby, all contribute to shaping her later sense of herself as a mother.

Clinicians and researchers in infant mental health have long been interested in how mothers represent their unborn babies in their minds and how this affects the observed interaction between mother and infant. A mother's fantasies and thoughts form an imaginary construct that embeds the infant in a matrix of past relationships, hopes and desires (Cramer 1986). The mother's internal representations of her baby and their relationship have been developing during pregnancy, (Ammaniti et al. 1992; Stern 1998; Van den Bergh & Simons 2009) and are affected by the relationships, influences and events of the mother's present life (Stern 1998; Zeanah & Benoit 1995). They are linked to the quality of her own infantile attachment experiences (Fonagy & Target 2005; Madigan et al. 2015; Slade 2005; Slade et al. 2005) and any experiences of trauma, grief and loss in her past (Fraiberg, Adelson & Shapiro 1975).

More recent work on prenatal attachment (Ammaniti 1991; Benoit, Parker & Zeanah 1997; Dayton et al. 2010; Innamorati, Sarracino & Dazzi 2010) has attempted to describe the development, role and influence of a mother's internal representations during pregnancy.

These internal representations are both inside and outside of conscious awareness, and include the mother's hopes and fears, fantasies and expectations, as well as her perceptions of herself and her baby (Bruschweiler-Stern & Stern 1989). They have been shown to be stable over time, even throughout such powerful events as birth and the first year of life (Benoit 1997) and are concordant with infant attachment classifications at 12 months (Benoit, Parker & Zeanah 1997; Madigan et al. 2015; Zeanah et al. 1994).

Maternal looking and pregnancy

Creating maternal identity during pregnancy

The nature of a woman's experience during pregnancy has been researched over the past four decades and a range of physiological and psychological changes that require varying levels of adaptation by the pregnant woman have been identified (Innamorati, Sarracino & Dazzi 2010). Alongside her physical pregnancy, the mother, especially the first-time mother, is experiencing a dramatic psychological change. The first pregnancy in particular is a time of 'enormous transition, transformation and reorganization' (Slade et al. 2009).

Donald Winnicott was a paediatrician and an analyst. He wrote and spoke prolifically about his work with mothers and babies and human development, to a wide-ranging audience of fellow professionals, students, mothers' groups and even the general public via weekly radio talks broadcast by the BBC. He was arguably the earliest advocate of the current global trend to address issues of prevention, promotion and early intervention in primary mental health care.

Winnicott's (1956) well-known concept of 'primary maternal preoccupation' describes a state of 'heightened sensitivity', a 'primitive somatic identification' of the mother with the baby. When all goes well this condition develops over the course of the pregnancy, becoming more intense in the third trimester, peaking around birth and lasting for some weeks afterwards. In this state a mother is able to 'adapt sensitively and delicately' to the infant's needs, with which she becomes exclusively preoccupied for this brief period.

Pregnancy is a time when the mother fantasises about not only about the baby—the one she 'longs for and the baby she dreads'—but also about the mother she hopes she will become, as well as the one she fears she may be (Bruschweiler-Stern 2002, p. 15). Stern (1998) proposed that new psychological structures are formed over pregnancy, especially the first, as pregnancy fundamentally alters women's identity. This requires a

major reorganisation of a mother's psychic life. This 'Motherhood Constellation' is the 'dominant organising axis' (ibid. p. 171) around which four themes and related tasks emerge. The first is the life-growth theme, which centres around the ability to maintain the life and growth of her baby. The second is a preoccupation with her ability as a mother to authentically relate to and engage with her baby. Stern calls this the primary relatedness theme. The third, the supporting matrix theme, relates to her concerns about her ability to create the support necessary to achieve the first two. Similarly the fourth preoccupation, the identity reorganisation theme, concerns whether the mother can make the necessary changes in herself.

A study of the prevalence and development of the motherhood constellation by Innamorati, Sarracino and Dazzi (2010) reports it as a pervasive condition by 20 weeks gestation that becomes progressively more elaborate and specific, peaking around seven months gestation before dropping off as the birth of the actual baby approaches. Like Bruschweiler-Stern and Stern (1989), Innamorati, Sarracino and Dazzi (2010) hypothesise that the drop off is due to the mother's need to be more open to the actual baby at birth. They theorise that how a woman adapts to the motherhood constellation themes, the level of internal conflict she has around them, impacts on her adaptation to her baby. This research and more recent related research (Ammaniti, Tambelli & Odoriso 2013) highlights the pervasiveness and potential influence of internal representations during pregnancy.

However, our understanding of the actual psychological experience of pregnancy, especially the perinatal experience of women in non-depressed populations (Hall & Wittowski 2006), remains overall relatively thin.

Mother-infant relationship in pregnancy

A mother's relationship with her baby begins in utero. Van den Bergh & Simons (2009), reviewing scales measuring mother-foetus relationship during pregnancy, highlight the growing body of evidence in this area, the importance of the mother-foetus relationship and the factors that affect it. There is now considerable evidence that shows that how a mother thinks and feels about her foetus—her prenatal representations of her baby—influences the baby's development (Benoit, Parker & Zeanah 1995; Huth-Bocks et al. 2004; Tambelli, Odorisio & Lucarelli 2014).

Prenatal representations influence postnatal parenting behaviour in significant and theoretically consistent ways (Dayton et al. 2010; Madigan et al. 2015; Pajulo et al. 2001). This suggests that internal representations influence behaviour throughout

development and are an important link in the intergenerational transmission of attachment. For example, prenatal maternal representations of the child predict a mother's regulatory ability and her infant's interactive behaviour at three months (Thun-Hohenstein et al. 2008).

Logically these prenatal representations must be enacted in maternal behaviours when the baby is born. How a mother manifests these representations perinatally as she adapts to her actual baby is therefore highly significant. This is particularly relevant for mothers with psychosocial problems, who have increased risk of more negative prenatal representations both of themselves as a mother and of their baby (Pajulo et al. 2001).

Maternal looking and ultrasounds

When the option for an ultrasound scan is available, most pregnant women choose to have one and consider it an important part of their antenatal experience (Garcia et al. 2002). They want to see their baby (Gudex, Nielson & Madsen 2006) and they consider the ultrasound scan as an important way of meeting their baby and getting to know more of the baby's personality (Molander, Alehagen & Bertero 2010).

Using the MAAS (Condon, 1993), an antenatal attachment scale that measures the quality of affective experience about and the intensity of preoccupations with the foetus, two relatively small studies exploring the effects on mothers of viewing ultrasounds found a significant positive impact on the mother-foetus relationship following ultrasound scanning (Righetti et al. 2005; Sedgmen et al. 2006). Boukydis et al. (2006) reported that an extended ultrasound consultation on foetal development, rather than a routine ultrasound examination, produced significant positive change in mother-foetus relationship scores and lower state anxiety in mothers.

Stockman (2012) describes watching babies in utero with parents, and the positive effects this can have on maternal mental health in pregnancy. She views the first ultrasound as a touchpoint[5] and outlines an ultrasound consultation process that aims to enhance the woman's imagination about her baby and her relationship with the baby. She reports that many women stated that the experience of looking at their baby on the screen made the baby feel real to them for the first time and enabled qualitative changes in their sense of themselves as mother to that baby.

[5] 'Touchpoints' are a developmental concept (Brazelton & Sparrow 2003), defined as periods of spurts in development characterised by a brief period of developmental disorganisation followed by an emerging reorganisation with a newly increased functional capacity. Assisting parents to identify and understand this notion and the behaviours that are displayed at these 'touchpoints' fosters confidence and enjoyment of parents.

It seems likely then that if mothers are supported to look at their baby, even as early as via the first ultrasound (routinely around 20 weeks gestation), this could benefit the mother-infant relationship.

The birth experience

Mothers' perceptions of their babies and maternal self-esteem

Giving birth, enabling the baby's transition from the womb to the world, is the first major task for a mother (Slade et al. 2009). How a mother feels about this experience affects how she evaluates herself as a mother and her level of confidence in her ability to care for her baby (Reisz, Jacobitz & George 2015).

Feeling in control, feeling supported, having given birth before and having accurate expectations of labour and delivery all contribute to more positive feelings about the birthing experience (Green & Baston 2003; Murphy et al. 2003). However, medical interventions like caesarean section, augmentation and the use of instruments affects 51.5% of births of primiparous women in the jurisdiction in which this research has taken place (Women's and Children's Hospital, 2009-2013), and these interventions can diminish the sense of control while increasing a sense of dashed expectations[6].

In a meta-analysis of 43 studies, Di Matteo et al. (1996) identified 23 different psychosocial outcomes of caesarean sections. They concluded that mothers who had caesarean sections generally had less positive feelings towards their babies and evaluated them more negatively. One month later, they were less confident as mothers, and they were less interactive with their babies at five months postpartum.

Reisz, Jacobvitz and George (2015) researched 269 mothers and babies under twelve months old, exploring the relationship between a mother's perception of her baby and her maternal self-esteem, and her actual delivery and subjective experience of that delivery. They found that the mode of delivery had a direct effect on subjective birth experience and that the subjective experience had a direct effect on both how mothers described their babies and how they saw themselves as a mother, regardless of the baby's age.

[6] A number of mothers in the current study had medicalised births. When they related their birth experiences they often appeared to need to talk about this. However, time did not allow this aspect of the study to be further developed. It does point, however, to a need for this aspect of women's experience to be understood more fully by those caring for them and to be addressed where necessary for the good of both mother and baby and in the interest of their developing relationship.

However, long-term effects of such birthing experiences on mothers and their relationship with their babies are less clear (Durik, Hyde & Clark 2000). Padawer et al. (1988) showed no statistically significant difference in mothers' psychological adjustment either immediately postpartum or 12 months later. Reisz, Jacobvitz and George (2015) found that mode of delivery was not directly predictive of maternal adjustment and subsequent relationship with the infant, and they suggest that these are mediated by the mothers' subjective experience. They conclude that the difference in findings may be due in part to different subjective experiences and the fact that some caesarean sections are planned while others are the result of an unexpected emergency.

A mother's perception of her baby and her confidence in herself as a mother both powerfully predict her care-giving behaviour (Fulton et al. 2012; George & Solomon 2008; Vaughn, Bost & van IJzendoorn 2008) and both make an important contribution to maternal-infant regulation of relationship (Fulton et al. 2012). It seems logical then that how a mother gives birth, and how she feels about that, are important factors in her developing ability to care for her baby.

Looking and gazing in the postpartum period

Perinatally mothers are in a state of physical and emotional flux (Bruschweiler-Stern 2010, Stern 1998). Slade (2002) describes the perinatal period as a very vulnerable time with the potential to be transformative but possibly more likely to be a time for repeating old relational patterns. It requires a major reorganisation of values and priorities, of learning to understand the baby's needs, monitoring safety and establishing empathic care-giving practices.

Stern (1998) proposed that the change required is a dramatic reorganisation for first-time mothers of their inner world, in effect the creation of a new identity. This adaptive process involves first-time mothers shifting their previous experience of themselves as the child, to a new experience of being the mother. Their until-now exclusive relationship with their partner needs to expand to take in a third party, the infant. And most importantly, the new mother has to place her own desires and wants on hold to meet the needs of a totally dependent baby who may be experienced as demanding and unrewarding (Cramer 1993).

While the importance of both mutual gaze and an infant's gaze at their mother's face is well documented in the infant mental health literature, the role of this over the perinatal period is less well articulated. It is important that babies look at their mothers' faces for their healthy development (Brazelton, Koslowski & Main 1974; Field 1981; Stern

1971). Across all cultures, mothers need to make space in their mind for their babies to look – to be a mirror for their baby so their baby can engage in face-to-face interaction with them and for the baby thereby to enliven themselves (Winnicott 1971).

Some cultural considerations

It is widely understood that cultural beliefs and practices play an important role in shaping care-giving and infant behaviour and therefore later development. However, relatively few cross-cultural studies of infant development exist, especially those that specifically focus on early mother-infant interaction.

Tronick (2007) reports a number of cross-cultural ethnographic studies outlining varying child-rearing practices. He underlines that all studies emphasise a mutual exchange between infant and caregiver that is 'social, communicative and regulatory' (p. 96). He goes on to maintain that, while all demonstrate universal biological factors, they also all recognise that development is culturally constructed 'by individuals interacting with individuals' (ibid.).

There appears to be an intense and initially exclusive relationship between mother and infant in most cultures. In some cultures, the mother may be the only caretaker; in others she may be the main one, assisted by a few other women; while in others caretaking may be shared by a few consistent individuals (Rutter 1981 cited in Tronick 2007, p. 109).

Tronick (2007, pp. 134-152) reports a study of the Gusii, a Bantu speaking tribe in Kenya, that focuses on both universal and culturally specific aspects of mother-infant interaction. This is a particularly interesting study as the Gusii have implicit rules for social exchange which strictly regulate displays of strong affect, using gaze avoidance to achieve this by angling their bodies at 90 degrees or more to assist reduced eye contact[7].

Nine mother-infant dyads were videotaped twice weekly from age 2 to 12 weeks. These mothers were part of a larger study that gathered medical, social and psychological data from pregnancy through to infants aged 15 months. The nine Gusii mothers were instructed to 'talk with your baby', 'play with your baby', 'get your baby's attention', and two and a half minutes of this was recorded and micro-analysed.

[7] The power of the 'evil eye' in this culture is such that it is important to not be seen at times of important life transitions like premature birth, rituals around reconciliation or funerals, circumcision ceremonies. Certain people, especially women can be particularly dangerous, bringing down illness or bad luck by simply looking especially at vulnerable children, and close family members can be seen as especially dangerous at these times.

Gusii infants appeared to respond in much the same way as American babies in similar laboratory experiments[8], with interest, increased smiling, leg kicking and cooing during the interaction. When the mother turned away, however, Gusii babies tended to cope easily (unlike their western counterparts) and, showing no increased affective display, they redirected their attention to scanning the environment.

The Gusii mothers' gaze appeared 'grossly distracted', with frequent breaks away, and was mainly directed at the infant's body. This gaze was, however, accompanied by rhythmic tapping and steady vocalising. When the mother-infant interactions were micro-analysed, the mothers' distracted-seeming breaks were found generally to be a response to spikes of increased affective displays of the infants and were therefore deemed intentional and important points of interaction. Where American mothers mainly use behaviours that intensify affective displays with their infants, Gusii mothers were seen to dampen or diminish such displays.

These behaviours appear in direct contrast to western culture, where eye contact is considered a necessity for the development of affective communication. Where gaze is permitted, encouraged and valued within the context of Western society, for the Gusii strong affective displays, positive or negative, are to be avoided. In Gusii society the self is defined not by being unique but rather by the capacity to participate in the kinship system, and that requires constancy and evenness in all affairs and an avoidance of 'dangerous' extremes of affective display.

Gaze therefore is a critical component of mother-infant interaction in terms of the creation of cultural meaning, although aspects of this may be manifested in completely different ways in different cultures.

Prioritising maternal looking

In the Mother–Newborn Coding System, Feldman (1998) uses categories of maternal behaviours to rate mother-newborn interaction[9]. Feldman's work explores newborns' relational experience in the context of what she terms synchronicity. She identifies a number of infant responses to various maternal behaviours. These behaviours include maternal gaze, touch, vocalisation, affect and positioning of baby. While Feldman gives all of these behaviours equal value, I make a case for maternal gaze carrying more

[8] Still face procedure experiments

[9] After I'd started the project I came across this coding system that I initially thought might make my approach redundant. However, upon further clarification it wasn't what I needed. I considered using the Feldman system as a validation tool but later decided to focus in this project on reliability.

significance and therefore being more useful as a behaviour on which to base both assessment of and therapeutic intervention with mothers and their newborn babies.

Two studies specifically address maternal gaze with neonates and both focus on the effect of this on the baby. The first (Arco, Self & Gutrecht 1979) manipulated the length of time mothers looked at their newborns during feeding, to see if this affected infant behaviour and mother-infant interaction. This small study of 10 experimental dyads and 10 control dyads at three days postpartum used a three-phase repeated-measure design and a modified time-sampling procedure with two observers—one naïve and the other informed. Just over half of the babies in each group were bottle-fed. The experimental dyads were instructed to increase the amount of time they looked into their babies' eyes without altering any other care-giving behaviour. Analyses showed that increasing maternal looking increased the neonates looking and mutual looking. Furthermore, the control group not only did not experience increased looking but their visual communication declined across the phases. The authors conclude that increased maternal regard could possibly increase maternal sensitivity, enhance mutual gaze and facilitate the infant's early discrimination of their mother's face.

The second study (Noble 1984), also with neonates, manipulated visual, vocal and tactile maternal behaviour not during feeding but in a social interactive period. Contrary to the earlier study, these results showed a decrease or non-significant increase in maternal visual behaviours and these newborns were significantly less active over the process. The author concludes that the different context possibly contributed to the contrasting results, while also suggesting that possibly the infants down-regulated to avoid over-stimulation—a now well understood feature of infant behaviour.

Early bonding theory (Klaus & Kennel 1976) emphasised the importance of eye-to-eye contact and argued for the development of close intimate ties between mothers and babies in the initial hours and days postpartum. This influenced postpartum care, emphasising the need for mothers and their newborns to remain together. Bonding theory has since been criticised for being overly prescriptive (Svejda, Pannabecker & Emde 1982) with simplistic notions of the development of the mother-infant relationship, and inducing feelings of inadequacy in mothers who do not immediately have a sense of overwhelming love for their infants (Crouch & Manderson 1995; Woollett & Nicholson 1997).

However, Klaus and Kennel's (1976) wide-ranging exploration of birthing practices, neonatal care and mother-infant interaction and bonding did make many interesting observations. In particular, the World Health Organization (WHO) (WHO 2003) now

encourages recognition of a sensitive period immediately after birth. This emphasis on a sustained period of skin-to-skin contact between newborn and parent immediately after delivery[10], informs the current WHO (2009) recommendations for the establishment and maintenance of breast-feeding, (currently considered the best option for infants' healthy development) and is the fourth of ten steps hospitals must initiate to attain WHO Baby Friendly Hospital accreditation.

Other ways of responding to the baby, like using voice and touch, can also be seen as important factors which mothers use to let their babies know that they are there, tuning into them and holding them in mind. These behaviours are also key indicators of maternal sensitivity and responsivity, enhancing breast-feeding and predicting mother-infant interaction and infant outcomes in later months. Lenora Duhn (2010) highlights the role of nurturing touch in facilitating the mother-newborn relationship and advocates for interventions that enhance this capacity.

Jan Winberg (2005), in a review of 30 years of research of postpartum interactions between mothers and babies, concludes that their physiology and behaviour is crucially mutually influenced. Physical contact after birth regulates the neonate's temperature, energy conservation, respiration and feeding behaviour among other things. For a new mother, contact with her baby may increase her attention to her baby's needs, help breastfeeding get started and regulate her energy economy.

It is possible that any of the above sensory modalities could be used to intervene in the mother-newborn interaction as they have been shown in multiple studies to 'predict positive outcomes' (Barratt, Roach & Leavitt 1992; Feldman & Eidelman 2003; Levy-Schiff, Sharir & Mogliner 1989). However, this does not diminish the fact that looking allows a mother to take in her baby and this can physiologically change her, and change her sense of herself in relation to her new baby.

Risk factors

There are numerous known risk factors that can contribute to early interactional disturbance and interfere with a mother meeting and getting to know her newborn. Adverse psychosocial factors like poverty, lack of spousal and/or familial support, family violence, homelessness and/or cultural unsafety can disturb the mother-infant relationship at this vulnerable time (Schechter et al. 2015; Schechter et al. 2008).

[10] A Cochrane Review systematically assessed 34 randomised control trials involving 2177 mothers and babies. While the methodological quality of trials was somewhat mixed, the authors concluded that babies in the skin-to-skin group cried less, had more interaction with their mothers, better cardio-respiratory stability and glucose levels and a higher likelihood of successful breastfeeding (Moore et al. 2012).

Similarly birth trauma, early separation from the baby due to maternal of infant illness, poor mental health, anxiety, depression and unresolved grief and loss can result in disruption to the mother's ability to meet her newborn (Field 1977; Fraiberg, Adelson & Shapiro 1975; Murray 1991; Murray et al. 1996).

On another level, unresolved childhood trauma and/or attachment trauma (Bruschweiler-Stern 2002; Slade 2005; Stern 1998) impede a mother's capacity to think and feel about her baby and experience her baby as separate from her. This can result in an inability to look, or looking that, because it is through a distorted lens, creates a profound disturbance in the relationship from the beginning (Newman & Stevenson 2008; Newman, Stevenson & Boyce 2007).

Mentalisation and looking

A mother's interactions with her infant are heavily influenced by her internal representations, which generate and shape her maternal behaviour (Bruschweiler-Stern & Stern 1989; Cramer & Stern 1988). The relationship between internal representations and overt interaction needs further study but appears to be influenced by the mother's capacity to mentalise and her maternal sensitivity (Madigan et al. 2015). Contingent, sensitive responsivity relies on a mother being emotionally available and able to recognise that her infant has mental states—thoughts, feelings and intentions—separate from her own (Slade 2002). This capacity for reflective function plays a vital role in the intergenerational transmission of attachment (Slade et al. 2005).

The capacity that defines the human mind is 'the ability to take account of one's own and others' mental states and thus understand why people behave in specific ways' (Fonagy et al. 1991, p. 203). This capacity, the ability to mentalise, is both a cognitive and an emotional process that indicates a capacity to understand the dynamics of an internal and interpersonal emotional life (Allen 2006; Slade 2002).

Mentalisation enables maternal sensitivity and responsiveness and is inherent in affect regulation. The mentalising process or capacity for reflective functioning[11] moves beyond being grounded in the concrete and allows imagining and curiosity in interaction without creating distortion and losing contact with reality. A mother who can

[11]The terms mentalisation and reflective function are often used interchangeably in the literature. Fonagy and Target (2005, p. 344) define reflective function as 'mentalization in the context of attachment' which involves a complex set of capacities at the heart of which lies interpretation and the ability to make meaning in a relational context. Allen, Fonagy and Bateman (2008, p. 41) define reflective functioning as the operationalisation of the general level of mentalising, particularly for research purposes to enable the definition and delineation of different levels of reflective functioning.

mentalise effectively demonstrates an ability and willingness to engage emotionally, to reflect and make meaning out of her own feelings and internal experience and that of her infant. A mother's mentalising capacity enables her to reflect on her experience as separate and distinct from her parents' experience or her infant's experience. This reflective self can construct representations about her own and others' actions by relating to the intentions, beliefs or desires of the other person, thus making sense of social, emotionally charged or psychologically meaningful interaction.

Bateman and Fonagy (2006, pp. 7-8) describe mentalising broadly as being fluent 'in mental state language'. They write that this ability combines with the capacity 'to play with reality' or 'treat reality as a representation'. They think these two capacities are integrated in the mentalising process so that 'subjectivity closely represents but also remains decoupled from physical reality'[12]. This process must be invoked when a mother meets her baby in those first hours and days and her capacity to bring together her imagined baby and her actual baby is tested. She needs to be able to take in something of her baby's state and behaviour, which in turn meets and changes her internal representations while maintaining the integrity of her newborn's unique presence and presentation in the world.

If the imagined baby powerfully affects how the actual baby is received, then how the newborn is looked at, held and touched must all reflect to some extent this internal representation. Identifying and understanding more about the mother's early looking behaviour and other behaviours that support that looking, such as positioning, handling and touching the baby, will illuminate the nature of these internal representations. This in turn provides an early window into those mothers needing extra support.

So when thinking of a mother with her newborn baby, the connection between looking and mentalising—the capacity to reflect meaningfully on her newborn's state and behaviour—is crucial. Mentalising requires connecting to and being separate from her baby's experience while being able to feel and reflect on her own experience at this life-changing time. At this beginning, looking has a major role, perhaps is even the cornerstone, of this evolving process.

[12] Bateman and Fonagy (ibid.) liken this to Winnicott's (1971) idea of transitional space or the play space and Ogden's (1985) idea of the third position. These ideas all describe an ability to be removed from physical reality and to be able to manipulate it, but not be so far away that the relationship between the real world and the mental representation gets lost.

Mentalisation, maternal sensitivity and the infant's sense of self

Children develop the capacity to mentalise as a function of their interpersonal experience between the second and fifth year of life (Fonagy & Target 1996). However, the capacity for emotional relatedness is present from birth and becomes increasingly complex, integrating affect, cognition and behaviour through repeated moment-by-moment interactional experiences.

Daniel Stern eloquently described this foundational process in a plenary session at the 10th World Congress on Infant Mental Health in Paris 2006, saying:

> 'The baby develops with the intentions, thoughts, affects, beliefs and actions of other people impinging at every moment of their life except those when they are alone. And it is from this interaction that their mind will be formed and maintained….it is the only big thing going on. What is the atmosphere in which the baby's mind develops and grows? The atmosphere is a matrix of the comings and goings of other minds - the traffic of other people's minds.' (Stern 2008)

A mother's capacity to hold her infant in her mind, and the notion that her infant has their own feelings, desires and intentions, allows that infant to discover over time their own internal experience via their mother's experience. The infant is not passive in this process as the infant works with the mother to co-create their experience.

Tronick (2003, p. 35) describes this as a process of mutual regulation, which is a 'co-creative process that generates unique ways in which the mother and infant are together' and over time this creates shared meanings. It is:

> '[a] process of dyadic affect regulation of emotion and relatedness that proceeds through countless cycles of attunement, disruption and repair. That is, by means of moment-to-moment affective communication that occurs through nonverbal right-brain mediated processes, the dyadic partners establish co-ordinated states.' (ibid. p. 182)

All going well, these states are marked by positive affects and felt experience and create a mutually reinforcing positive loop with increasing capacity to affect other areas of experience. When this experience of attunement is pleasurable, it becomes a desired goal and is therefore motivating (Fosha 2009).

Sensitive maternal attunement and situations of impairment

Maternal care-giving sensitivity—a mother's ability to attune to and respond warmly to her infant's gestures—is key to this process. Sensitive maternal attunement is a

hallmark of healthy mother-infant functioning and predicts good outcomes for the baby's development (Nugent 2010; Stern 1985). It is the foundation of the mutual regulatory process that over time enables the infant to self-regulate, learn to organise their experience, manage their feelings and develop a sense of self.[13]

Repeated early failures in affective attunement and misinterpretation of the infant's communications and feelings contribute to early regulatory disorders that manifest in the first months of life as sleeping, feeding and settling difficulties (Papousek 2008). Furthermore, a mother's ability to maintain affective communication at times of her infant's distress by being able to step back from her own affective experience—possibly intrusive feelings of unintegrated fear, hostility or anxiety—has been increasingly identified as crucial to mediating the role maternal reflective functioning plays in the intergenerational transmission of attachment (Grienenberger, Kelly & Slade 2005).

Situations known to interfere with a mother's ability to sensitively attune to her baby include when mothers suffer from unresolved grief and loss issues, mental illness, traumatic and/or premature birth. In these situations, a mother's looking at her baby may range from impaired or lessened, to being toxic for her infant (ibid.).

Maternal care-giving sensitivity, the capacity to meet and mirror the infant's spontaneous gesture, makes a major contribution to the co-constructed process of interactive regulation. While both mother and baby regulate the inner state of the other and contribute to the organisation of behaviour and experience of each other and their relationship, the mother, with more resources, is the major player, especially at the start. The mother's gaze is an important vehicle for this care-giving sensitivity. It conveys availability, signals responsivity and facilitates mutual engagement (Beebe 2010; Stern 1985).

Using microanalyses to look at levels of bi-directional contingency between mother and infant, Beebe (2003; 2010) explored how affect and arousal are self-regulated and interactively regulated, by and between mother and infant. She identified interactive features of gaze, facial expression, vocalisations, management of infant distress and self-comfort, and the nature of maternal touch as ways to assess mother–infant interaction (2010, pp. 20-24).

Some of the specific qualities she noted are how the mother manages the infant's look/look away behaviour, her ability to wait by decreasing any stimulation and not

[13] This process occurring over time within the expanded relationship system of the family is now considered the main contributor to the attachment organization that develops and characterises a person's relational style over the life span (Madigan et al. 2015)

demanding the infant's attention by calling to, pulling at or looming into the baby's face. Other qualities highlighted as important contingent interactions include the mother's capacity to follow facial changes of the infant and herself display a wide range of animated facial expressions, her use of facial expression and voice to hold, soothe and match the infant's distress, and her support of her infant's attempts to self soothe.

However, some mothers struggle with even momentary gaze aversion by their infant, believing for a variety of reasons that this signals disinterest or dislike. These mothers often pursue their infants, calling their name or pulling their hand or even engaging in 'looming' behaviours by bringing their face close to the infant's or taking the infant's head thereby forcing the infant to look at them (Beebe 2010; Lyons-Ruth, Bronfman & Parsons 1999). While less easy to identify, other mothers affectively withdraw from their infants by failing to respond promptly or responding in minimal or roundabout ways, sending the message that they are not available for support. The behaviours of these mothers with their infants have been well researched, resulting in their identification and codification at twelve months[14]. Earlier identification of the precursors to these behaviours would lessen their impact on an infant's development.

Beebe outlines the crucial importance of both mother and infant contributions in these moment-by-moment interactions. However, my contention is that initially, in those first hours and days, it is a mother's capacity to take in her actual baby that allows her to begin to recognise the newborn's bids and lay the foundations of the infant's developing capacity for 'predictable patterns of relatedness and their representations' (2003, p. 27).

These qualities of actual face-to-face interactions at four months are predictive of infant attachment at 12 months (Beebe et al. 2003 cited in Beebe 2010, p. 23). This was demonstrated with a non-clinical population of 132 families. Maternal anxiety and depression were measured at six weeks and four months and were found to correlate with the mothers' self-regulation and interactive regulation at four months. However, this did not predict infant attachment at 12 months. Rather, it was the quality of actual face-to-face interaction at four months that predicted the child's attachment pattern, not the mother's distress (ibid.). Beebe (2010) concludes that distressed maternal states of mind are not the key issue unless the face-to-face interaction is also impacted. This

[14] These types of impaired affective communication have been identified, categorised and codified with mothers and infants aged 12 months in the Atypical Maternal Behaviour Instrument for Assessment and Classification (AMBIANCE) and linked to marked negative infant outcomes at 12 months (Lyons Ruth, Riley & Atlas-Corbett 2009; Lyons-Ruth & Spielman 2004).

highlights the need for therapeutically supporting early mother-infant face-to-face interaction.

If actual looking interaction is a stronger determinant at four months than a mother's feeling states prior to this, then identifying, supporting and enhancing a mother's capacity to look from the beginning of the relationship is an opportunity to make a meaningful difference.

While looking provides a way of connecting from the moment of birth, paradoxically it also provides an opportunity to establish a level of separateness. Looking may allow enough space for the mother to let the baby be there—be in his or her self—without the mother having to do anything. She can just take the baby in without altering the baby in any way as must happen when she touches the baby. Looking also enables some distance or separateness after nine months of union. It is in this sense that looking is distinct from watching.

Just looking may be indicative of a certain level of individuation in the mother, which then can provide a level of individuation for the infant—an allowing that the infant does have an emerging self.

Such looking may facilitate a mother taking her baby into herself and into her mind as a more separate person with the beginnings of their own subjective experience, with unique qualities to be identified and over time understood. It may indicate an ability to know that 'I have to get to know this baby—there is someone here to be known'.

There are a number of other ways a mother gets to know her newborn. Nurturing touch and vocalisation are both very important modalities that have been explored in multiple ways, particularly in relation to early bonding and successful breastfeeding (Bigelow et al. 2014), mother-infant relationship development (Duhn 2010; Nugent et al. 2007), and supporting the infant's intersubjective experience (Trevarthen 2011). Without discounting the importance of these other sensory modalities, the premise here is that maternal looking is foundational in the exploration of this new person and this new relationship.

How the mother looks at her newborn—a precursor of infant gaze and mutual gaze—is therefore of prime importance and deserves increased attention. It is likely that the quality of maternal looking from birth reflects the capacity for the difficult balancing act of staying intimately connected with and at the same time being able to be separate from the infant's experience and their emerging unique self.

The central role of looking

Maternal looking and the plasticity of the brain

The degree of plasticity of the brain throughout the human life cycle remains an open question in neurobiology (Siegel 1999); however, the early postpartum period is a 'sensitive period'[15] of significant neural plasticity for the mother so that she is biologically prepared for change. The level and intensity of hormonal changes in women during pregnancy, birthing and establishing breastfeeding plus the new interactional demands with the baby create a rich and complex environment of new sensitivity to sensory cues.

Animal studies report dramatic increases in learning and memory over the period of gestation, birthing and raising of rat pups (Kinsley et al. 1999). As well as intense hormonal changes that accompany pregnancy, the enriched sensory environment provided by new sights, sounds and suckling of pups reshapes the female rat's brain, adding complexity to meet the new environmental demands. Similarly research manipulating barn owls' experience of hunting—a profoundly arousing experience for them—found a dramatic increase in adult owls' adaptive auditory and visual map plasticity (Bergan et al. 2005).

Studies of the human maternal brain support the findings of the research with animals. Bartels and Zeki (2004), in early work in this area of neuroimaging, proposed that a mother's need to be able to read the constantly changing facial features of her baby, led to heightened brain activity in the area of face-recognition (ibid. p. 1163). Recent functional Magnetic Resonance Imaging (fMRI) brain studies have demonstrated that the maternal brain grows and structurally changes in the weeks after birth (Kim et al. 2010). Key regions relating to reward and social information processing and emotion regulation show structural growth and increased activity.[16] Furthermore mothers who reported more positive feelings for their babies had increased rates of this structural growth (ibid. p. 698).

In an earlier study using fMRI with first time mothers (n=44), Strathearn et al. (2009) found that mothers with secure attachment showed increased activation of the reward regions in their brains when viewing their own infants' smiling faces compared with

[15] Knudsen (2004) proposed that experience during these sensitive periods changes the architecture of the brain in fundamental ways. There is substantial plasticity following these sensitive periods that can alter the connectivity patterns.

[16] Kim et al. (2014) have recently shown that the reward circuit in fathers' brains also grow structurally in the early months of the infant's life (Kim et al. 2014).

that of mothers with insecure attachment viewing their babies' smiling faces. The securely attached mothers also had greater 'peripheral oxytocin response' after interaction with their infant than those mothers with insecure attachment patterns. Furthermore 'striking differences' in areas of brain activation between secure and insecure mothers were noted when viewing their own babies' sad faces. Mothers with secure attachment 'continued to show greater activation in reward processing areas, whereas "insecure/dismissing" mothers showed increased activation of the anterior insula, a region associated with feelings of unfairness, pain and disgust' (ibid. p. 8).

The reward circuits in the brain, sensitised perinatally by increased oxytocin and dopamine, support the mother's focus on her infant. When she looks at her own baby smiling, compared to someone else's baby smiling, there are marked increases in the activity level in this reward circuit of the maternal brain (Noriuchi, Kikuchi & Senoo 2008; Strathearn et al. 2008). Significantly this has been associated with secure attachment (Strathearn et al. 2009), linked to maternal mood (Barrett et al. 2012) and increased maternal sensitivity (Atzil, Hendler & Feldman 2011). Higher activity in the area of the brain supporting emotion regulation has also been reported when mothers listen to and process their babies' cries (Kim et al. 2011).

Maternal looking and oxytocin production

In the past decade there have been a number of studies linking oxytocin production in mothers with maternal infant bonding and the quality of their care-giving. Women's individual oxytocin levels have been shown to be stable over pregnancy and into early motherhood, and to predict bonding behaviours after birth (Feldman et al. 2007). This suggests that oxytocin production levels function 'to prime species-specific postpartum behaviours …and mental processes required for affiliative bonds' (ibid. p. 969) and 'may constitute a trait-like characteristic that underpins maternal behaviour' (Kim et al. 2014 p. 134). Moreover, natural variations in oxytocin response have been linked to maternal postpartum behaviour including gaze, vocalising and loving touch as well as repeated checking—a specific mammalian maternal bonding behaviour (Feldman et al. 2007)—and the quality of maternal care (Gordon et al. 2010).

More recently Kim and colleagues (2014) have established that there is a unique relationship between peripheral maternal oxytocin production[17] and maternal looking. Measuring maternal peripheral oxytocin response with the length of time of maternal

[17] Using peripheral oxytocin measures is a limitation acknowledged by the authors as it may not accurately reflect central oxytocin activity. The authors have, however, previously demonstrated a correlation between peripheral oxytocin response and activity in the oxytocinergic sytem (Strathearn et al. 2009).

gaze and the frequency of maternal gaze shifts away from the infant, they report a positive association with duration of gaze and a negative association with gaze withdrawal. Moreover, the strength of this association between peripheral oxytocin production and maternal gaze increased when the infant was distressed while mothers with low peripheral oxytocin responses demonstrated decreased gaze when their infants were distressed. The authors conclude that this provides preliminary evidence of a unique relationship between maternal gaze and peripheral oxytocin response.

This work strengthens the findings of Beebe summarised earlier in this chapter in the section entitled 'Sensitive maternal attunement and situations of impairment' (pages 26-27) and elaborated on in her article linking research and clinical practice. Beebe (2010 p. 21) highlights how mothers tend to look at their babies' faces most of the time, and it is the baby who, needing to regulate their degree of arousal (Field 1981), leads the look-look away dance described by Stern (1974). Sensitive mothers, however, pace the stimulation in this gaze cycle by increasing stimulation as the baby looks and lessening it as the baby looks away (Blehar, Lieberman & Salter-Ainsworth 1977).

In the following figure, I have summarised the maternal and infant factors that affect maternal looking.

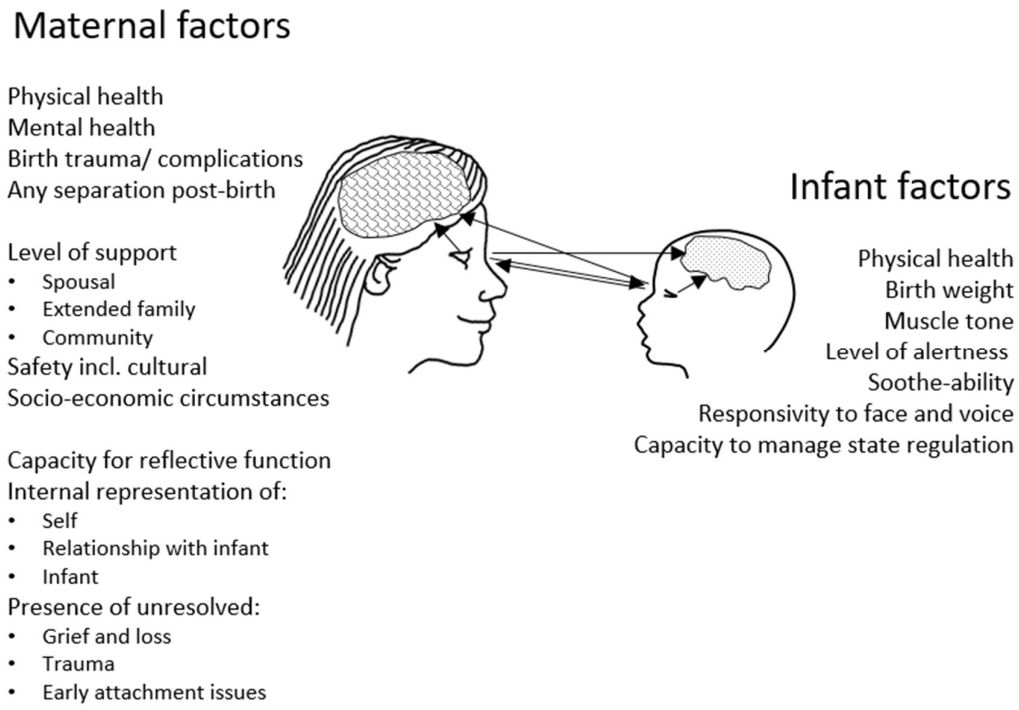

Figure 2.1: Factors that affect maternal looking

The impact on the infant

Brain structure development

Newborn babies experience the world through their senses and this sensory stimulation serves to shape their brain. The brain requires social input during critical periods to develop and support genetic expression and regulation. Early intersubjective experiences are not only abstractly mapped onto the brain but also have a direct impact on bodily states such as postures, states and gestures.

In 1979 Meltzoff and Borton demonstrated that infants as young as three weeks are able to transfer what is perceived through one sensory modality to another without the need for learned correlations. Stern (1985, p. 51) saw this as an innate capacity, which he called amodal perception, hypothesising that it involved encoding experience into some form of representation that can then be recognised in other senses. More recently neurons that respond to stimuli from more than one sense have been found throughout the brain. These multisensory neurons are now thought to enable multisensory integration in cortical processing earlier in development than previously thought, casting doubt on the notion that sensory experience needs to be translated in order to be recognised by cortical areas specific to one sensory modality (Stern 2010). A growing evidence base is demonstrating that concurrent stimulation of various senses—visual, auditory, tactile, olfactory, vestibular—benefits the infant across all areas of development (Gabis et al. 2015; White-Traut et al. 2002).

Hearing is the most developed sense at birth, and tactile stimulation—skin-to-skin contact—is recommended by the WHO for up to an hour post-delivery due to the benefits this brings to breastfeeding outcomes, cardio-respiratory stability and reduced crying (WHO 2004). There has been no research into how mothers look at their babies during this first skin-to-skin experience; however, the importance of privileging this time and the importance accorded to it by mothers in the current research, are significant.

However, newborn babies ‘depend on vision more than any other sense to explore the world around them’ (Nugent et al. 2007, p. 94). While vision is not fully developed at birth, the ability to fix, follow and focus on objects of interest is present and vision matures rapidly with stimulation. Newborns have definite visual preferences and are exquisitely sensitive to eye gaze (Als 1982; Brazelton & Nugent 2011). They are able to focus and follow visual stimuli (Laplante et al. 1996); and they prefer to look at faces (Farroni et al. 2004), with a preference for their mother’s face which they can

discriminate from that of a stranger (Pascalis et al. 1995). Guellai (2011), replicating previous studies with four month old infants, found that newborns are extremely sensitive to eye gaze soon after birth and this capacity is enhanced if accompanied by verbal interaction[18]. On a purely physical level this developmental pathway is crucial. The newborn's ability to use the mother's face, and the importance for the infant's developing brain of the increased scanning of the mother's face, especially her eyes, demonstrates the potential for early sensory stimulation to organise complex brain networks.

A baby born blind needs an enriched environment that focuses on other senses like touch and vocalisation to support their healthy development (Fraiberg 1977). Their mothers need extra support to engage with them (ibid.). Mothers of blind babies need help to make changes in their care-giving behaviour to focus initially on other sensory modalities in order to cue and orientate their newborn and, like any parent with a child born with a disability, will need time to adjust their expectations and accommodate to their actual baby. Lacking gaze interaction makes it more difficult for a mother and her blind baby to have a sense of each other (ibid.). Just looking at a blind baby can be especially difficult. Fraiberg wrote that her first meeting with children blind from birth was traumatic: 'I was in no way prepared for the impact of these blind children on our eyes' (Fraiberg 1970 cited in Shapiro 2009, p. 50).

Breastfeeding

Feeding is critical in the development of the mother-infant relationship as it is a recurrent, intersubjective experience. Newborns focus best at a distance of about 25cm. This approximates the distance between a mother's face and her baby when she is breastfeeding (Stern 1985). Breastfeeding is also one of the few situations where most neonates keep their eyes open. They have a reflex of raising the gaze when they start to feed that points to a developmental need to learn their mother's face, which is an organising support in their subsequent development.

Maternal looking has a behavioural impact on breastfeeding. Mothers who breastfeed interact differently with their newborns while they feed, engaging in more mutual touch, longer mutual gaze and significantly more mother-to-infant gaze (Lavelli & Poli 1998). Breastfeeding mothers are more personally involved in the feeding process, ready to

[18] Newborns process faces differently depending on whether they are presented with a full face, ¾ face or a profile, and whether that face is static (a picture) or talking to them. Furthermore they react differently and appear to perceive an incongruence when a face is partially averted (Guellai 2011, p. 5).

catch signals from their baby, and are also less likely to be disturbed by the presence of other people (ibid.).

More recently, breastfeeding has been linked with increased brain response in mothers when hearing their own baby cry, and in those areas of the brain associated with caregiving and empathy. The level of response in these mothers correlated with maternal sensitivity measured later at three months (Kim et al. 2011). Studies on the role of oxytocin release and breastfeeding have shown that oxytocin not only induces the let-down reflex but also has a role in enhancing positive mother-infant interaction (Feldman et al. 2007; Gordon et al. 2010). Breastfeeding therefore affects maternal behaviour both physiologically and behaviourally. It enhances the developing mother-infant relationship and facilitates both increased infant responses and possibly also, given the known transactional nature of the relationship, the bi-directional influences (Bigelow et al. 2014), as well as facilitating maternal looking.

Mother-infant relationship

This thesis proposes that maternal looking plays an important role in the establishment of the infant's affective bond with their mother.

This notion is strengthened by those fMRI studies that, analysing mothers looking at infant faces, identify disrupted brain responses in different clinical populations. For example some mothers with borderline personality disorder (BPD) struggle to accurately identify their infant's emotional cues and consistently misinterpret their infant's neutral face, seeing it as sad (Elliot et al. 2014). Mothers with substance use problems had reduced neural activity in response to happy, sad and neutral faces of babies compared to non-substance-using mothers (Landi et al. 2011).

However, the clinical population that most clearly demonstrates the detrimental effect on infants when mothers who struggle in their interaction with them, including those mothers who find looking at their infants difficult, are women with postnatal depression[19].

The postnatal depression literature documents particularly well (Hatzinikolaou & Murray 2010; Murray et al. 1996) the long-term detrimental effects of poor mother-infant interaction and its effect on infant social and emotional development (Crockenberg & Leerkes 2004; Gergely & Watson 1996; Stern 1985). Mothers with

[19] Postpartum depression affects approximately 10-15% of women (Tronick & Reck 2008). Hall and Holden (2008) suggest a higher incidence is likely, as many mothers are believed to not report through fear of being seen as inadequate.

postnatal depression often experience indifference and are emotionally flat. They fail to identify with their infant's experience and instead are preoccupied with their own concerns (Murray 1991). Their infants often struggle to look at them due to their mother's problems with reading and responding appropriately to their affective communications (Hatzinikolau & Murray 2010).

In a review of infants of depressed mothers, Tronick and Reck (2009) found that high levels of depressive symptoms experienced after childbirth by some first–time mothers are not transient. They highlight the need to unmask postpartum depression from the baby blues[20] that are experienced by approximately 60-80% of women.

An interesting pilot study (Bydlowski et al. 2013) explored the effects of baby blues on mother-infant interaction. They grouped 21 mother-infant dyads into 3 clinical groups: those experiencing 'ordinary and emotionally mixed postpartum blues', those with longer lasting intense blues and a group without postpartum blues. The newborns' competencies were assessed using the Neonatal Behavioral Assessment Scale (NBAS)[21] to understand more about the impact of postpartum blues on mother-infant interaction.

The NBAS results for infants of mothers who experienced ordinary or mixed postpartum blues showed a significant skill set which reflected better motor skills and increased autonomy compared with those infants of mothers with severe blues and surprisingly those mothers with no postpartum blues. The hypothesis drawn is that ordinary postpartum blues enable mothers to experience a range of emotional states that may help refine responsivity and enhance maternal empathy for her infant's affective states.

While needing further research, the results highlight the immediacy of the newborn's need for dyadic reciprocity which builds mutuality and lays the foundations for intersubjective capacity. The results also highlight the potential hazard for the baby of their mother's affective withdrawal. Understanding maternal looking, or not looking, in the hours post-delivery could help identify a mother's comfort level and her ability to be with her baby. Bydlowski and colleagues (2013) conclude by emphasising the importance of the perinatal period and its unique position laying the groundwork for mother-infant interaction and subsequent infant development.

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[20] In the literature, the baby blues describes a wide spectrum of clinical presentations of women's mental states postpartum ranging from 'mild dysphoria to acute feelings of depression and depersonalisation' (Bydlowski et al. 2013, p. 508).

[21] The Neonatal Behavioural Assessment Scale (Brazelton & Nugent 2011) 'assumes that the newborn is a social organism, predisposed to interact with a caregiver from the beginning…and provides a comprehensive profile of neonatal functioning… including competencies and strengths as well as identifying areas of difficulty' (ibid. p.3).

Why maternal looking is critical for the baby

How a mother looks at her newborn baby and the effect of this on her representations of the baby and their relationship has not been specifically explored in the literature. However, we know that looking can change how we think and feel. As we look we take in representations and align and differentiate them from other images or representations. Eventually this is incorporated into our experience and meaning-making[22]. As we do this, our former image or representation changes to incorporate the new information. The mother, by looking, is constantly changing, upgrading her internal representation, and this in turn is affecting what she's seeing[23].

Research has established that the baby needs to experience being looked at by the mother for their optimum development. However, what an infant sees when they look clearly affects their ability to look. Hatzinikolaou and Murray (2010) showed that infants as young as eight weeks are sensitive to their mothers' expression of negative emotion. Experimental studies using the Still Face procedure[24] in western cultures show that babies begin to dysregulate within seconds of being confronted by a blank face, demonstrating that how the mother looks is critical for the baby to be able to receive that look.

Babies are born highly imitative and responsive, which Papousek (2007, p. 260) concludes is not only a cognitive process but rather an 'innate motivated behaviour to open and maintain intimate interactions'. Newborns immediately begin laying down relational templates, becoming increasingly competent as interactive partners and using their behaviour as the primary mode of communication. They are born social and primed for dyadic interaction (Trevarthen 2001) and they use gaze to regulate their physiological state and signal their readiness for interaction.

The face that looks at the baby is therefore crucial as it encourages or discourages the baby in their bid for contingent relations between their own and their mother's

[22] There is further discussion of meaning-making in Chapter 3.

[23] In the movie The Officers' Ward (2001), young officers who are recovering from gross facial injuries, wrestle with the impact of their deformities on their self-image, how they experience others seeing them and how they imagine others see them. Their desire to look at their faces and their horror of seeing their injuries is poignantly portrayed. What they see when they look at themselves is intimately connected with who they feel they are. The movie eloquently demonstrates that these traumatised young men can only begin to know themselves again when they feel seen and accepted by another person.

[24] This experimental paradigm developed by Tronick and colleagues in 1978 has the mother initially interacting as usual with her baby then while remaining en face she presents an expressionless and unresponsive face. This simulates traumatic neglect as the baby expecting social interaction is simultaneously denied it, becomes 'trapped between two messages' (Tronick 2007, p. 183). Infants attempt to repair the interaction by gaining their mother's responsive attention and become increasingly distressed as their efforts fail.

response[25]. Moreover, affective sharing where the mother reflects back the facial expressions and gestures of the infant, signals to the infant that the mother can read the infant's feeling state from their overt behaviour. Indeed her capacity to not merely empathically imitate the infant's affective expression but also respond with a 'marked'[26] version of the infant's facial expression is crucial to the development of 'a specifically fitted interaction…a resonance between two systems attuned to each other' (Sander 1991 cited in Ammaniti & Ferrari 2013, p. 369). These co-created exchanges, variously described as intersubjective emotional relatedness (Stern 2004), primary intersubjectivity (Trevarthen 1979), and early dyadic states of shared meaning (Tronick 2003), are the foundation of the infant's emergent sense of self. The mother's ability to look at her newborn and reflect what she sees and feels is a critical developmental pathway for her baby.

Winnicott (1956) wrote eloquently about the infant seeing themselves reflected in their mother's eyes and how in this earliest relationship the mother, experiencing 'primary maternal preoccupation', is able to 'feel' herself into her baby's place and in this way knows what her baby needs. The mother attunes herself to her baby's bodily needs and from this relatedness between the mother and the baby, the baby's sense of self gradually develops. This state of 'primary maternal preoccupation' enables the baby's natural constitution and developmental pathway to unfold. The baby, in the absence of external impingements, is able to develop along its own line of life or 'going on being' (Winnicott 1965, p. 86).

It was Winnicott who famously stated that 'there is no such thing as a baby' (1964, p. 88), meaning that there is always only a baby and someone. The maternal state of mind and functioning affect the baby's development, and the baby's mental state and functioning affect the mother. It is a truly transactional relationship (Sameroff & Fiese 2000) but one that is dependent on the mother's capacity to look at her baby.

'Moments of meeting'

A focus on intervening in the first days of the mother-infant relationship is supported by the concept of 'moments of meeting'. Nadia Bruschweiler-Stern, a child psychiatrist

[25] Mothers' intuitive contingent imitations occur within fractions of a second whereas the newborns' efforts at imitation take longer ranging between 30 and 60 seconds (Papousek & Papousek 1987).
[26] Gergely and Watson (1999) emphasise the importance of the infant's state being reflected back in a more exaggerated version than straight reflection. In this way it provides a mirror while also marking a difference.

and member of the Boston Change Process Study Group[27], has written extensively of prolonged maternal-newborn interactions (Bruschweiler-Stern 2009). These moments arise out of the mother's need to connect with her newborn and make sense of the newborn. They can occur naturally immediately after birthing, when Bruschweiler-Stern has observed mothers proceeding through four steps:

1. First she checks that the baby has survived, ensuring at an animal level that her baby is alive by physically experiencing the baby's warmth, activity, weight, smell.
2. She then needs to look to know her baby is healthy and well-formed, to see the face, the tummy, the translucent finger nails, to 'count ten toes'.
3. With this reassurance there is next a period of making the baby her own, of finding family physical resemblances or personality traits. At this time mothers are very open to their new baby and their new self as mother and so are susceptible to the comments of other family members and staff around her. Negativity can be introduced by a single remark which, like the bad fairy at the christening, can cast doubt on the baby's integrity or reinforce some anxiety of the mother about herself as mother or the baby.

These three steps involve the mother actively looking at her baby, and 'seem to free the mother to invest in her child' (ibid. p. 73). She is then ready and available for the fourth step:

4. the 'neonatal moment of meeting', when mother and infant make full contact with one another.

In this moment the mother feels recognised by her baby, as the newborn, biologically primed to seek contact with her, to know her voice, to look at her face, begins to actively communicate with her. The baby orients to the mother, moulds to her body, twists to look at her, listens to her voice followed by prolonged mutual gaze. This is a strong trigger for the mother who feels known by her baby. It is the beginning of intersubjectivity, and the cornerstone of bonding and attachment (ibid.).

In the numerous situations where this meeting fails or is delayed, Bruschweiler-Stern recommends an intervention to promote this moment of meeting. She describes the mother-newborn dyad as an unstable system open to change, and emphasises the importance of using the Neonatal Behavioural Assessment Scale (NBAS) or Newborn

[27] The Boston Change Process Study Group (BCPSG), a group of analysts meeting since 1994, explored amongst other things the process of change on a scale of seconds, transferring insights from the study of infancy to inform understanding of the process of change in psychotherapy.

Behavioural Observation System (NBO) to optimise this opportunity to create moments of meeting and propel the emergent relationship in a positive direction.

Berry Brazelton first published the NBAS, a neurobehavioral research and assessment tool in 1973 and the 4th edition published with Kevin Nugent appeared in 2011 (Brazelton & Nugent 2011). From the NBAS, Kevin Nugent and colleagues developed the NBO, intended primarily as a more relational, inclusive process designed for practitioner use (Nugent et al. 2007). Both tools demonstrate to parents the unique competencies of their newborn baby encouraging parents to look at their infant with the practitioner who assists the baby to demonstrate their unique capacities while helping parents understand these responses and suggest how they can tailor their care-giving behaviour to the specific needs of this baby.

While ideally every new parent could benefit from this intervention, and midwives in this research were keen to do this, time and fiscal restraints of the current hospital setting mean that universal provision of the NBAS or NBO is not practical.

The importance of midwives

Midwifery is a women-centred profession focusing on women and their needs during pregnancy, birth and the postpartum period (Neiterman & Lobb 2014).

Strengthening the midwife-mother relationship has been shown to have a beneficial effect on mother and infant. A systematic review (Sandall et al. 2015) involving 15 trials that used the midwifery-led continuity of care model[28] showed this model has important benefits for birthing women with no adverse outcomes. This model of care is associated with a 16% reduction in overall foetal loss and neonatal death. Other benefits listed include women being less likely to experience medical interventions, more likely to have a spontaneous birth experience and to have a known midwife present throughout. One reason posited for these positive outcomes is the quality of relationship able to be established (ibid.).

A more interpersonal model of care is 'caseload midwifery' (McCourt et al. 2006) where the same midwife delivers a woman's care throughout pregnancy, birth and provides postnatal care, often at home. This interpersonal continuity of care model (Saultz & Albedaiwi 2004) establishes a long-term relationship based on personal trust and responsibility.

[28] Midwife-led continuity of care means midwives are the lead professionals in planning, organising and delivering care to women from their first contact with a care-provider through to their postnatal care (Sandall et al. 2015).

In any model of care, midwives are in a prime position when it comes to intervening early in the mother-infant relationship. Firstly, they are the professional group most likely to be there when the baby is born and they are the professional group most likely to have the opportunity to form an ongoing relationship with the mother from antenatal care through to post-delivery. As a profession they value continuity of care and relationship-based models of care that work in partnership with women (Sander et al. 2015). Their supportive and educative role in everyday activities like feeding, bathing and settling when new mothers are getting to know their babies means they are well-placed to intervene early if signs of strain are identified.

However, the mother-infant relationship is not a routine area of teaching in midwifery training. The Australian Nursing and Midwifery Accreditation Council - Midwife Accreditation Standards (2014) make only a brief mention of the midwife's role in promoting the mother-infant relationship. This can be found under Standard 8 of these accreditation standards, where paragraph 8.11 c.iii states:

> 'facilitating initial mother and baby interaction, including promotion of skin-to-skin contact and breastfeeding in accordance with the mother's wishes or situation.' (p. 24)

In the myriad tasks a midwife is trained to perform, attending to the mother-infant relationship appears to be a lesser priority.

Yet, in my contact with midwives, it is clear that they value the mother-infant relationship highly and want to enhance it. Over the course of this research, a number of midwives reported that their motivation for choosing midwifery as a career was a desire to support women to be with their newborns (personal communications). They expressed frustration with the ever-increasing requirements of quality assurance processes that amongst other pressures thwarted these intentions, focusing their attention on seemingly endless reporting requirements.

A small study (Carolan & Kruger 2010) of 41 student midwives in Australia, exploring the motivation of women entering the profession, found that, as in overseas studies (Ulrich 2009; Williams 2006), the majority expressed a strong altruistic motivation of 'wanting to help' (ibid. p. 9). A lecturer in midwifery and nursing studies, Dr T. Mannix (2012, 17 October) said in a personal communication that student midwives she works with in South Australia say they want to work with women and babies.

The first in a series of four papers (Renfrew et al. 2014) examining the contribution midwifery can make to the 'quality and care of women and infants globally', concludes that a systematic shift is required to move the delivery of services from identifying and

treating the minority—high risk women and sick newborns—to preventive, supportive 'skilled care for all' (p. 1141). The third paper of this series (Stein et al. 2014) addresses perinatal mental health. The authors highlight the significant global evidence that associates perinatal disorders with long-lasting negative outcomes for children and identify parenting as a key modifiable pathway.

The National Society for the Prevention of Cruelty to Children (NSPCC), reporting on their recent 'All Babies Count' campaign highlighting the need for early intervention to prevent the intergenerational transmission of disadvantage, concludes that the perinatal period is a pivotal time to intervene and midwives as frontline staff are key players (Sanger et al. 2015). This idea is emphasised by Pajulo and colleagues (2001),, who conclude:

> 'Midwives should be encouraged to pay more attention to mothers' prenatal and postnatal views of their baby and maternity, to be able to help mothers in their adaptation to the actual situation' p. 542.

Summary

In this chapter the focus of the research, maternal looking, has been defined and distinguished from other forms of gaze. The importance of maternal looking, its contribution to internal representations, the mother-infant relationship and the baby's development from conception through pregnancy and birthing has been delineated.

The importance of maternal looking in bonding, breastfeeding and the mechanisms that support this has been outlined. The ongoing role of maternal looking and its contribution to how a mother thinks and feels about her newborn and the implications of this for their relationship and the baby's development have also been discussed.

Maternal looking is posited as the foundation of mother-infant interaction. It is identified as the crucial factor in how the mother receives, takes in and makes meaning of her newborn baby. Finally the potential of midwives becoming more involved in this process has been suggested.

The next chapter outlines how the Maternal Looking Guide, a clinical tool for midwives, was developed with the idea that midwives be supported to be more active and alive to their position, expertise and the potential of their role in supporting maternal looking.

Chapter 3
Study 1: The development of a typology of looking

'The hardest thing to see is in front of your eyes'

Goethe

Overview of the research

Using video as a means of disciplined observation (Derry et al. 2010)[29], Study 1 examined how mothers look at their newborns and attempted to identify patterns by describing and categorising the observed behaviours. The result was the creation of a typology of looking, which is detailed in this chapter.

Study 2 (Chapter 4) used an applied research design and investigated the reliability of the typology as a clinical tool for midwives, whereby appraisal of 'looking' provided a broad-brush assessment of the early mother-newborn relationship.

The typology describes three categories of looking which identified the midwives' global response to the mother-infant interaction: those women who are doing well (comfortable), those who need a referral to an expert perinatal service (worrisome) and, between those two groups, those to whom the midwife could offer something extra (uncomfortable). Midwives could readily talk about mothers for whom they felt no particular concern about sending them home, other mothers for whom they felt enough concern to want to make an immediate referral, and an intermediate category where they felt uncomfortable about the relationship but not worried enough to make a referral.

Origins of the research methodology

It had become apparent to me that exploring associations between looking and a mother's internal representations of the baby and her relationship with the baby was too big a task. I therefore decided that the first step was to understand more about maternal looking and whether it would be possible to categorise it.

[29] Derry et al. explore four areas – selection, analysis, technology and ethics – that need to be addressed throughout the video research process in answer to the question: 'What does good video research look like?' (2010 p. 4). This is further discussed in relation to this thesis later in this chapter.

I selected the postnatal ward as the best and most practical location for the research because I wanted to observe mothers with their newborns as soon as possible after birthing.

My motivation for the research was to understand more about how a mother looks at her newborn and whether the more subtle features of this matches or mirrors the meaning she makes of that newborn. If there was some way of identifying or characterising these features, then mothers at risk could be identified earlier and helped to think about the deeper layers of meaning that may motivate their behaviour with their babies.

The literature, as discussed in the previous chapter, supports the possibility that something that captures the nature of a mother's early relationship with her neonate might predict some qualities of that relationship over time.

Furthermore, that literature supports the view that how a mother 'looks at' her newborn could be an indicator of the quality of the early relationship. While there are a number of crucial sensory modalities through which new mothers get to know their newborns, such as touch, smell and vocalising, maternal looking was privileged for the reasons outlined in Chapter 2.

The Pre-Pilot phase

Initially I adopted a phenomenological view of a woman's experience with her first baby. The baby they knew in some form when pregnant has materialised after birth with urgent needs. The women who participated in this research were at the beginning of their relationship with their actual baby and were entering into this relationship in a variety of ways, from different perspectives and with different states of awareness.

I generated exploratory questions including:

- What is a woman's experience of her baby?
- How does that experience affect her ongoing relationship with her baby?
- How can a woman be supported to have a positive real experience 'meeting' with her baby in the early hours and days of the relationship?
- How can a woman be assisted to line up the real baby and the imagined baby?
- What things are significant in a woman's experience of her baby?
    - Looking?
    - Touching?
    - Hearing?
    - Feeling?

    - Smell?
    - Her aliveness?
- And how long do these things stay significant?
- What gets in the way?
- Is there something different happening over the perinatal time?
- Do first-time mothers look differently at their babies in those first days?
- How do they look?

With these questions in mind, and having reviewed the literature, I was ready to start trying to understand the concept of looking and to grapple with it in a practical sense.

I began by creating videotapes of mothers and babies that I then interrogated in order to work out if there was a basis on which to ask questions, refine my ideas and think about 'maternal looking'.

I was interested in these kinds of questions:

- Is there a core of observable ways of maternal looking?
- Can they be formally described?
- Can other people help me with that description?

My thinking here was that I could try to identify ways of looking, describe them and then have other infant mental health specialists help me with those descriptions. Once those core descriptions were defined, I could then think about whether they were recognisable by others because if they were, that would help confirm their vitality.

Chosen focus

In the course of reading the literature and thinking about these phenomena, the possibility of creating a typology of looking began to emerge. This would be generated by a detailed analysis of video clips of mothers spending time with their newborn babies. The aim would be to minimise the influence of preconceptions, while acknowledging previous clinical experience and reading. If maternal looking could be characterised in this way, it might be possible to create a clinical tool for use by midwives in their everyday care of mothers and their newborn babies.

Pilot phase

On the basis of the pre-pilot investigations, I formulated a series of testable hypotheses[30]:

1. A number of discrete patterns of a mother's looking could be identified.
2. A mother's looking could be categorised in a meaningful and clinically useful way.
3. These patterns could be reliably identified by those involved in the everyday care of mothers and their newborns, such as midwives.

The first two of these hypotheses were tested with a small group of infant mental health experts[31] in Study 1. The result was a typology of looking that led to the development of a clinical tool that then allowed hypothesis 3 to be tested on midwives in Study 2.

Methodological issues

Using qualitative and quantitative methods in the development of clinical tools

Clinical tools that incorporate research methods, clinical experience and patient perspectives can assist clinical practice. They can also provide workers with a common language and understandings that can enhance practice and patient care. Furthermore, clinical tools that are brief, user-friendly, and easy to score, and highlight relevant information, are more likely to be used (Gilgun 2004; Levitt & Reid 1981).

Development of measurement tools

DeVellis (1991), writing on measurement in the social sciences, provides specific guidelines for scale development based on the classical measurement model. These psychometric procedures are well-established and often applied in the development of assessment tools (DeVellis 1991; Gilgun 2004; Nunnally 1978). For these reasons, I chose to follow these guidelines in developing a typology of looking as a clinical tool. DeVellis's guidelines provide a structure for managing the gradual emergence of a typology, through an iterative process.

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[30] Therefore the null hypotheses were:
1. It would not be possible to identify patterns of looking in the data
2. A mother's looking could not be meaningfully categorised because there would not be a relationship between how a mother looks at her baby and her need for support in mothering
3. It would not be possible for these patterns to be reliably identified by those involved in the everyday care of mothers and their newborns, such as midwives.

[31] The composition of this expert group is outlined on p.108.

The first step is to identify clearly what is to be measured. This involves identifying and describing the underlying concepts—both theoretical and operational—that will guide the tool's development. This enhances clarity and can be as simple as a well-formulated definition of the phenomena being measured (ibid. p. 52). Furthermore, the intended function of the tool needs to be kept in mind when deciding how fine-grained the measures of the tool need to be. Finally, the construct being measured needs to be distinct from other constructs.

Next DeVellis recommends generating a large number of items that relate to the underlying construct. These items are an overt manifestation of the underlying construct and need to be relevant and reflect the purpose of the tool. At this stage it is best to be over-inclusive to capture the phenomena being researched in multiple ways, and this also allows for later redundancies (ibid. p. 56).

It is important then to determine the scoring structure. This structure and the format of the items need to reflect the nature of the latent variable, that is maternal looking, and need to be compatible with the intended use of the tool. DeVellis recommends that consideration be given early to including items that might help determine the validity of the final scale.

Presenting the tool to experts for review and critique serves to clarify the relevance of individual items. They need to comment on these, evaluate the tool for clarity and conciseness, highlight items that may be confusing and suggest alternative wording and highlight any behaviours that have been missed.

Suggestions and additions can then be included before the final tool is piloted and tested in the field for reliability and validity (DeVellis 1991).

Observational research

This project's design needed to be as naturalistic and nonintrusive as possible while maintaining scientific rigour. Observation is a highly valued clinical practice and common research tool in infant mental health, midwifery and nursing (Kopenhaver-Haidet et al. 2009). It allows researchers to notice what people actually do rather than what they think they do (Goldman 2007). The aim was to observe mothers looking at their newborn babies as close as possible to how they would look if they thought they were unobserved, and in a setting where it naturally occurs (Shaunessy et al. 2012, p. 99).

The impact of the researcher's looking on looking behaviour

One of the challenges in any research, especially observational research, is the impact of the research process on the behaviour being studied, and on how the data is collected. This can happen in a variety of ways. For example, when the researcher is with the mother when she has been asked to be with her baby, the researcher may also provide support to that, by simply being there and being with the new mother. This potentially provides a minimal form of containing (Bion 1985) and holding (Winnicott 1960) of the mother while she is being with her baby. I sometimes felt that my presence was supportive to the mother and this arguably influenced some mothers' behaviour.

Alternatively, self-consciousness might disrupt the mother's mothering, as it may have intensified the sense of being observed, of being seen, being 'under the spotlight', or 'caught in the headlights', and at times I thought my presence might be increasing her anxiety.

The use of video

Whilst the use of observation to capture looking behaviour is potentially a confounding factor and disruptive to the task, the use of video material has made an important contribution as a research tool. It has contributed to the understanding of the social nature of infants, of their innate capacity for interaction, musicality and intentionality, and to the understanding that all development occurs within responsive, primary care relationships (Stern 1977; Stern 1985; Trevarthen 2001; Trevarthen 2011). Video analysis is used extensively in infant mental health research and clinical practice.

In this research, selected videotapes form the primary data source. Video was used specifically to 'locate and analyse data for the purpose of finding patterns within and across events' (Derry et al. 2010, p. 15). Importantly the use of video enabled the analysis to be an iterative process that allowed movement back and forth among selected videos. This provided the opportunity for the progressive discovery, evaluation and representation of the phenomena under study (ibid. p. 15).

Video was also chosen as a means of recording mothers' looking behaviour because it enables observational data to be collected in a non-selective way, capturing non-verbal and verbal interactions simultaneously (Caldwell 2005; Goldman 2007; Latvala, Vuokila-Oikkonen & Janhonen 2000).

Based on my work as an infant mental health specialist and on understandings gained from the literature, video seemed the most likely methodology to capture an underlying set of looking behaviours.

Video affords repeated reviews and analysis by multiple observers, in real time and in slow motion. It is a very rich source of data, with ten minutes of video providing enormous amounts of information about many mother-infant interactions.

One challenge therefore was how to reduce the amount of information and condense it into a form that could provide a set of verbally described behaviours or phenomena. The literature offered no well-established method for doing this.

I chose to describe the behaviours that I observed in multiple reviews in real time and slow motion. This did mean that potentially my own views created a bias. In order to minimise this, focus groups of experts were later asked to view the tapes to determine whether they identified these same phenomena.

Choosing this video-based approach provided a very powerful mechanism for applying an iterative process to the identification and description of discrete phenomena, allowing for unlimited opportunities to further confirm or challenge interim hypotheses.

Latvala, Vuokila-Oikkonen and Janhonen (2000, p. 1254) write that the opportunity for multiple reviews adds to the credibility and richness of the data while also enabling the researcher to 'present and understand their own feelings, attitudes and values which may influence the interpretation of the phenomenon'.

This iterative and reflective process was progressively documented and relevant extracts are included below to illustrate the incremental emergence of the key components and structure of the typology.

Disadvantages of video

In a wide-ranging discussion of the possible benefits and challenges of using video in the learning sciences, Goldman (2007) encourages acceptance that video, or any observation, affects and changes what one is studying. He suggests the important thing is to understand how this may happen, and how long it would take before a participant learns not to act before the camera.

'Reactivity', also known as the Hawthorn effect (Caldwell 2005; Goldman 2007; Kopenhaver-Haidet et al. 2009; Latvala, Vuokila-Oikkonen and Janhonen 2000; Shaunessy, Zechmeister & Zechmeister 2012), occurs when participants, knowing they are being observed, change their behaviour in some way. In this research the mother, looking, was herself being looked at by the researcher via the eye of the videocamera.

One way of possibly minimising this reactivity is to desensitise participants by either spending some time before turning on the camera (Latvala, Vuokila-Oikkonen and

Janhonen 2000; Shaunessy, Zechmeister & Zechmeister 2012) or systematically selecting data from video at a predetermined time, for example three minutes into the recording. This may allow participants time to become accustomed to the camera, perhaps even forgetting it is there (Kopenhaver-Haidet et al. 2009).

One recent study (Spelten et al. 2015) on the introduction of video into primary care midwifery research reported a major and unexpected finding that video was not intrusive in relation to the interaction being studied. The authors' expectation had been that increased self-consciousness would be a result of being recorded. They made multiple recordings of the same dyads, intending to discard the initial recording of each dyad to reduce reactivity. However, subsequent analysis of all recordings did not show any major differences in functioning (ibid. p. 98).

In the current research, my presence and being videoed, could have influenced the behaviour of some mothers and to varying degrees. The awareness of being videoed may have improved looking as mothers possibly sought to give a good performance. Or, it could make some mothers more self-conscious and therefore contributed to more strained or anxious looking behaviour.

While four of the twelve mothers appeared to be more aware of the camera than others, another four women who were very camera-shy had already excluded themselves, giving being videoed as their reason for not participating[32].

It could also be argued that women who were in the research were less likely to be affected by being videoed, because they had agreed to the process. The pervasive use of the Internet and smart-phones has normalised the taking and sending of video of all aspects of life, and being photographed and videoed is increasingly an accepted and acceptable practice.

Ethical considerations

General

Optimising the bond between a mother and her newborn infant is the ultimate aim of this research. Privileging and protecting this relationship were therefore of prime importance.

Participation was voluntary, with subjects fully informed about the purpose, potential risks and rewards and their right to withdraw at any time with no fear of penalty. The

[32] This self- exclusion by some women could possibly limit how far the results can be generalised and is discussed in Chapter 5.

nature of video means that anonymity cannot be ensured, but access to the videos was restricted to supervisors and workers involved in the research, all data source material was de-identified, and privacy and confidentiality rights were meticulously maintained.

Participants were sent a copy of the complete videotape of them with their newborn baby.

Ethics submission and approval

Full ethics approval for Study 1 was obtained from the Children, Youth and Women's Health Service (CYWHS) Human Research Ethics Committee (HREC) and the University of Adelaide Human Research Ethics Committee in December 2010.

The consent form and information sheet were in accordance with HREC requirements (Appendix 1 and Appendix 2).

An amendment was added to this ethics approval in October 2012 and approved by the HREC in late December 2012. This amendment related to shadowing four midwives working on the postnatal ward to determine the feasibility of midwives using the typology (Appendix 3).

Setting

The setting for this research is the two connected postnatal wards—Postnatal East and Postnatal West—at the Women's and Children's Hospital (WCH) in Adelaide. All women giving birth at the hospital receive postnatal care in either of these wards. Some women with uncomplicated birth experiences and healthy babies choose to go home almost immediately after birth. The implications of this are discussed later in the discussion (Chapter 5). Most women spend between 24 and 48 hours on a postnatal ward, and some who have had traumatic births, postnatal complications or who have premature or sick babies spend significantly longer there.

Midwives who are permanently employed work across both postnatal wards (East and West) and sometimes do domiciliary care follow-up in patients' homes. The postnatal wards have separate shift co-ordinators on any given day but one clinical governance structure. Midwives working on the postnatal wards who are not permanently employed also work shifts across the antenatal ward, delivery suite and special care baby nurseries.

Prior to the research and throughout its course, women birthing at the WCH were routinely screened antenatally as part of the National Perinatal Depression Initiative

(NPDI)[33]. The Antenatal Risk Questionnaire (ANRQ) (Austin et al. 2013) and the Edinburgh Postnatal Depression Scale (EPDS) (Cox, Holden & Sagovsky 1987) were the screening tools used.

A score above 12 on the EPDS and over 24 on the ANRQ are considered high risk for mental health problems. Women who registered these scores were offered an antenatal referral with the NPDI mental health worker.

The WCH became accredited as a Baby Friendly Hospital in 2012. The Baby Friendly Health Initiative (BFHI) is a partnership project between UNICEF and the World Health Organization (WHO). It aims to create health care environments that promote breastfeeding and evidence-based practices that enhance the wellbeing of mother and baby. The initiative requires compliance with 10 steps, all aimed at normalising and encouraging breastfeeding. One step is that all babies immediately post-delivery are placed in skin-to-skin contact with their mothers for at least one hour.

This practice was just beginning to be implemented as the first tapes in the project were being made.

Population and recruitment

Recruitment process

Between March 2011 and August 2013 twenty-one primiparous women were recruited at the antenatal assessment clinic and weekend antenatal classes at the WCH. Using purposive sampling, a further five women were recruited by the NPDI worker to ensure high-risk mothers were included.

Inclusion/exclusion criteria

Only first-time mothers aged 18 or over, who experienced full-term birth, were included in the sample. Women who developed severe health difficulties during pregnancy, had a premature delivery, a sick baby, were non-English speakers or had known substance use problems were excluded from the research.

Difficulties recruiting and researching primiparous women and their neonates over the perinatal period

Recruitment proved very difficult. Initially recruitment occurred in the antenatal clinics when women were generally in their first trimester. However, because this was taking

[33] See footnote 2 in Chapter 1.

so long, recruitment was then moved to antenatal classes when women were close to term.

In the antenatal clinics, 60 women were approached for recruitment. The antenatal assessment clinics are overwhelmingly busy, with long waiting times and a number of women who were approached said they were interested, but expressed being tired and reluctant to be involved in any further activity (n=15). A number of women expressed their reluctance to be videoed and declined to be in the research (n=9). Other reasons for not participating were:

- For some women in their first trimester, the birth seemed too far away (n= 6)
- English too poor (n=5)
- No reason given (n=6).

Recruitment was easier later in the year when women were approached at three antenatal classes at the WCH. The women in these classes were generally in their final trimester. These antenatal classes were on a weekend, the women's partners were often present and encouraging, and they were generally excited about their baby's imminent arrival. A total of 30 women attended these classes and were given information as a group. Reasons for women not participating were that they were involved in other studies (n=3), wanted to have that time with her partner (n=1) and did not want to be videoed (n=2). A further 10 women gave no reason for not participating.

Attrition of recruited women before videoing

In the first nine months of recruitment, 21 women had been recruited; however, only six videotapes had been completed successfully. Over 50% of women recruited over this time were unable to participate after birthing due to difficulties in delivery, difficulties with breast-feeding, sickness of the mother or baby, or premature birth. A number of other women birthed and were discharged before their admission could be identified.

It was also important that the research process was not intrusive at this intense and critical time for the parent-infant relationship. Every effort was made to capture the video at a convenient time for the parents and baby. Mothers were given the option to change their mind after birthing and a few did, one saying she just wanted the time to 'be with her baby'. The attrition of recruited women before they could be videoed appears in Table 3.1 below.

This table summarises the number of women recruited, how many dropped out of Study 1 and why, and the number of successful videos finally made.

Table 3.1: Recruitment and attrition in recruitment / data collection process

Date	Number and source of recruitment	Attrition losses pre-video	Count of completed videos	Videotape numbers
March 2011	19 at Antenatal assessment clinics	N=13: 3 Delivered early or at weekend 2 Baby not feeding 2 No response to phone call 1 Birth in NICU 1 Declined video 1 Wanted time with baby 1 Nauseous on day of video 2 Declined – no reason given	6	1, 2, 3, 4, 5, 6
	14 at Antenatal classes	N=10: 1 Special Care Baby Nursery 1 Husband declined 1 Birth in NICU 1 Premature 2 Delivered at weekend 4 No response to phone call	4	7, 8, 14, 15
August 2013	6 High risk via Perinatal High Risk worker	1 – delivered at home	5	9, 10, 11, 12, 13
		Total completed videos	**15**	
		Excluded from sample (not primiparous)	**2**	
		Videos in sample	**13**	

Creation of videotapes

Participants

Between April 2011 and August 2013, 15 mothers were videoed and interviewed with their newborn babies on the WCH post-natal wards within 48 hours of giving birth. All women lived in metropolitan Adelaide.

Recruitment and taping ceased at saturation[34] after 15 tapes were made. No new observations emerged from the final three tapes made. Two tapes could not be included in Study 1 as the demographic questionnaire revealed these mothers had previously had a baby. Therefore the final number of participants totalled 13.

These 13 women were aged between 23 and 37 years old, with a mean age of 28.5[35]. Nine of the women were born in Australia and three had arrived within the last three years. It is unknown when the fourth arrived in Australia. Ten women reported speaking

[34] Saturation occurs when new material generates no new data and 'denotes the development of categories in terms of their properties and dimensions' (Corbin & Strauss 2008, p. 143).
[35] The national median age of first-time mothers in 2012 was 29.1 years (ABS 2013).

only English at home. Other languages spoken were Hindi (1), Urdu (1), Tamil (1) and French (1).

The following table presents the relevant demographic data. Mothers were given 'Meeting your baby' (MYB) numbers that matched the videotape numbers.

Table 3.2: Relevant demographic data of participants

Mother	Age	Marital status	Education level	Occupation	Income #	Country of birth / first language**	ANRQ High risk >22	EPDS High risk >12
MYB 2	28	Married	Uni degree	Unemployed	3	Australia	19	2
MYB 3	30	Married	Uni degree	Unemployed	3	India/Hindi	-	-
MYB 4	28	Defacto	TAFE	IT, Gov't	5	Australia	10	1
MYB 5	28	Married	Uni degree	Unemployed Doctor	7	Pakistan / Urdu	7	4
MYB 6	23	Married	TAFE	Unemployed	3	Australia	12	2
MYB 7	29	Married	Uni degree	Teacher	5	Australia	6	1
MYB 8	31	Married	Uni degree	Teacher HOD	6	Australia	6	5
MYB 9*	26	Married	Year 11	Unemployed	3	Australia	**53**	**15**
MYB 10*	24	Defacto	Trade	Unemployed	3	Australia	**43**	**14**
MYB 11*	23	Single	TAFE	Unemployed	7	Australia	**59**	**20**
MYB 12*	30	Married	Uni degree	Unemployed	4	India/Tamil	18	8
MYB 14	37	Defacto	Year 12	Unemployed	3	UK	**37**	10
MYB 15	36	Married	Uni degree	Teacher	6	UK / French	**29**	9

* Denotes high risk as identified as NPDI worker ** English unless otherwise mentioned

Combined family income

1	Less than $20,000 pa
2	$20,000 - $39,999 pa
3	$40,000 - $69,999 pa
4	$70,000 - $99,999 pa
5	$100,000 - $149,999 pa
6	$150,000 or over pa
7	Don't know

Cultural diversity

The women recruited were mainly from a European background and spoke English at home. However, almost 25% spoke a language other than English at home and six women identified as other than Australian. A narrower cultural sample was considered, but as the midwives at the WCH work with a very diverse cultural group, it was decided that the population sample should reflect that. In addition this diversity is not grossly discrepant from the Australian population.

This does mean that the typology might be more sensitive to apparent difficulties in women from different cultural backgrounds. Also women who have migrated to Australia may have had migration experiences that have been traumatic, and they may possibly have less available supports and find it more difficult to access support than women from Australia. This too may affect how they are with their babies postnatally and therefore create some skew in the research outcomes.

Low risk vs high risk

Only three women had scored over the cut-off of 12 on the EPDS, with five women scoring over 24 on the ANRQ. With one exception these were the women identified by the National Perinatal Depression Initiative (NPDI) worker[36]. Another woman was identified by the NPDI worker but scored low on both self-report screening tools.

A further three women had no scores recorded for either screening tool as their initial antenatal assessments were completed at another hospital. Only one of these appears in Table 3.2 as the other two were excluded because they were not first-time mothers.

Birthing experiences

Table 3.3 summarises the birth experiences of the participants.

Table 3.3: Pregnancy and birth experience of participants

Mother	Pregnancy	Induction	Delivery	Tear	Apgar	Weight
MYB 2#	Pre-eclampsia	Y	Vaginal - Post Natal Haemorrhage 1000ml. Uterine atony	2nd Degree	8/6	3460g
MYB 3#	-	N	LSCS Emerg - fetal distress	-	9/9	2970g
MYB 4#	Herpes simplex	-	LSCS Elect	-	9/9	3080g
MYB 5#	-	N	LSCS Emerg - Deceleration	-	8/9	3320g
MYB 6	Elevated BP	Y	Vaginal	2nd Degree	9/9	3030g
MYB 7	-	N	Vaginal	1st Degree	9/9	3420g
MYB 8	Diabetes Mellitus	N	Vaginal	3rd Degree	Not known	Not known
MYB 9*#	Anxiety depression	Y	Vaginal - forceps	Episiotomy	9/9	3430g
MYB 10*#	Preeclampsia Depression Substance abuse	N	LSCS -suspected foetal compromise	-	9/9	3410g
MYB 11*#	Substance abuse smoker	N	Vaginal – ventouse forceps	1st degree	9/10	2730g
MYB 12*#	IVF	N	Simpsons forceps Postpartum Haemorrhage Blood transfusion	-	9/9	2980g
MYB 14#	-	N	LSCS Elect fibroid preventing descent of head PPH Acute blood loss anaemia	-	9/9	3220g
MYB 15#	-	-	LSCS Emerg, failed attempt Simpsons forceps, 2nd stage foetal distress	-	9/9	3350g

* Denotes high risk as identified as NPDI worker # Denotes traumatic or medicalised birth

[36] The NPDI workers at the WCH over the time of the study, were an occupational therapist and a mental health nurse. Both were trained in perinatal and infant mental health and provided a pathway to care for women identified as high risk by the screening process undertaken at the first assessment.

There is a possible skew in this sample, firstly because it is a hospital-based population sample, and secondly because the WCH is a tertiary referral hospital.

It is clear that a number of the women in the first random sample (tapes 2-8) had unexpectedly traumatic or at least medicalised births[37].

Data collection

Primary data – mothers and neonates

Primary data consisted of thirteen 10-15 minute video sequences of mothers being with their infants. This was followed by a brief semi-structured interview that was also videoed. The text of the interview and questions appear below in Figure 3.1. Overall video capture varied between 20 and 30 minutes, depending on the length of the responses during the interview.

[37] The question around whether or how this may have affected a mother's capacity to look at her baby, are discussed in Chapter 5.

Meeting your baby
Semi-structured interview – Postnatal Ward

Thank you for agreeing to be part of my research study.
We want to understand more about how mums experience being with their newborn babies.
First I'm going to video you with your baby like you would be if I wasn't in the room. This will be for 10 - 15 minutes. I won't talk with you over this time and may just check the video sightscreen every now and then. This might feel a bit strange –
Then I'm going to ask a few general questions followed by some more specific questions about your experience of being with you baby so far…

<Start videoing mother with baby. After 15 minutes begin interview >

Q1: How are you feeling in yourself at the moment?

Q2: Can you tell me the story of your baby's birth (triad)

Q3: What did you call your baby – how come you named them that?

Q4: How are you going with feeding your baby?

Now I'm going to ask more specific questions about looking at your baby

1. What do you notice about your looking at your baby?
   (*Prompts*)
   a. How often do you think you look at your baby?
   b. When you look at your baby, how long do you think you look for?
   c. When do you most look at your baby?

2. Describe your experience when you look at your baby.
   (*Prompts*)
   a. What do you feel?
   b. What do you think?

3. Describe what you think your baby experiences when you look at him/her.
   (*Prompts*)
   a. What do you feel?
   b. What do you think?

4. Tell me about the most significant time you have looked at your baby since her/his birth.
   (*Prompt*)
   a. What was special about that time?

5. Do you have anything you want to ask me about the study?

Figure 3.1: Semi-structured interview, created 14/11/2010

Method

The method for data gathering was developed over time. Initially I attempted to set the mother at ease by talking with her and establishing some relationship while videoing her with her baby. When I reviewed these tapes[38], this conversation seemed to interfere with the mothers' looking behaviour.

[38] These were tapes MYB 1, MYB 2 and MYB 3. MYB 1 was excluded from the study as the mother had a 15 year old son.

Box 3.1: Reflections on the video process after making the third tape, field note, 28/04/2011

Three interviews later - at the moment it's [the video process] more responsive to the mother's level of anxiety and be hard to get anything meaningful out of it in terms of the mother's looking because at times I'm interrupting the mother looking at her baby and she looks at me and responds. I have interrupted and asked the question because in the room I feel the level of anxiety rise and at that point I note that the mothers look intently at their baby – as much as a distraction as anything else – so they don't have to look at me?

The suggestion is that I preface the whole thing with some introduction and then sit and say nothing and if they're uncomfortable then does that matter? Rationale for this is the Strange Situation Procedure raises stress levels. I'm aware that it doesn't feel OK to do that, as this is the first 48 hours and things get set early. New mums are very fragile and there's a sense in me that I don't want to in anyway derail anything because every interaction is possibly leading somewhere [Tronick 2003].

Perhaps it's about standardising what I do say, so I say the same things with each mum?

It was therefore decided to create a more structured process, following a standardised procedure with each mother. This enabled observations in a controlled setting with consistency in procedure across observations.

The interview began with an introduction and congratulations. The aim of the research was then reintroduced, written consent to video was gained, and the video equipment was set up. This was all completed in an informal and conversational way.

Participants were then instructed to 'be with your baby as you would if I wasn't present', accompanied by the aside 'which is ridiculous because I am present' (which most women agreed with, laughing)[39]. They were told that this would be videoed and then a brief semi-structured interview would be completed with the video still on. Finally the mother completed the demographic questionnaire (Appendix 4).

I was very conscious of how women responded to being observed and videoed and the effects of this on their behaviour, and I documented my impressions as field notes.

[39] In my clinical experience, explicitly stating the unspoken brings it to awareness which then allows it to be released. This is particularly the case with awkward or puzzling notions.

Box 3.2: Reflections on mothers' responses to being videoed and possible effects on looking behaviour on tapes 2 to 9, field note, 13/03/2012

Certainly most subjects do get used to it – some more quickly than others – MYB 2, 3 & 4 appear to use the baby to blot me out – they just get involved with the baby and ignore me and the video.
MYB 5 appears so conscious of me or the video as she spends the whole time trying to wake the baby to show how interactive she is.
MYB 6 is very frozen initially – appears to take quite some time (nearly 2 minutes) to block out the camera/watching eyes and MYB 7 also takes over a minute though she appears to rise more than shrink. However, both do adjust and appear to forget the camera and become involved with the baby.
MYB 8 has had i/viewer talk with her for 13 minutes and she appears to become more instantly involved with baby (maybe as a result of having been 'away' for a while in her own experience).
MYB 9 struggles throughout – appears lost - marooned on her bed as if she's washed up there and doesn't quite know how it happened. It is very quiet in her tape as she is in a room on her own so maybe the silence is deafening for her too and this is impacting?
So some subjects appear to get used to it quite quickly, others take longer and a few others don't. Is it possible that sensitivity to the experience of being looked at effects the quantity of looking rather than the quality? This might be the case where the mum uses the baby to avoid the sense of being looked at by me or the camera – so increases the amount of looking 2, 3, 4, 7 & maybe 9.
But in some cases - the quality may go down as the attention may be divided to some extent where a mum can't quite get the sense of being observed out of her awareness. Certainly 9 appears so uncomfortable in herself.
The individual's response probably says something about them and their experience of being with themselves and in relationship.

In summary, while most women seemed a little uncomfortable or self-conscious for the first few minutes, overt anxiety was generally seen to decrease as they became accustomed to the presence of both the researcher and the camera. For most women, being with their baby came more to the foreground and took precedence over everything else. Two of the eight women videoed to date appeared to maintain an awareness of being videoed. It was difficult to determine what the exact effect of being videoed had on a mother's looking.

The tapes themselves lack uniformity, as it was not possible or preferable to control all variables. Both because of the midwives' work pressure and the need to have as little

impact as possible in these early privileged hours of the mother/baby relationship, no attempt was made to control the baby's state or the presence or absence of partners. Therefore, some babies are in an alert or semi-alert state, others are sleeping and some are breast-feeding for some of the time. In some tapes women are trying to get the baby to sleep or are content to sit with the baby in their arms. This is consistent with real life and is what midwives will experience in their routine care of mothers and neonates.

Developing the typology

The typology of looking was developed using an iterative process of disciplined systematic observation of selected videotape data. By giving primacy to looking, and privileging it over other behaviours, different ways of looking and associated behaviours were identified that contribute to and influence looking.

This section incorporates both the method used and results that ensued. These are interleaved rather than reported separately to assist with understanding the progressions in the development of the research.

How the typology was developed—the process of moving repeatedly back and forth from observation to inference to observation—is structured using DeVellis's (1991) guidelines of scale development outlined earlier in this chapter. These guidelines provide an effective stepwise method for developing a clinical tool of this type.

Definition of the phenomena being measured

DeVellis (1991) describes the first step in any form of scale development as one of preliminary exploration. The underlying theoretical and operational concepts need to be identified and described and these can in turn contribute to a well-formulated definition of the phenomena being measured. This step has three components:

A. Identifying and describing underlying *theoretical* concepts

B. Identifying and describing underlying *operational* concepts

C. Differentiate and operationalise the concept

A. Identifying and describing underlying theoretical concepts

My identification of the phenomenon of looking emerged progressively over years of clinical experience preceding this research. It involved thinking about how a mother might see the baby in her mind, and how that may be played out in her behaviour, behaviour that directly relates to looking and behaviour that encourages or facilitates

looking. The unexpectedly slow pace of recruitment and data gathering allowed this to be refined slowly over a number of months.

Preliminary thoughts included:

- Can looking be given primacy over other maternal perinatal behaviours?
- Does something different happen over the perinatal time?
- Do mothers look at their baby in these early hours and look in a different way than they do later when they know their baby better?
- Does the actual baby's presence provoke the mother to adopt a perspective more in line with 'Here you are and who are you?', rather than 'You are my baby and I know you.'?
- Is there a time of separateness that happens as the baby moves from an internal idea or imagining to an external reality, an actual baby, another person? Can the baby can take on a new meaning at this time, being him or her self?
- How do mothers make meaning of their newborn in the midst of the maelstrom that is birthing?

Mothers' meaning making

Meaning making, how first-time mothers make meaning of their babies and the role looking plays in this, is at the heart of this research into how mothers look at their newborns. Thinking of these issues, I reflected on the work of Tronick (2009) and how he suggests that the bio-psychological experience of meaning making is multilayered rather than being a single response to a single event.

Box 3.3: Reflection on mothers' looking and meaning-making of newborn, field note, 26/04/2011

It is more a flow of meanings that arise from meaning-making systems experienced at many levels that use body and brain functions – that it's an interplay of the local functions and the gestalt – that each affects the other in a sort of multilevel interplay. He [Tronick 2009] says this is how experience moment by moment is integrated and translated into larger chunks of meaning, which in turn affect how meaning is made moment by moment.

So a first-time mother looks at her baby and attempts to make meaning of the baby. Tronick [2009] talks about how drops of rain (moment by moment) affect a landscape over time. Thinking of 'looking' in this way, a mother looks at her baby and each look (or drop) shapes the landscape. So there may be places areas where the water can't run because of past shaping so the flow becomes increasingly limited. However, at the same time and over time, patterns continue to be reshaped by the rain.

Box 3.3: (continued)

So for a mother, the rain falling on the landscape of her past, is constrained by her own experience as a baby and of being mothered. A new mother looks at her baby within the immediate experience of giving birth, the newness and the sensations. However, as the rain continues to fall, and she continues to look at her baby and generate new meanings of and with her baby, the landscape of her past gets shaped by the looking and accompanying sensations.

So, a mother's meaning making of her past in the present moment as she looks at her baby shapes the meaning she makes of her baby and herself as a mother and involves all levels of her experience. Her looking will resonate with what the baby is for her and needs to resonate with what the baby's communication is to her. It is a multi-layered experience creating meaning in an ongoing transactional way within the context of the moment.

MYB 2 had talked about 'the heaviness of the baby' in her arms 'feeling so different' to the baby inside her. She had looked constantly at her baby as if she couldn't get enough of him and at the same time was working to make some sense of him and what had happened to her. As we spoke it was as if her eyes were always being dragged back to the baby in her arms.

Box 3.4: Observation of mother's making meaning of her baby (tape 2) field note, 22/04/2011

MYB 2

The baby is breast feeding – sucking strongly. 'I didn't really want to sleep I wanted them to bring him to me and to hang onto him for a bit.'

Talking about giving birth she says 'It's unfathomable – even just holding him in my arms, just the weight of him – that I was carrying that around in my stomach and that I was able to walk around. I find him so heavy in my arms… and that you can give birth to this big thing.' (in a sweeping motion she takes him in as he lies on her lap) 'I look at him and I think - what?? How did that happen??'

Then continues to just look down at her baby still sucking strongly, with this increasingly smiling, soft gaze that seems to drink him in.

Obstacles to videoing mother-infant interaction

It might be argued that even though the focus of this research was on maternal looking, nevertheless the looking behaviour of the infant should also be included since infants are partners in this meaning-making process. But there were inherent barriers to being able to video the infant's gaze in the first days after a baby is born. These included

ethical barriers given the sensitivity of the dyadic system at the emergent stage and also practical difficulties. In the first forty-eight hours after birth, newborns have an initial wakeful period immediately post-delivery when they enjoy skin-to-skin with their mother. They then sleep a lot as they recover from the birth process and learn the sometimes difficult process of learning to suck, swallow and breathe at the same time in order to successfully feed.

These processes are exhausting for newborns and once satiated they usually fall asleep again. There is generally only one or maybe two brief, wakeful periods in any 24-hour cycle. The possibility of being present on the ward and capturing those moments was unrealistic and also possibly too intrusive in the newness of the fledgling mother-infant relationship.

Early tapes

A decision was made to review the first tapes as soon as they were created, and as additional tapes were made, they were included in the ongoing review process. Tapes 2 to 5 were viewed in their entirety in order to explore preliminary ideas further, to identify any new elements and to test concepts against real world data. First impressions were documented and significant spoken phrases were transcribed.

These tapes provided the raw material, the first impression of how mothers were with their babies. This related to the meaning they were making and had made of their experience of their first 48 hours with their babies.

Box 3.5: First impressions documented following initial viewing of tapes 3, 4 and 5, field note, 12/07/2011

MYB 3

This mother is tired. She's anxiously rubbing her baby saying 'I have to do it for him…'. She seems overwhelmed and I feel uncomfortable. She seems so vulnerable and as she holds baby, jiggling him slightly I think that this could get much rougher if she allowed herself to become unaware. She initially stared at the baby for long time and then said something like 'hopefully it will get better – hopefully it will be good for me'.

With a pained look on face she told me that she had had a difficult night and 'have to manage all by myself… He wants me, me, me, it's more difficult because there is just me I'm still feeling much of pain, my body is all tired' I wonder if she is resentful? Or just overwhelmed…

She recalls her baby first having skin to skin, her face changes –she appears dreamy and recalls this time before being asked about her most significant time.

She put baby sleeping into the cot and pulled it close to the bed she sits on…

Box 3.5: (continued)

[When she] remembers those moments when she felt so close and she seems to relax… tells me of two moments when she felt very close to her baby –post birth as being sewn up after an emergency C Section] she was only aware of her baby [

Then when he first feeds …She seems dreamy again … fulfilled…

MYB 4

The baby is asleep and mum is sitting on bed. She pulls up the cot closer saying 'we're feeling really good, she's sleeping, feeding well, I'm feeling really lucky. I've cheated birth really' and turns to cot (for no apparent reason as the baby has not stirred), saying 'she might need a big burp' and she picks the baby up.

Mum tells me the C Section was 'a bit scary' looking at her baby as talks – then doing a little jiggling –the baby remains sound asleep.

Baby stirs – mum strokes her head, looking at baby – baby 1 eye open – mum preening a little - head to one side looking – baby stretches - mum tests baby's suck with her finger, no response but decides to feed – sleepy baby doesn't latch on – mum presses on - very gently cradles head but baby not appear to suck – mum continues to try.

She then stops …looking down at baby motionless decides to wrap her [why?] Baby fusses – shhh - wraps …picks her up … jiggles …swings her looking at baby whole time… tries to get baby to suck her own fingers/hand very gently plying the baby with baby's fingers… a little smile … looking intently 'you hungry?' Changes position and unwraps baby who wakes up and fusses more…

[During] the interview questions and (still trying to feed sleepy baby) she says:

'it's weird as days go on I look at her and just realize I love her more and more as it goes on… I'm umm… dunno didn't think she was very cute and now I think she's beautiful. When I first saw her I was a bit…

She describes first breast feeding – 'I look at her all the time – check if she's breathing'…

Seems a more anxious mum – tells me she has a fear of PND because she's been told about it by her mother (a health worker)…maybe a worrier – looks so tenderly at baby at times – also very searchingly...

MYB 5

[Mother is] patting stroking jiggling – calling name shifting baby's position – showing her off to camera…baby keeps protecting her sleep. Mum talking to her in motherese in Urdu… Kissing, stroking her cheek … kissing her nose… chatting non-stop coaxing and cajoling… 'open your eyes' – [tells me she has] big, big eyes'

Feels like doing whole thing for camera… tries lifting and stroking lips, baby barely frowns… Mum keeps chatting, jiggling and baby remains sound asleep. About 8 minutes in mum calms a bit – then starts again… sounds like gentle scolding…faces baby to camera… still poking her and her stroking cheeks… gentle enough…

Box 3.5: (continued)

Mum - 'She literally talks with me… so reactive when she was born, she was responding to name she was called in womb. We were so involved but when she was born she was making emotions, really observant, my husband took her and she was looking at everything all the time, keeps her eyes wide open…unfortunately she's asleep now.'

[I'm] 'feeling better now … wanted normal delivery … every one looking at her long hair… she is very pretty…feeding going better now, very difficult at first.'

In answer to questions about looking she looks at me mainly as she answers – 'Very different – always wanted a child but I never knew it would be such a pleasure sensation … I'm feeling like some drug has been given to me … I was feeling very refreshed…most of the time I want to spend time with her…

'If she is feeding I am totally looking at her ...but if she is awake, it's as if some communication between us…feels like I don't have any troubles – my mind is getting refreshed just looking at her .. things are washing away…'

For this mum the most significant time was: 'When she was born and she was not able to drink properly, I was scared that she's not learning how to take it and I don't know how to give it to her …I was drowsy… I learned how to feed her, now I know how to take care of her… we have no family here…we were initially very much scared…I was the eldest but very busy with my studies and didn't have time to learn anything…'

The above impressions were subsequently reviewed and yielded the following synthesis.

Box 3.6: Comparing and contrasting mothers' behaviours in tapes 3, 4 and 5, field note, 15/07/2011

MYB 3

Tired and overwhelmed but seemed more calm and available to her baby than either of the other 2 mothers. Seems to be less discrepancy between what she says and what she is doing.

MYB 4

Says she's feeling great but seems anxious and she does not demonstrate being able to get with her baby's responses… she picks the baby up from a sound sleep to feed her, and even when the baby doesn't respond she's concerned with the baby needing something.

She speaks about her growing sense of getting to know her baby – her initial feeling that the baby is not 'very cute' and her loving her more the more she looks at her - not uncommon. Some women have immediacy in their feeling for their newborn baby while others take a little longer to warm up to them [animal studies and imprinting].

Box 3.6: (continued)

MYB 5

… talks about how wonderful it all is while at the same time seems frenetic in her need to have the baby wake up and 'talk'. While women from the subcontinent are known to be more active generally in their stroking and touching of babies, this mother seems very extreme. She vainly attempted throughout the 25 minute interview and videoing to wake the baby from a deep sleep in order for her to demonstrate her 'amazing' interactional capacity...

It seemed important to note discrepancies between what a mother did and what she said, as often how a person thinks they are behaving differs from their actual behaviour, which can be driven by unnamed, out-of-awareness internal experience.

The subjective 'felt sense' of looking

Early on I was drawn to the quality of a mother's looking. In the early videoing this was often experienced as what Boukydis (2012) describes as a 'felt sense' [40].

The following early observations and reflections provide some sense of the mothers, their presentations and my subjective responses to them.

Box 3.7: Field notes documented immediately after videoing sessions

MYB 2 (22/04/2011)

Mum had a major 'bleed' after the birth…'quite a fuss'. It's early morning and mum is very calm…breast-feeding throughout.

She looks at her baby almost exclusively only looking up to me now and then – she talks of her powerful experience of being with her baby alone one evening – she is completely oriented to and responsive to the baby's gesture.

I'm aware of a warmth and calmness being there with her even as I'm anxious if the video is recording…

MYB 3 (27/04/2011)

C Section -16 hour labour with baby's heart rate dropping…Day 2 and Dad just left. The day before Mum asked me to come back as she had so little sleep - prepared today… seems to want to please.

[40] Boukydis (2012 p. 171) describes the 'felt sense' as one source of knowing about infant behaviour or parent-infant interaction. He describes it as an experience where the sensation is felt before it becomes more conscious and is able to be named. Words then follow, resonating with or connecting with the felt sense. 'The felt sense carries in it more than one consciously knows at any given moment. … it carries with it all of one's body's experiences up until that moment when one decides to attend to one's body experience.' (ibid. p. 172).

Box 3.7: (continued)

Baby is asleep throughout. Mother is Indian and appears more uncertain initially but opens up as interview progresses. She looks a lot at her baby, is open to him - touches, vocalises, - uses all domains identified to date…

My early fear that I won't be able to understand her and she seems ill at ease dissolves – her gentle being with her baby is so satisfying…

MYB 4 (05/05/2011)

C Section – baby is really small. Day 2. Dad was there when arrived [but] left with his friend. Mum starts with 'cheated birth – would just go straight to c section next time'… appears more anxious and identifies fears and anxieties rather than experience of enjoyment… repeatedly tries breast-feeding – whether as response to me or herself is hard to tell – baby clearly uninterested – I'm tense and thinking of possible ways to lower her anxiety…

MYB 5 (14/06/2011)

…very talkative about how interactive her baby is – tells me she is amazed at extent of this – and tries throughout to get baby to open her eyes and show me… says a lot about responding to baby [but] she doesn't appear to do that sensitively - almost shaking the baby at times in her eagerness to wake her up. She describes very fully her experience both of wonder at feelings of attachment for the baby when looking at the baby and the physical sensation of that…while I have a vague sense of alarm…then she talks of her relief when baby first fed and feeling she could care for her - then expressed their isolation in Australia and the level of her fears for the baby and her ability to keep her alive…I'm anxious for the baby and relieved too that she can already protect her sleep so well…

MYB 6 (10/09/2011)

C Section – pre-eclampsia. Day 2 but long labour. Mum and Dad both present – Dad Serbian, Mum Greek. Mum lying on the bed with breasts exposed because 'so sore'. Dad with baby on lap, facing him. Baby alert looking up at Dad who is looking at him and smiling says to Mum 'look he smiled' – excited. Mum says 'it's just gas'. Dad disagrees. Dad keen for video now and Mum agrees after first saying come back tomorrow. Dad stays in room sitting at the side of the bed throughout… is still and quiet looking at the paper.

Mum organizes herself – arranges baby so facing out – would she do that if not on video? Then Mum looks down at baby throughout video time…baby awake but appears already to avoid looking… startles me…very uncomfortable.

Subsequent reviewing of the tapes seemed to confirm my initial impressions, experienced as a felt sense, especially where there was an apparent discrepancy between what was said and what was actually done.

B. Identifying and describing underlying operational concepts

Maternal looking needed to be able to be measured. While it was important to create a theoretically informed base, as noted above, the measure needed to be informed by operational constructs. The process of identifying and describing the operational concepts underlying maternal looking as a phenomenon was also part of these initial reviews.

Beebe's (2003) micro-analytic research that measured infants' responses provided an indication of important domains. She identified and measured five major domains of study of four-month-old infants' behaviours when interacting with their mothers: gaze, head orientation, face, vocalisation and vocal rhythm.

Tapes 2 to 6 were reviewed multiple times with the above infant responses held in mind. Watching the mothers' behaviour on the tapes also highlighted things like frequency and length of time spent looking, as well as the quality of looking. Gradually the following domains emerged:

- Looking
- Vocalisations
- Physically present to the baby
- Holding
- Postural
- Responding to the baby's gesture
- Touching

While the early reviews were unstructured, the repeated viewing of the tapes, while holding these major domains of looking behaviour in mind, revealed the different ways these behaviours could be expressed. These reviews were also informed by my own understanding and experience of working with mothers and babies.

Subcategories began to emerge beneath these major domain headings. The different types of expression, some quite subtle, were identified within different domains. The 'quality of looking' was particularly subtle and it became clear that this would need to be more specifically defined.

The early descriptions began to be operationalised and included more detailed descriptions gleaned from these tape reviews.

Table 3.4: Early descriptions, field note, 12/05/2011

Looking	mutual gaze, staring, glancing, tracking
Vocalisations	talking to, mirroring, motherese, talking about
Physically present to the baby	leaning, movement towards, distance from
Holding	how holds, where holds, when holds
Postural	open, closed, - facing, away from
Touching	stroking, jerky, prodding

Although 'responding to the baby's gesture' had emerged as a possible domain, I decided not to pursue it because it is intrinsically interactive. This would therefore require consideration of the baby's behaviour.

An idea of doing quantitative counts in terms of frequency of looking and length of time was discounted also, because some babies were awake and some were asleep and counting alone would limit the richness that the video footage was presenting.

First domains

The domains were gradually expanded and became increasingly refined.

The first attempt at classification of how mothers are with their babies, based on multiple reviews of tapes 2 to 8 is below in Table 3.5.

Table 3.5: First domain definitions, field note, 01/11/2011

Looking
- Gazing – looking intently /soft eyes
- Glancing - looking for less than a second
- Peering - face less than 30cm from baby, concentrated facial expression
- Reverie - not looking at baby or interviewer
- Staring – looking with concentration – intently, eyes widen

Touching
- Adjusting – baby/clothes/wrap
- Stroking – to caress with flat hand, rhythmically
- Patting – touching repeatedly and lightly
- Prodding – touching with 1 or 2 fingers and some pressure
- Pressing – touching with flat of hand some pressure

Vocalisations
- Talking to
- Motherese
- Mirroring
- Whispering

Facial expressions

Type	When	Length of
Smile		
Frown		
Dreamy		

Physically present to the baby — When
- Type
- Leaning into
- Holding back from
- Movement towards
- Turned away from

Postural — When
- Open/closed
- Facing away from/ towards

Holding

Type	Where on baby?	Comfort level?
Close	where on mother?	High/low
Arm's length		

Responding to baby's gesture

It can be seen from the above table that a range of behaviours were observed when mothers were asked to just be with their newborns. Furthermore the duration and frequency of each of these behaviours seemed significant.

It also became clearer that different actions that accompany looking change the quality of the looking. The questions 'Is giving priority to the quality of looking a helpful idea?' and, if so, 'Is the quality associated with other things?' began to be addressed.

This preliminary exploration based on theoretical and operational constructs appeared to support my early idea: that there is something observable about the nature of how a

mother is with her baby that might be reflective of how she represents her relationship with that baby and, by extension, how she represents that baby in her mind.

Another factor being considered at this point was determining which observed behaviours were important and relevant to looking.

Micro-coding – understanding more of the components of looking behaviour

I then decided to apply a microanalysis to the tapes and to code them in second-by-second time slices. This was done by entering the videos into the NVivo[41] software package and viewing it with no sound.

The aim of micro-coding was to identify as many discrete and discernible behaviours as possible and to apprehend the components of overall looking behaviour.

Only the first part of the tape where the mother was asked to be with her baby, before the semi-structured interview, was micro-coded, as this provided more than sufficient data.

This micro-coding process particularly highlighted behaviours that accompanied looking, notably touch, vocalising and being physically present to the baby. These then could be described in more detail giving more of a sense of how they were enacted and are included here to illustrate how the typology was gradually emerging.

Table 3.6: Selected nodes recorded in NVivo from micro-coding, 13/02/2012

Facial Expression

Looking – mother looking at baby

- Gazing – looking intently with soft eyes
- Glancing – looking for less than a second
- Peering – face less than 30cm from baby, concentrated expression
- Reverie – not looking at baby or interviewer
- Staring – looking with concentration – intently – eyes wider

Postural

Touching – overall category - involving contact with baby

- Adjusting baby or clothes or wrap
- Patting – touching repeatedly and lightly
- Pressing – touching with flat of hand and some pressure
- Prodding – touching with one or two fingers and some pressure
- Stroking – caressing with flat of hand, rhythmically

These descriptions were then included in the coding inventory, thereby increasing the range of behaviours that accompanied and influenced looking. For example, how a mother is physically present to the baby—whether she holds herself back from or leans

[41] NVivo Software from QSR International. This software helps organise and analyse unstructured information that has been collected from disparate sources in different formats. This can include video and audio transcriptions, text documents and spreadsheets. It provides options for performing an initial automated analysis and classification of source data, grouping data for example by key words and frequency of occurrence.

into the baby—began to be seen as indicating a certain quality of looking. Similarly how the baby was held—whether facing the mother or facing out—also appeared to affect the quality of the looking.

Several behaviours increasingly showed themselves as 'extensions of looking', that is behaviours that could change the quality of looking. For example, with respect to adjusting the baby (later termed 'handling'), some did so smoothly, some adjusted the baby while continuing to do another activity, and some did so disruptively and failed to notice the effect of this. These variations came to be regarded as an extension of looking behaviour (handling).

Inter-related behavioural groups

Behaviours then began to be identified in inter-related groups rather than discrete behaviours, for example gazing and stroking and smiling at the same time. As these behaviours fell more into these groups, two questions emerged:

- Do these groups of inter-related behaviours form an event? and if they do,
- What is the best time slice to identify and measure an event?

Micro-coding threw up a multitude of different possibilities and ideas such as the possibility of thinking in terms of a matrix made up of different dimensions, including the mother thinking about herself vs. thinking about baby.

Another feature the micro-coding highlighted was that all of these mothers looked at and touched their babies a lot. The quality of these interactions appeared increasingly to be the differentiating factor rather than the quantity.

Micro-coding also generated a large amount of information and questions like:

- Would the baby's state be included?
- Would using time-slices be the most appropriate way forward?
- Would there be a focus specifically on maternal looking or was this going to be broadened to include other behaviours such as touch?

Looking as the critical variable

A review in real-time of all available tapes (Tapes 2 to 9) was then completed. This was the first review that included a high-risk mother (Tape 9), recruited using purposive sampling of the high-risk population.

This exercise led to a refocus on looking as the critical variable as argued in Chapter 2, accepting that it stands out above other sensory modalities.

If looking is the critical variable in the mother–infant relationship, then looking needed to be at the centre of the typology. It was decided that other behaviours like touch and vocalising would be considered only in terms of how they may affect looking.

Box 3.8: Observations and reflections following high-level review of tapes 2 to 9, field note, 12/06/2012

First run through of observation section of all tapes 2-9 inclusive.

The one high-risk mother is markedly different to the others – she appears to really struggle to look.

All of the others:

hold their babies

look at their babies most of the time

touch their babies a lot as they are looking – like an extension of their looking

even if it feels a bit awkward like in MYB 6 she does keep looking and checking back as does MYB 3 who at times also feels awkward.

MYB 2, 3, 7 and 8 appear to pull themselves away when I begin to talk with them and then regularly check back – not MYB 5 though.

MYB 2 devours her baby with her eyes and pulls her eyes away

MYB 3 constantly looking back at her baby

MYB 4 looks at baby though feels less comfortable with the baby in that seems to look a lot to see if baby needs something – not relaxed

MYB 5 constantly talking and looking – feels intrusive / wants something from the baby

MYB 6 looks at baby and holds throughout but appears and feels more awkward to me – responds to baby but like someone who struggles with the intimacy of it

MYB 7 – looks a lot, holds comfortably throughout – feels good looking at her – touches and strokes baby a lot and talks to him

MYB 8 – looks, touches, strokes constantly – feels very gentle.

MYB 9 – Looks away mostly. Very wide-eyed looking – lapses into staring at nothing – mostly feels very uncomfortable watching

As can be seen from the above field notes, one definitive observation that could be made at this time was that all mothers except the high-risk mothers did look at their babies for much of the time they were asked to 'be with your baby'.

A set of detailed working definitions of different ways of mothers' actual 'looking' was developed from these high level reviews. These definitions attempted to describe the quality of the looking that had previously been outlined.

> *Watching or observing* applied to a mother looking at her baby in a focused, attentive way – seemingly with a view to attending to some need. This appeared

to be task-focused with the mother looking intently and checking (see Box 3.9). For example when breastfeeding, the mother checked if the baby was still latched on (MYB 2), or continually rearranged the bedclothes (MYB 4).

Fixated referred to occasions where a mother looked past the baby rather than at the baby and her eyes widened momentarily.

Glancing defined looking that lasted less than 2 seconds.

Gazing described when a mother looked intently at the baby with soft eyes and a soft facial expression; and *gazing en-face* was when a baby was awake and looking into the mother's face and the mother in turn was looking into baby's face.

Reverie described those moments when the mother appeared dreamy and thoughtful, and was not looking directly at baby.

Peering applied to those occasions of prolonged looking with the mother's face, less than 30cm from the baby when she had a concentrated expression that seemed fixated or riveted.

S*taring* involved a concentrated intense looking at the baby with eyes that were widened slightly.

Looking intently referred to a mother seeming to struggle to tune in. I found this hard to watch.

The difference between looking and watching was one example of the subtle qualitative difference that required more teasing out.

Box 3.9: Reflection on looking versus watching, field note, undated

Looking implies an attentive receptivity of the subject towards the object of the looking. This looking has an appreciative quality that doesn't require any further action on the part of the looker. The looked-at object seems totally accepted as it is. There is no expectation of change—no change that is either imminent or required.

Maybe after birth during skin-to skin or on the postnatal ward in the quiet of the night or early morning, during feeding as the baby suckles contentedly, the baby is just looked at. Later in life there are similar times when a child is just looked at – when as toddlers they lie sleeping spreadeagled across the bed or curled over their bear, when they're staring fixedly at butterflies hatching on a branch, or when partner in arm, they turn radiantly triumphant at the end of the wedding ceremony. There is something deeply appreciative about this looking and it is often accompanied by a slight sense of awe. I wouldn't think of it as watching.

Box 3.9: (continued)

Watching implies more outward-focused activity on the part of the watcher than looking does, it requires a different point of focus from us than to take something in and allow it to absorb into our being. It also implies that the subject watching is imagining or anticipating some change in the object being watched, that will require a response from the watcher.

At different times it's important for a 'good enough' parent to be able to watch their babies. If a baby's sick the parent needs to watch them for signs of deterioration, whether they need more fluid or holding. A toddler needs to be watched near water or fire.

Some mothers seem to do more watching at this beginning point when perhaps they need to be just looking. They need to be taking their baby in, absorbing everything about them, getting to know them at a cellular level. They need to be accepting them into their life. Mothers who watch at this time seem less able to do this and are more anticipatory of some change that may require something from them. Perhaps this sets up an anxiety or perhaps they are already anxious and taken up with their own need—their need to be in control, their need to know what to do or what needs to be done, their need to be one step ahead in case they aren't able to meet the anticipated need.

This level of watching for something, for some change that they may need to respond to, separates them from those mothers who simply look to take in. Maybe the former are women who are often much more comfortable with 'doing something' rather than 'being with someone' and their need to watch is invoked by a level of anxiety.

This is absent or much less present, in those mothers who, being less anxious, are more able to simply look at and drink their babies in, allowing who they are to emerge. This also must have a powerful influence on the self and interactive regulatory patterns that are being constructed within the relationship and the baby.

Therefore watching and looking seem to imply a different subjective state on the part of the subject. If this is true, then taking a dyadic systems view, dyads informed by watching will co-construct different self and interactive relational processes than those dyads informed by looking and this will affect how they come to interact over time.

Given the inter-subjective nature of the mother-infant relationship, the baby will quickly become a partner in the co-construction of meaning (as outlined earlier this chapter) responding to different ways of being looked at or watched with both self and interactive regulatory behaviours.

Early formulation

The following table was formulated at this time following microanalysis of the tapes and a broader viewing of them in real time.

Recognizable ways of looking

4 Categories

- Looking while breast-feeding
- Looking and talking to me
- Looking with a sleeping baby
- Looking with an awake baby

Sleeping

1. Looking and holding sleeping baby in arms (gaze space) and smiling
2. Looking and holding sleeping baby in arms (gaze space) and talking to
3. Looking and holding sleeping baby in arms (gaze space) and stroking/patting
4. Glancing at sleeping baby within 10 seconds while talking to me – facing towards baby
5. Staring at sleeping baby while talking to me
6. *Looking and holding baby away from body with outstretched arms facing herself*
7. *Looking and holding baby very close to face – up on shoulder*
8. *Looking at sleeping baby and holding baby facing outwards*
9. *Looking and holding baby's head*

Semi awake /awake baby

1. Looking and holding baby in arms (gaze space) and smiling
2. Looking and holding baby in arms (gaze space) and talking to
3. Looking and holding baby in arms (gaze space) and stroking/patting
4. *Looking at awake baby and holding baby facing outwards*
5. *Looking at baby and baby looking away*

Alarm

6. Looking without seeing/responding to baby's discomfort
7. Looking with widened eyes
8. Looking with flat face
9. Looking with face very close
10. Looking at baby in cot as if at stranger – with no postural equivalence
11. Not looking at baby for long periods (over 10 seconds?)

Dimensions while looking:

Distance/Closeness of mother's face to baby's face

Facial expression on mother's face

Facing baby outwards/towards her

Level of involvement with baby

Note: Those in ordinary type are 'comfortable', those in italics are 'uncomfortable' and then a category for 'alarm'.

Figure 3.2: Recognisable ways of looking, 19/06/2012

The role of subjectivity

I recognised that my own responses to these tapes influenced how I was viewing them and also to some extent how I described them. I understood also that my thinking was strongly influenced by my years of experience as a psychotherapist and infant mental health worker.

Acknowledging this subjective perspective, I created a hierarchy in answer to the question - 'How do I feel as I look at these mothers?'

Box 3.10: Subjective response to mothers' looking in tapes 2 to 9, field note, 15/05/2012

Watching again, trying to just focus on looking and what it is I am trying to capture….I can't see anything except the gross difference between the 1 high risk mum and the rest.

They all look a lot at their babies – even where I am talking to them (MYB 2 and MYB 3) – they are busy checking back (MYB 3) or seem to find it hard to tear her eyes away (MYB 2).

The later ones all look for long periods of time and while some make me feel better as I look at them than others, when I try and work out what that's about, it's more the quality of the looking – task orientated and anxious-feeling (MYB 4) and then MYB 5 is just intrusive - never stops putting her face in her baby's face and MYB 6 is awkward…looks a lot but makes me feel squirmy often especially when she seems to laugh at the baby.

Then MYB 7 is a smiley faced woman who seems to be at ease with her baby and MYB 8 is somewhere between – intense, feels a bit 'concerned', looking.

MYB 9 seems stranded and frightened.

If I were to rank them on looking on my subjective feel then is:

2, 7, 3, 8, 4 & 6, 5, 9

The inclusion of the one high-risk mother made it clearer that there were three overall types of looking: looking that made me feel comfortable, looking that made me feel uncomfortable, and looking that made me feel worried.

It was apparent that these three categories might fit well with the perspective of the midwife—looking that a midwife would think of as positive and desirable; looking that she might be able to work with; or looking that indicated the need for a referral.

The tapes were reviewed with these categories in mind to see if looking and any accompanying behaviours could be placed in one of these categories.

Interview Data

At this time I considered how to best use the interview data and what was the most useful process for its meaningful analysis.

What the mothers said about looking was compared with how looking was simultaneously being enacted. NVivo was used and a preliminary attempt was made to match the verbal transcript with a micro-analysis of looking.

Tapes 2 to 6 were transcribed. One benefit of transcribing these early tapes was that it influenced the data collection process because it quickly highlighted how talking

throughout drew mothers away from looking at their babies. This contributed to the standardisation of the data gathering process from Tape 4.

However, matching the transcription with the video footage proved very time-consuming and less useful than the procedure described above.

The interview part of the tape was set aside at this point and the focus of identifying the observable behaviours of mothers with their newborns took precedence. The complete typology therefore was developed independently of the interview transcript and used solely what was observed.

C. Differentiate and operationalise the construct

DeVellis (1991) identifies that it is important as part of coming to a clear definition of the construct to:

- ensure that the level of specificity of the proposed tool is matched to the intended function
- differentiate the construct under measurement from other constructs.

The intended purpose for the typology was as a clinical tool for midwives and they would be using it on a busy postnatal ward. The typology needed to be able to measure the construct of maternal looking without requiring the use of video and with only a minimum amount of paperwork. It needed to be as focused as possible without losing its integrity.

I had already decided not to include the mother-infant interaction so that the baby's state was not factored into the data-gathering process. The baby could be awake, asleep, feeding or not feeding and this was reflected in different tapes and sometimes at various stages in those tapes, consistent with the fact that over any working shift a midwife will encounter a variety of states in the baby.

At this stage it was clear that another in-depth research tool similar to that of Feldman (1998) would be too complex for everyday clinical use. This added to the need to refocus on maternal looking as the critical variable. In fact the variability in the tapes came to be seen as valuable in developing the clinical tool as midwives would inevitably be viewing mothers being with their babies in many states throughout their working day.

In summary, multiple tape reviews, using microanalysis and real time, had confirmed that 'maternal looking' occurs frequently and that there was a level of variability in this looking which would benefit from further exploration. It had also been observed that a

variety of accompanying behaviours may help define the quality of the looking and identifying these could assist with differentiating maternal looking.

Generating a large pool of items

It is important in scale development to generate a large number of items that relate to the underlying construct (DeVellis 1991, p. 54). These items are an overt manifestation of the underlying construct and need to reflect the purpose of the tool. They should be unambiguous, brief and easily read (ibid.).

Increasing the pool of item descriptors

A first attempt to increase the pool of item descriptors involved identifying additional descriptors for qualities of looking. This resulted in an expanded list (Table 3.7 below).

Table 3.7: Different ways of looking, 24/07/2012

- worried/anxious
- scrutiny
- pensive/thoughtful
- involved
- puzzled
- peaceful/calm
- absorbed
- happy/vital
- proud
- amused
- relaxed
- uncomfortable
- concerned
- intrusive
- frightened
- disconnected/blank

First iteration of looking categories

The items were not suitable for formal cluster analysis or other statistical data reduction techniques because they were not yet sufficiently robustly identified. These descriptors were therefore tentatively grouped into three broad categories, ranked according to the quality of the overall looking behaviour.

The motivation for developing a typology of looking had been to identify a group of mothers for whom a quick and simple intervention early in the mother-infant relationship might make a difference. It was always clear that the target group would be neither mothers who were doing very well nor mothers who were doing very poorly. Those who were doing very well didn't need an intervention and those who were doing

poorly needed a more intensive intervention. Therefore the typology required at least three groups, and for practical purposes it would be better if there were only three groups.

Table 3.8 below was the first iteration of the notion of categories of looking behaviour and its potential for practical future use was held in mind.

Table 3.8: First iteration of looking categories, 24/07/2012

Fine	Uncomfortable	Worry
Involved	Worried/anxious	Intrusive
Peaceful/calm	Scrutiny	Frightened
Absorbed	Pensive/thoughtful	Disconnected/blank
Happy/vital	Puzzled	
Proud	Uncomfortable	
Amused	Concerned	
Relaxed		

The list of qualities of looking was further elaborated with some accompanying behaviours being incorporated. Examples included:

- Gazing at the baby lying in cot
- Gazing en face with the baby positioned facing the mother
- Looking that was accompanied with a smile
- Looking with a flat, expressionless face
- Glancing
- Looking past the baby
- Peering with narrowed eyes and a slight frown
- Staring with eyes widened
- Appearing to concentrate as if observing what 'to do', having a scrutinizing quality
- Looking while smiling and vocalising
- Appearing to grimace, frowning and smiling simultaneously

However, before progressing the typology, it was necessary to add more high-risk mothers to the cohort.

Recruitment of additional high-risk mothers

Using purposive sampling, the National Perinatal Depression Initiative worker recruited six more high-risk mothers and tapes 10 to 15 were made. Except for tape 13, which was excluded when it emerged that this mother had an older child, these tapes were included in reviews as they were completed.

The number of looking behaviours increased with the addition of some of the high-risk mothers. The importance of some behaviours that influenced looking, like positioning and how the baby was handled, became obvious. The range of variety of mothers' facial expressions was also extended.

Box 3.11: Tape review notes of two high-risk mothers, field notes, 18/06/2012

MYB 9

Risk factors – 'I had a meltdown last night' – baby from one night stand, isolated, young.

Not happy – seems stranded in the bed – a rabbit in the headlights

Does the wide-eyed thing – little smile but very nervous

Tried noting any positive things I can e.g. brief monitoring of the baby – smiles when the baby stirs

But positioned the baby away – mum remains immobile.

Most of time seems avoidant and dissociated – gazing off into space

(How to rate unfocused, dissociated gaze? – she seems to not relate to the situation - like she's in a dream – she's not emotionally or psychologically present)

She doesn't monitor baby in a way that's close – doesn't move much – one little smile – nurses have wrapped the baby.

It's like the baby is not connected to her – hard to watch

Dissociated gaze, poor positioning poor monitoring, flat affective expression, terrible sense of detachment, jerky movements of mother's head, fleeting glances at baby – more glancing than anything else – affectless..

MYB 10

Kissing, role reversal as in AMBIANCE system, holding baby facing out,

Handling is very hard to watch

Lack of positioning, lack of containing – no wrapping - doesn't hold head

Very insensitive – seems like it's all about her (mum) – 'open your eyes and look at me' – 'what's that face?' – ugh..

Not that looking is not focused – it's the quality of it - such intense focus, intrusive – would be a relief if she didn't look

Not the quantity but the quality of it

Quality of stroking and touch – over-arousing interaction

Terrible position - she's interacting with him like he's about 6 months old.

… intrusive, all about me, insensitivity – shocking interaction -

Emotional quality – rough and ready - feels angry – not that she's not trying, feels like she has a terrible need to understand – 'what's the story?'

Trying to be affectionate but rough and ready and angry.

These descriptions show the increasing range and focus of behaviours when mothers identified as high risk were included.

At this time I purposefully recruited MYB 11 because she had a diagnosis of depression and I had not previously included a depressed mother. MYB 12 was identified as a high risk mother but, as I had reached saturation, I did not need to use her at this point.

Review of accompanying behaviours in other mothers

I then returned to tapes 2 to 9, and compared them where the mother's behaviour or the baby's state was the same. I matched mothers who were breastfeeding, mothers who held the baby, contexts where the baby was in the cot and where the baby was asleep versus awake.

Box 3.12: Comparison of two breastfeeding mothers, field note, 17/07/2012

MYB 2

Strokes and appears, tired looking, focused prolonged looking at the baby, baby completely on task – mum contemplative and absorbed in the experience, blocks us all out (me / cleaner / midwife arriving to check) and gets back in with baby, baby been in nursery, in constant contact with him – talking, stroking,

Infant factor in the feeding ones – infant strength in sucking and focus – well put together – mother doesn't have to struggle, well molded, content.

Positioning – molded positioned well for gaze and for feeding, monitors him, positive affect - smiling, positive vocalizations, knows he doing well and tells him, periods of intense gaze, stroking, talks to me and is expressive and keeps glancing and stroking as she does so maintains simultaneous attention or shared attention.

MYB 4 (contrast with MYB 2 as both feeding)

Anxious – monitoring, glancing while talking– simultaneous attention OK

Positioning - not as containing – baby doesn't mold as well and she doesn't hold as well – baby needs wrapping – her little hands splayed –

Handling - a bit jerky - not as fluid and easy -very rough how she is at end when phone rings

Baby not as easy to feed as MYB 2 – tiny baby and big breast.

Mother is focused on the baby but very anxious (tires baby) – 'I must work out what do' - 'this is my job now and I must work out how to make it all work' common for some new mums – little more awkward – less certain less containing for baby – tries wrapping – learned that it might help? but then begins poking again. Can this baby be settled by what she does? – no cos she escalates it as she is so uncertain – baby has the restless head movement - an important sign.

Box 3.12: (continued)

But very attentive – has the idea that the baby's separate and 'I've got to get to know this baby somehow'.

How to describe different qualities of looking?

Worried about size of baby – seems scared…moment of fear on her face earlier Mum seems uncertain and fearful– less confident – constantly seems to be trying to find something out – i.e. finger in baby's mouth a lot.

Looks intently - worries about baby size and also about postnatal depression checks if she's still breathing.

Most significant time she says was - 'it was great to hear her cry and know she ok - Best when I first put her on breast and felt that close bond – special being able to look at her.'

Her style is less containing – not as good at reading the baby's clear signals that needs to be contained and wrapped – she tries everything in a short time – baby first one side then other breast - holds baby out then holds in – demonstrates the anxiety which she talks about later.

Reviewing these matched tapes clarified that the type and intensity of affect, how mothers position the baby and the overall style of the mother and its effect on me, the observer, were significant and needed to be included in the range of descriptors.

The above comparison reinforced the need for finding a way of specifically rating the overall quality of the looking – the affective tone. For example, MYB 4 only made sense with the addition of the mother's affective communication – at times she had a frightened look on her face and at other times she was smiling. The intensity in her gaze had a scrutinising quality, which seemed to be saying 'I must work out what this baby wants' or 'What do I need to do for her?'.

Another review of matched state, this time based on matching unusual positioning of the baby, is below in Box 3.13. MYB 5 held the baby very high in her arms often almost at the level of her face. MYB 6 was half sitting, half lying in the bed with the baby lying across her baby facing away from her and outwards. How the baby was positioned seemed to express the mothers' feeling for the baby at that time and was reflected in their other behaviours with the baby.

Box 3.13: Comparison of two mothers with unusual positioning, field note, 17/07/2012

MYB 5

Very intense about baby – said she talked to baby since first pregnant – cultural? or anxiety?

Floppy baby

Trying to wake baby up – baby appears very tired.

Box 3.13: (continued)

Holds baby very high – weird positioning – tricky because of the culture

Lots of talking – Mother doing what she thinks she should do – i.e. baby focused talk, lots of looking and touching – very proud mum – showing the baby off to the camera

Very hard to watch – interaction driven by mother – wants her baby to do things – feels like she's showing her off for the camera – needs reassurance?

Baby stays determinedly asleep.

MYB 6 - doesn't use her voice much

Feels like she may have given baby back to husband if me not doing research – research is a bit of an intervention?

Mum camera shy

She observes baby in this position – baby not molding – mum appears a bit distanced - holds his head – is reassured when he grabs her finger

She seems puzzled mostly - What she tries doesn't work for baby initially…

She's a bit more avoidant, tentative – not as anxious but doesn't seem to know what to so – very flat – not happy / not sad – just empty. (Baby probably a bit abandoned in that?)

She tries jiggling - laughs at his sneezes (not funny – feels sad)

When she talks in low, soft way baby seems slightly contained and settles a little bit but still held in a distancing position.

She seems ill at ease - doesn't know what to do with him – (He avoids looking at her) she gets uneasy – a bit frozen.

But very focused and long periods of looking - think about the quality of looking.

This mum tries to keep as still as she can – when she rocks that helps baby – not the gaze nor her voice so much – more the rocking – seems like some part of her knows how to do that

She doesn't allow the baby to hear her heart beat because of the positioning – no positioning for face to face gaze – is baby held in a position to make eye to eye contact when they are alert – this baby could have in this time but not positioned well

She likes the baby to suck his hand – maybe she likes the baby to self-regulate? It's like he has to do quite a bit of it himself – as if he is an older baby

She does smile – an odd funny way but she does…

Based on such comparisons, extra descriptors were developed and some key concepts began to emerge.

Increased list of descriptors

Domain definitions originally identified in Table 3.5 (First domain definitions) were becoming clearer with repeated review. Not only the quality of the looking at the baby,

but also how the baby was positioned, and something about the quality of the touching or the way the mother handled the baby seemed important.

Behaviours in these domains were defined with increasingly fine detail, resulting in the emergence of more descriptors.

Table 3.9: Emerging list of descriptors, 31/07/2012

1. Mother holding baby well-positioned for gaze/interaction
    i. looking down at baby with **smiling** face
    ii. looking down at baby with **absorbed** expression - continues to turn and look down at baby whenever conversation / etc. stops… (being with?)
    iii. looking down at baby with **concentrated/intense** expression (doing to?)
2. Mother is holding baby within 12 inches of her face up near shoulders looking at baby
    i. with **concentrated expression**
    ii. and **smiling and/or talking**
    iii. **frowning and/or smiling and/or talking**
3. Mother is holding baby in front facing her about 12-18 inches from her face looking at baby
    i. with **concentrated** expression
    ii. and/or **smiling and/or talking**
    iii. **frowning and/or smiling and/or talking**
4. Mother is holding baby in front facing her within 12 inches from her face and looking at baby
    i. **smiling and/or talking**
    ii. with **intensity**
5. Mother is holding baby in front facing her with arms extended looking at baby with concentrated expression
6. Mother is holding baby facing outwards 12- 18 inches from her face looking down at baby
    i. smiling and/or talking
    ii. with **concentrated/intense** expression
7. Mother is sitting alongside baby with
    i. eyes widened looking at baby
    ii. expressionless face
8. Mother is standing/sitting looking down at baby
    i. smiling
    ii. with concentrated expression
9. Mother is hovering over the baby, looking down at baby with concentrated expression, sometimes putting her finger in baby's mouth
10. Mother glances at baby, less than 2 seconds
11. Mother is interacting with the baby without looking
12. Mother is not looking at baby

Implications for a practical structure for midwives

At the same time as continuing to generate descriptors, I had to be mindful that the resultant structure needed to be one that midwives could use to help them identify different patterns and characteristics of looking.

I needed a practical way of laying out descriptors so that the behaviours could be rated by midwives in the course of their work.

The three figures below illustrate the progressive development of a practical format that encapsulated the key features of the identified patterns of behaviour.

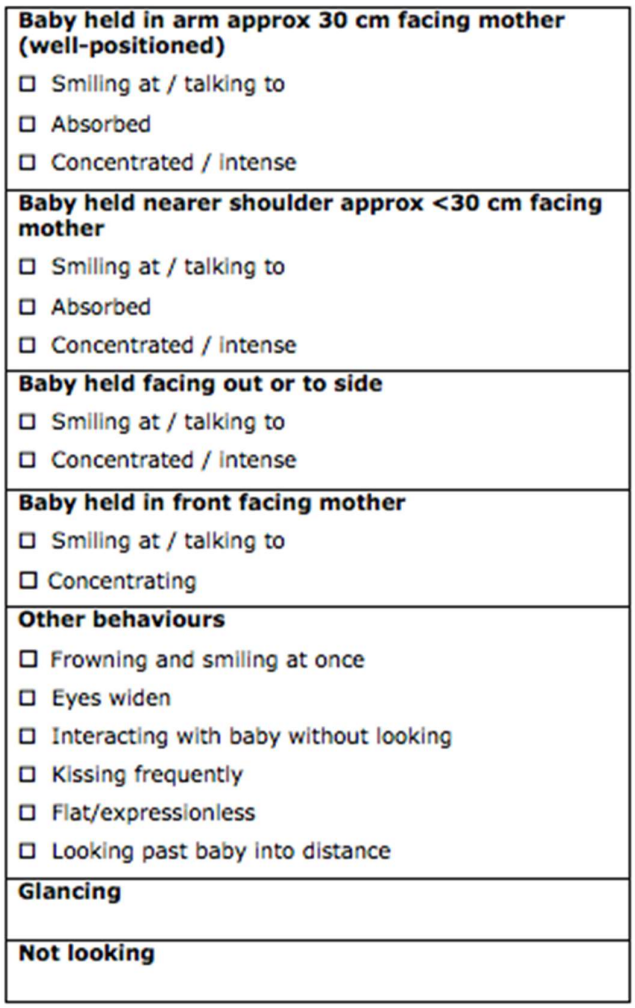
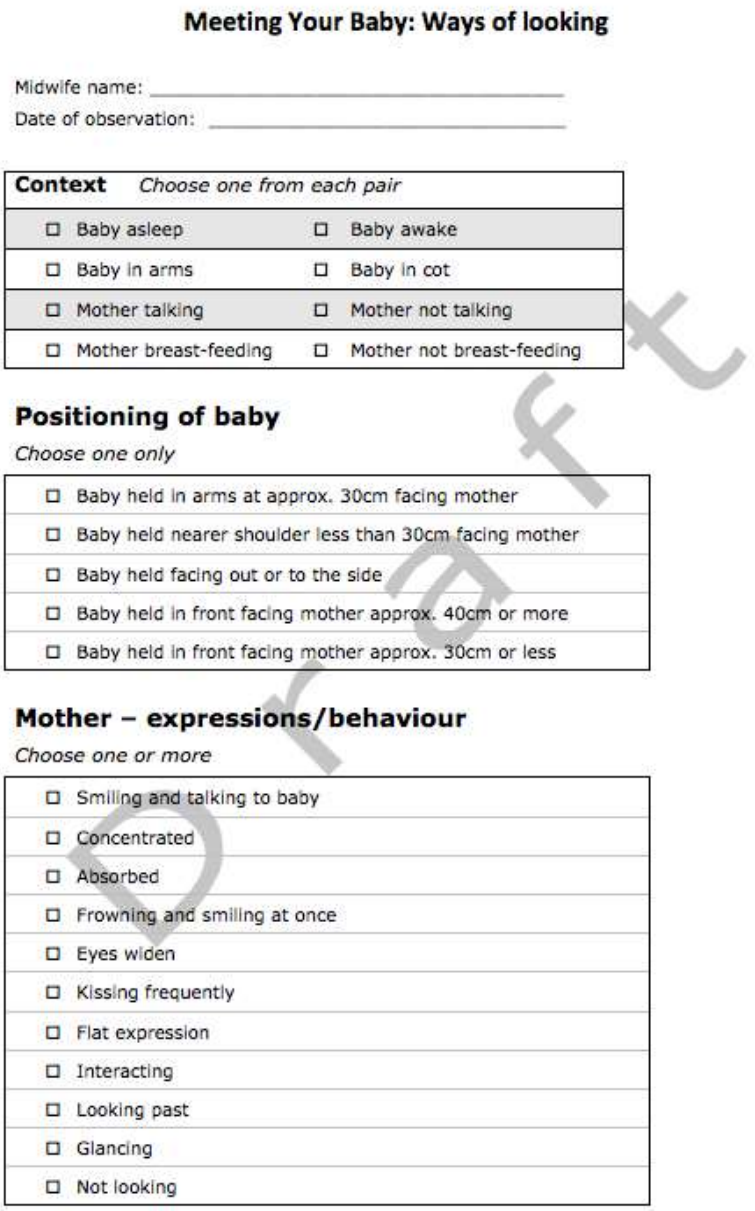


Figure 3.3: Patterns of Looking 1, 09/09/2012

Looking			
	Smiling/talking	Concentrated	Absorbed
Baby held in arm approx 30 cm facing mother (well-positioned)			
Baby held nearer shoulder less than 30 cm (approx) facing mother			X
Baby held facing out or to the side			X
Baby held in front facing mother 30cm or more			X
Baby held in front facing mother less than 30 cm			X
Other expressions / behaviours			
Frowning and smiling at once Eyes widen Kissing frequently Flat/expressionless			
Glancing			
Not looking			

Figure 3.4: Patterns of Looking 2, 20/09/2012



Meeting Your Baby: Ways of looking

Midwife name: _____

Date of observation: _____

Context *Choose one from each pair*	
☐ Baby asleep	☐ Baby awake
☐ Baby in arms	☐ Baby in cot
☐ Mother talking	☐ Mother not talking
☐ Mother breast-feeding	☐ Mother not breast-feeding

Positioning of baby

Choose one only

- ☐ Baby held in arms at approx. 30cm facing mother
- ☐ Baby held nearer shoulder less than 30cm facing mother
- ☐ Baby held facing out or to the side
- ☐ Baby held in front facing mother approx. 40cm or more
- ☐ Baby held in front facing mother approx. 30cm or less

Mother – expressions/behaviour

Choose one or more

- ☐ Smiling and talking to baby
- ☐ Concentrated
- ☐ Absorbed
- ☐ Frowning and smiling at once
- ☐ Eyes widen
- ☐ Kissing frequently
- ☐ Flat expression
- ☐ Interacting
- ☐ Looking past
- ☐ Glancing
- ☐ Not looking

Figure 3.5: Patterns of Looking 3, 07/10/2012

Progressive enhancement of descriptors

Following an informal focus group of experienced colleagues, the following considerations were formulated:

New considerations

1. The quality of looking could be a point of comparison.

   I began to think of how to rate the quality of the looking - anxious looking, pensive looking, happy looking, intense looking etc.

Using these ‘different types of looking’ as working definitions, tapes 2 to12 continued to be interrogated in real-time by comparing and contrasting what was identified in one tape with another, to see if, or how, it was replicated. So for example, ‘pensive/thoughtful’ in one mother was then compared with a similar example in another tape. Similarities and differences were noted.

2. The expression on a mother’s face could be captured and described.

    - Is she looking? How is she looking?
    - How much of the mother’s affective communication came through her looking?
    - Is there anything in the face that may be important?
    - If so, how might this align with other domains? For example, how does that link with how the baby is positioned or how she has distanced the baby from herself?

3. Looking behaviour during the interview section delivered additional information.

    Midwives would commonly encounter the mother talking with someone. The section of tape where the mother is talking to the interviewer could possibly indicate things like:

    - How does this mother deal with the challenge to ‘being with her baby’ that responding to another person raises?
    - How does she observe and monitor her baby?
    - What kind of monitoring does she do?
    - How does she manage her divided attention?

Responses to these questions were informative. For example it was concerning if a mother never checked back on her baby as she conversed. Again a range of responses was observed, some women seemed drawn to look back to their babies as if the conversation was taking them away. At the other extreme some mothers quickly focused on the person they were talking with and their conversation, and their babies seemed to drop from their minds for lengthy periods.

Questions relating to use of the tool also emerged:

- What clear domains could observers see relatively easily? e.g. gaze, positioning and distancing
- How would the tool best fit into a working environment given midwives can always go back if they are unsure?

- How much time is needed for midwives to make observations?
- Could subtleties of gaze (e.g. focused and maintained, glancing and monitoring) be identified in practice?

Other practical considerations also began to emerge such as:

- How best to train the midwives in what to look for?
- Would the tool be used with every mother or only when things 'feel' wrong?

The expectation at the time was that a midwife would do normal routine things and, after being in a room with a mother and her baby over the course of a working shift, they'd have a feel for whether or not they needed to go in and look more closely.

These considerations prompted me to think that it would be important to discuss these issues with some midwives and find out what they routinely do, including how much time they spend with a mother and her baby and the nature of their observations. The idea of work-shadowing midwives in the course of their normal working day, described later in this chapter, was born here.

Use of 10 second event-based groupings to review completeness of descriptors

In order to see if my list of descriptors had captured and categorised all looking-based interactions between mothers and their babies, it was decided to interrogate the data again in time slices. After reviewing various time slices to gauge how long it took for an event to occur, 10 seconds was chosen for the duration of the time slice. It took about 10 seconds from the beginning of an event e.g. a mother adjusting the baby, glancing at the interviewer and then returning her gaze to the baby. The 13 tapes were then rated in 10 second time spans solely in terms of looking.

This led to a recognition of three variables of the baby's state: baby asleep/awake; in arms/cot; feeding or not feeding. Another variable related to whether the mother was talking with another person or not talking. There were also a number of variables of looking based on facial expression and positioning.

Some new behaviours were identified that appeared to be associated with a less desirable style of looking. For example 'kissing the baby frequently' indicated the mother was in fact 'not looking' at the baby when she was interacting with the baby. Similarly 'eyes momentarily widening' seemed to indicate a more dissociative feature. Given the novel approaches that were being used and the lack of technical guidance found in the literature, these refinements were again discussed with colleagues to ensure that my own biases were minimised.

Comprehensive list of descriptors

From the tapes and analysis to date, a large number of descriptors of how mothers look at their babies had been identified. While an ideal number of items cannot be known, it was important to identify as many as possible to ensure saturation.

Using the additional input from the 10-second event-based analysis of 13 dyads, an expanded list of 24 recognisable and now exhaustive descriptors of looking was created (see Table 3.10 below). Confident that the spectrum of high-risk and low-risk mothers in the sample was sufficient for an exhaustive list of recognisable item descriptors to be created, I then decided to close this process off and begin to look for redundancies.

Table 3.10: A comprehensive list of descriptors, 02/01/2013

1. Mother holding baby well-positioned for gaze/interaction – looking down at baby **smiling** and/or talking to baby
2. Mother holding baby well positioned for gaze/interaction – looking down at baby with **absorbed** expression – (continues to turn and look down at baby whenever conversation / etc stops…) {being with?}
3. Mother holding baby well positioned for gaze/interaction – looking down at baby with **concentrated/ intense** expression {doing to?}
4. Mother is holding baby within 25cm of her face (eg near shoulder) looking at baby and **smiling and/or talking**
5. Mother is holding baby within 25cm of her face (eg near shoulder) looking at baby with **concentrated/intense** expression
6. Mother is holding baby within 25cm of her face (eg near shoulder) looking at baby and **frowning and/or smiling and/or talking**
7. Mother is holding baby in front facing her more than 25cm from her face looking at baby with **concentrated/intense expression**
8. Mother is holding baby in front facing her more than 25cm of her face and looking at baby and/**or smiling and/or talking**.
9. Mother is holding baby in front facing her within 25cm of her face and looking at baby and/or **smiling and/or talking.**
10. Mother is holding baby in front facing her within 25cm of her face and looking at baby with b
11. Mother is holding baby in front facing her about 12-18 inches from her face looking at baby and **frowning and/or smiling and/or talking.**
12. Mother is holding baby in front facing her arms extended looking at baby with **concentrated/intense expression**.
13. Mother is holding baby facing outwards /side-on looking down at baby **smiling and/ or talking.**
14. Mother is holding baby facing outwards / side-on looking down at baby with **concentrated/ intense** expression
15. Mother is sitting with **eyes widened** looking at baby
16. Mother is sitting alongside baby looking with **expressionless** face.
17. Mother is standing/sitting looking down at baby **smiling**.
18. Mother is hovering over the baby, looking down at baby with **concentrated** expression - sometimes putting her finger in baby's mouth.
19. Mother is standing/sitting looking down at baby in cot with **concentrated** expression.
20. Mother is **not looking** at baby.
21. Mother **glances** at baby for less than 2.5 seconds.
22. Mother is **interacting** with the baby **without looking**
23. Mother **looks past** baby into distance
24. Mother is **kissing** baby

Using these descriptors, different kinds of looking began to be identified. For example the similarity between absorbed looking and concentrated looking was teased out. Concentrated looking appeared to be looking with a view to needing to do something,

that something needed to be worked out, that the mother was required to act in some way. This is more akin to 'watching' as previously explained. By contrast, absorbed looking did not seem to be with a view to making a plan about what to do next. It had a more 'being with' quality, a sense of taking in or drinking in the baby.

Evolution of key constructs

The different ways of looking, different facial expressions and different positioning of the baby were gathered into inter-related groups of behaviours.

Table 3.11: Descriptors clumped together in inter-related groups, 01/02/13

Group 1
- Mother holding baby well-positioned for gaze/interaction – looking down at baby **smiling** and/or talking.
- Mother holding baby well-positioned for gaze/interaction – looking down at baby with **absorbed** expression - continues to turn and look down at baby whenever conversation / etc. stops… (being with?)
- Mother holding baby within 25cm of her face up near shoulders looking at baby and **smiling and/or talking**
- Mother is standing/sitting looking down at baby smiling

Group 2
- Mother holding baby well-positioned for gaze/interaction – looking down at baby with **concentrated/ intense** expression (doing to?)
- Mother is holding baby within 25cm of her face up near shoulders looking at baby with **concentrated expression**
- Mother holding baby within 25cm of her face looking at baby and **frowning and/or smiling and/or talking**
- Mother is holding baby in front facing her >30cm from her face looking at baby with **concentrated** expression

Group 3
- Mother is holding baby in front facing her arms extended looking at baby with **concentrated expression**

Group 4
- Mother is holding baby in front facing her >30cm from her face and looking at baby and/or **smiling and/or talking**
- Mother is holding baby in front facing her within 25cm from her face and looking at baby and/or smiling and/or talking
- Mother is holding baby in front facing her within 25cm from her face and looking at baby **looking intensely**
- Mother is holding baby in front facing her >30cm from her face looking at baby and **frowning and/or smiling and/or talking**

Group 5
- Mother is holding baby facing outwards >30cm from her face looking down at baby **smiling and/ or talking**
- Mother is holding baby facing outwards >30cm from her face looking down at baby with **concentrated/ intense** expression

Group 6
- Mother is sitting with **eyes widened** looking at baby
- Mother is sitting alongside baby looking with expressionless face
- Mother is hovering over the baby, looking down at baby with concentrated expression - sometimes putting her finger in baby's mouth
- Mother is standing/sitting looking down at baby in cot with concentrated expression /worried expression

Group 7
- Mother is not looking at baby
- Mother **glances** at baby 0- less than 2.5 seconds
- Mother is **interacting** with the baby **without looking**
- Mother looks past baby into distance
- Mother is kissing baby

Factor analysis

Another approach would have been to factor-analyse the individual items to generate constructs. Reliability of a tool depends on internal consistency, 'how strongly the items

correlate with one another (and hence with the latent variable)' and the number of items in the scale (DeVellis 1991, p. 57). The 24 separate descriptors identified in Table 3.10 (above) could have been presented randomly to a population of midwives and they could have been asked to rate each item for each mother on a 5-point Likert scale, i.e. strongly disagree, disagree, neither agree nor disagree, agree, strongly agree.

However, given that 24 descriptors (questions) had been identified, a minimum of 200 midwives would have been needed to score 10 tapes to generate sufficient data for a factor analysis (Osbourne & Costello 2009).

While this may have lessened the possibility of subjective bias in allocating descriptors to constructs, it would have been prohibitively time-consuming and impractical. In consultation with a number of experts, it was regarded as acceptable methodology to allocate descriptors to constructs according to a logical intuitive grouping. This allocation was based on my clinical experience and judgement about the mother's looking and associated behaviours.

Similarly the three overall categories emerged from the data and my clinical knowledge and experience. While this judgement had an irreducibly subjective component, its reliability could then be challenged by use of the tool.

Accompanying behaviours

DeVellis (1991) encourages developing an inclusive and comprehensive set of items that reveal the phenomena being studied in multiple and different ways. A number of key accompanying behaviours like positioning and handling had previously been identified, and these seemed to modulate the quality of the looking by coinciding with various facial expressions.

For example the importance of how the mother positioned her baby for looking was increasingly apparent. There was an optimum 'gaze space' when the baby was comfortably settled in the mother's arms. This has been identified in the literature (Papousek & Papousek 1987; Stern 1985) as 20-25cm. This is the distance created when a mother holds her baby in the crook of her arm. Those mothers who were observed positioning their babies in this way more often appeared relaxed and lovingly engrossed in their babies.

The descriptors developed so far were therefore expanded and refined by incorporating associated behaviours like positioning, touching and vocalising as extensions of looking behaviour. These were considered in terms of how they affected looking or how they nuanced the latent variable 'maternal looking'.

Another key accompanying behaviour to emerge was handling. At one extreme, some mothers appeared to handle their baby more as an object, demonstrating little or no sense of the baby's experience. By contrast, other mothers handled their babies with great sensitivity, responding to each of the baby's gestures, handling them at all times with consideration of their ongoing experience.

Handling itself was differentiated from touching behaviours. Most new mothers were observed constantly touching their babies when they were holding them. Even when the baby was sleeping, they would sit making contact with the cot, sometimes stroking the baby or even the cot. This constant touching, which could be seen as obsessive in normal life, was named preening, as it resembles the grooming and licking behaviour known as an essential component of attachment behaviour in rats. Again a range of preening behaviours was observed from smooth, calming patting or stroking through to picking and poking motions that did not recognise the baby's experience.

Consideration of how best to present the information in a way that would make it easy for midwives to approach, based on what they might be able to see, prompted the possibility of separating out these key constructs. It seemed that certain constructs could stand alone, while some could be mapped onto others. The following draft set of constructs were prepared:

- Positioning of the baby
- How the mother looks – the expression on her face
- How she seems to be perceiving the baby
- How she handles the baby
- How much she references the baby when talking with someone else.

The next step was to see if anyone else looking at the tapes could use the system developed this far.

Informal testing of descriptors and constructs

An infant mental health colleague viewed, in real-time, 3 to 4 minute samples from four tapes that had been randomly selected. She was able to apply the descriptors and identified similar patterns of behaviour or constructs to me. For example, she could distinguish between intense (worrisome) and scrutinising (uncomfortable) looking and their difference from absorbed looking (comfortable). She also understood the idea of 'doing to' (uncomfortable) versus 'being with' (comfortable) in terms of looking and different examples of this.

This second observer had been encouraged to add behaviours that had not been identified, but was unable to do so, supporting a view that the possibilities had been exhausted.

While it was possible to identify the three categories of comfortable, uncomfortable and worrisome in what she observed, the issue of how to track that in practical terms needed to be addressed. It was recognised that this felt, subjective experience was valid, but would be difficult to rate. Subjective experience is in part determined by one's own internal representations. A midwife's own internal map will affect how they experience a mother looking at her baby. An objective scoring structure was needed which could mediate this.

Summary

The informal testing process confirmed the face validity of these different descriptions of looking. Looking and related interactions of mothers with their infants could be captured with a finite number of descriptions. These descriptions in turn were effectively grouped and the constructs that emerged could in practice be allocated to one of the three categories of looking.

Determining the scoring structure and format

DeVellis (1991) highlights the importance of deciding early what format is most suitable and that this should reflect the nature of the latent variable and the intended uses of the scale. As the tool was to be used by midwives, both the format and the scoring structure needed to fit into midwives' daily routine.

Formulating the typology in a midwife friendly way

Work-shadowing midwives

In order to understand more of their daily routine, I work-shadowed a number of midwives working, closely observing them to gain insight into their everyday routine. I needed to understand a midwife's working day, how or when the typology could be used and the best format for its use.

I felt excited about the possibility of working with midwives and I also felt some trepidation. I wanted to warm them up more to the typology and the possibility of working in partnership with me to develop it, as the possibility of being able to assess how a mother looks at her baby was becoming increasingly likely. This fitted with my aspiration to involve midwives more in the relational aspects of caring for mothers and babies with the hope of empowering them to see how well-positioned they are to

provide early intervention. The lack of midwifery input into infant mental health, as previously noted in the literature review (Chapter 2), seems a significant omission.

In my previous work in the hospital system, I had never observed attention given to recognising the relational needs of mother and baby. Mothers were mainly directed to mental health services when they expressed or were unable to contain their emotions which, given that they had just given birth, is hardly surprising. I was concerned, though, that the typology would be seen as burdensome, more work midwives would have to add to their full schedule.

Preliminary discussions with the Clinical Co-ordinator and the Nursing Director were encouraging. They were very willing to give advice, suggesting work-shadowing a number of midwives for a shorter period, and supporting the project through the ethics application process.

Following ethics approval, the midwives were recruited for work-shadowing by being invited to take part in the research by the Shift Co-ordinator. They were given a brief explanation of the aims of the research and how work-shadowing would contribute. Consent forms to participate in the work-shadowing were then signed. All four midwives when approached generously agreed to participate.

I was introduced to patients as someone watching the midwife's work to understand better what a midwife actually does. I spoke to neither the midwife nor the mother when in a mother's room, and I absented myself during medical procedures or examinations. This was in an attempt to be as unobtrusive as possible and not interfere in any way with either a midwife's care of the mother and baby or a mother's care of her baby.

Demonstrating the feasibility of midwives using the tool did not require me remaining in any situation where a mother might be uncomfortable with an extra person present.

I work-shadowed two midwives for approximately two hours over their morning shift and another two midwives for approximately two hours over their afternoon shift. Each midwife was caring for five or six women.

Work-shadowing was effective on a number of levels. It showed how quickly and efficiently a midwife had to work to be able to provide appropriate care while completing all the bureaucratic requirements of quality assurance processes. At times it appeared that the level of compliance required interfered with patient care. All four midwives expressed their frustration at the amount of reporting—paper and computer entry—required of them and the apparent duplication of some of this reporting. They

felt that this at times prevented them from providing the level of care they would like to have provided[42]. My tool needed to be mindful of these constraints.

Challenges and opportunities for midwives

As an outcome of work-shadowing these midwives, a number of important issues were identified.

Box 3.14: Midwife A work-shadowing, field note, 12/03/2013

Mother 1 – has had twins – very small in nursery. It's day 6. Midwife takes her down in wheelchair and passes her over to nursery staff.

Mother 2 - Indian mother with husband and mother-in-law – very anxious – wanting help with feeding (husband's request). Midwife helps mother with positioning. Mother very anxious – barely looking at baby – struggling with intrusive mother-in-law plus language problem. Midwife tries to get over idea that sucking stimulates milk – mother wanting bottle because 'baby hungry'

A father (East European) approached midwife asking for extra milk as they are about to go home. His wife can't speak much English – dad says haven't had same midwife twice – only this midwife (I am shadowing) who was present at the birth. He asks her to come and talk with his wife. This mother is not on the midwife's list but she takes the time to go in and talk with the couple about their extraordinary birth complications – emphasising to the mum that it was not her fault that her uterus split vertically during the C Section (apparently she was told by the obstetrician at the time that it happened because she was overweight) – then she had picked up an infection. The baby is asleep in a car seat and the Mum looks over at him a few times as the midwife is talking. Dad is looking at his wife and trying to translate some things – the Mum says doesn't remember, that 'it doesn't matter' but I get feeling she does remember and it does matter. It certainly matters for dad who looks worried and relieved in turns. Midwife is very caring and kind, assuring her to ring if becomes distressed when home.

Looks at all charts – has 6 mothers and babies – all need medication – has to distribute to all.

Mother 3 – needs meds - baby going to have ENT intervention to check cry (not see mum with baby)

Mother 4 - needs meds for baby who is asleep – mother has very sore back (baby asleep).

Goes back into Indian family and demonstrates bathing – again baby handled by mother but very anxious!

[42] I was told that the same information could be repeatedly reported up to six times by different people. Midwives needed to update the Oacis computer system, plus provide discharge information ready to be printed for later and then had to go into Excelcare (another system which is completed for every mother and baby on every shift) and tick boxes for things like 'counselling education' and other pieces of information. The time taken to do this often meant the actual activity was rushed in order to show that all requirements were completed prior to discharge.

Box 3.14: (continued)

Mother 5 - Afghani young mother living in Louise place – been to RAH for hemorrhoids – needs meds for pain – has lots of questions about her baby – eye squint; distended tummy – again high anxiety?

Midwife writes up charts / notes for all mums worked with.

Mother 6 – African mother – with 5 other children, one about 16 in school uniform plus older boy and 3 smaller ones plus 2 women – looks exhausted. Wants meds for pain – checks wound and gives meds – takes obs.

Goes down to collect mother 1 in wheelchair – both babies back in humi-cribs - tells mum she can express down in nursery and encouraging her to, but she wants to come back up to ward. Brings her back.

It appeared that the baby's needs and the relational needs of the dyad are not always able to be prioritised. Mothers are provided with practical advice and education about things like bathing and breast-feeding; however, the mother-infant relationship itself was usually not overtly addressed. Unless the baby is ill, babies are not registered as patients and therefore are not included in the statistics of care.

Box 3.15: Midwife B work-shadowing, field note, 26/03/2013

Mother 3

Wants Hepatitis B injection and pain relief for self. Says she wants injection given while father there as she can't be there for it – she doesn't want to see it.

Her partner and (?) mother (filing nails) are present plus pre-schooler who is crying.

Midwife leaves room and gets injection.

Returns and working alone has to wake baby who cries – no one responds except midwife who talks calmingly to baby. Dad is sitting on bed with pre-school child who is cheerful now. Mum over by window. Midwife gives injection and none of family move closer to support baby who continues crying.

Midwife puts baby down, settles and enters procedure into notes.

Mother 4

Baby born 2 days ago – wants Panadol plus see doctor who queries why and midwife has to return to ask. – 'irritable bowel / pain'.

Man and another woman in the room – woman holding the baby. Mum on her phone, irritated voice speaking with 'partner' - through whole time does not look at her baby.

Midwife says she's anxious (twice) to me and later gives me other information - mum has refused Perinatal Infant Mental Health referral. Survivor of CSA and midwife has concerns.

Over each shift, midwives demonstrated a high level of empathic, compassionate and practical care for mothers and their babies. However, I also observed many lost opportunities for delivering potentially supportive expertise to the relationship.

A striking example of this was noted on one morning shift. It was the third woman the midwife attended.

Box 3.16: Midwife C work-shadowing, field note, 26/02/2013

The midwife was taking routine observations. This mother doesn't have her baby with her – her baby has been in the nursery since birth about 6 hours prior. She is a first time mother - she is worried about visitors coming and how can she delay her mother from coming.

The baby arrives with a midwife from the nursery. The baby is hungry and unsettled. It's a big baby rooting for the breast and mum is clearly a bit overwhelmed.

On arrival, there is due process - an exchange of notes and signatures – reminiscent of parcel delivery by courier. Nothing is exchanged about how the baby has been over this time of separation. The postnatal midwife now holding baby talks briefly to the nursery midwife who then leaves.

The postnatal midwife begins to help mum get set up to feed the baby. She suggests having the infant lying alongside the mum because of drips etc. The infant is just struggling to latch on when another midwife walks in.

There is no sense of this new midwife, seeing the importance of this moment 'the first feed', or trying to help support the mother. Instead she launches into excuses about why she had missed the birth and then asks to hear all about what happened. Apparently this latest arrival, a midwife from Midwifery Group Practice, had missed the birth because she was sick. The backup midwife had also been unavailable and then there had been some major drama about pulling the baby out.

The mum starts telling her birth story. The mum becomes more and more dysregulated as she recalls it, and her infant finds it harder and harder to feed – pulling off the breast and crying and then rooting again, crying. The postnatal midwife (ignored by both women) is holding the mother's breast and the baby's head and soothing the infant with her voice as the mother, lying cast, looks down every now and again at the baby squirming on to her breast. The midwifery group practice midwife continues to ask about the birth, drawing mum's attention away from the baby to her and her interest in the birth story which is resumed.

The midwifery group practice midwife talks through the whole feed as the postnatal midwife tries to manage the mum's breast. It is horrible to witness. I see a midwife managing a breast disembodied from a mother who talks about her birth to another midwife who is only interested in that story. Neither MGP midwife nor the mother notice the infant who is so present and needing to be seen.

Box 3.16: (continued)

The postnatal midwife battles on with the breast, talking soothingly to the baby as she holds the baby's head on to it - at one point suggesting the mother try cuddling the baby when he launches into harder crying.

This was a lost opportunity. This mother needed to know her baby wanted her, needed her, had been without her for six hours, his whole life so far. She clearly needed help to hold her baby, to look at her baby, to understand that her voice can hold the baby and that her emotional tone invaded the baby. She undoubtedly also needed time to talk about the traumatic birth, but not over this first reunion.

Finally this work-shadowing reinforced my thinking that midwives intuitively understand what the typology was highlighting and that the typology could provide validation for them, affirming their intuition and possibly giving them the evidence-base required for them to act on their knowing. This was reinforced by an interaction with one of the midwives I was shadowing as described in the following field note (Box 3.17).

Box 3.17: Midwife B work-shadowing, field note, 26/03/2013

I'm shadowing a midwife on the afternoon shift – she's very matter-of-a-fact this midwife – relatively young and this shift she has 6 mothers to care for – 2 have been discharged, 4 are currently needing care and a new mother will be arriving soon. She has been doing the routine things – completing discharge papers; providing education and ticking the boxes re: hearing tests / heel pricks / Hep B vaccinations; distributing medication etc. I have been following her in and out of rooms. Then she is asked to go down to the pharmacy for replacement drugs for the ward.

I follow and we strike up a conversation on the way. She tells me how often information is written up - up to 6 times by different people, the same information. She tells me this is very frustrating because she too is most interested in patient care.

She asks about my research and I explain the project to her. I asked her what she thought of the idea and if she thinks midwives could use this type of tool. Unhesitating she says of course they could use the tool then she says, 'You know as soon as you walk into the room how it feels.'.

I realised then just how many opportunities were being missed and I had a strong sense that midwives needed validation and a process.

In summary, the results of work-shadowing were that it:

1. confirmed the privileged position of midwives in terms of their awareness of the mother-infant relationship and their capacity to assess and potentially intervene.
2. enabled increased understanding of the pressures midwives face complying with quality assurance requirements while providing care within the tight timeframe required by hospital procedures and the importance therefore of the typology being a single page and user-friendly.
3. confirmed midwives' interest in attending to relational needs of mother and baby as each midwife shadowed expressed the same concern that the level of bureaucratic compliance required limited the time able to be spent with mothers and babies providing relational care.
4. showed midwives demonstrating an awareness of mothers' issues, needs and requirements beyond what was required of them in the physical care of mother and baby.
5. provided reassurance that midwives also tended to divide women and their babies into 3 groups that roughly corresponded to my categorisation of comfortable, uncomfortable and worrisome
6. affirmed that midwives could and would use a practical tool that both helped them identify those dyads that needed extra support and validated their own knowing.
7. emphasised the priority of usability, so that specificity and sensitivity, while desirable, were less absolute requirements.

The kind of intervention that would be generated by the clinical tool would be likely to be beneficial to any mother, and would be unlikely to have harms. Therefore false positives (those outside the target group who received the intervention) would result in a slight misdirection of resources but would be unlikely to have any negative impact, and in fact would probably still do good. Furthermore its use would always be opportunistic, so that absolute coverage of the target group would be unlikely, whether or not there were false negatives.

Producing a practical tool

An early ranking of the quality of identified looking behaviour (Table 3.8: First iteration of categories) had suggested the potential for three broad categories of looking—'comfortable' (previously 'fine'), 'uncomfortable' and 'worrisome', which, as noted above, were compatible with midwives' intuitive judgements. These same categories could therefore be used to structure midwives' assessment of behaviour in their routine

work, provided that the categories were sufficiently different from one another for the midwives to be able to reliably differentiate them.

In order to facilitate reliable categorisation, the set of constructs that had been previously identified were used to group the manner of looking and other observable behaviours:

- Positioning of the baby
- How the mother looks – the expression on her face
- How she seems to be perceiving the baby
- How she handles the baby
- How much she references the baby when talking with someone else.

Behaviours in each of these constructs could be mapped onto the three categories of looking to create a matrix (5 x 3). In this way the different descriptors of observed behaviours (items) on each construct (row) were allocated to one of the three categories (columns): those that felt 'comfortable' to view, those that felt 'uncomfortable' and those that were 'worrisome'.

	Categories		
	1	2	3
Constructs			
		Item descriptors	

Figure 3.6: Structural matrix for practical tool

It was hypothesised that observed behaviours would group in one of the three categories to allow an overall judgement. Item descriptors were progressively refined to ensure they were distinctive, exhaustive and mutually exclusive.

The first attempt to structure this in a useable way appears in Figure 3.7 below and forms Version 1 (V1) of a typology of looking. This shows the three categories and their associated descriptors.

Comfortable	Uncomfortable	Worrisome
Holds baby well positioned for gaze*/interaction	May hold baby well positioned for gaze*/interaction some of time, but may also hold in front facing her with her arms extended or facing slightly outwards or to side	Holds baby poorly positioned for gaze – too close to face or too far away or side on to her body. Doesn't hold baby
Looks at baby in an absorbed* way – *rapt, captivated fascinated*	Looks at baby in a scrutinizing* way – (*what do I need to do for this baby now?)*	Looks at baby in a riveted*, prolonged way or doesn't look or seldom looks at baby
Looks at baby with smiling soft face May look delighted with baby Seems to enjoy looking at baby	Looks at baby with a concentrated* searching face Looks thoughtful about baby – may seem uncomfortable - nervous, puzzled or worried. May sometimes look past the baby into the distance	Looks at baby with an expressionless, flat face or frowning and smiling simultaneously May look scared of baby Eyes occasionally widen momentarily when looking at baby
Handles baby in a calm soothing way	Handles baby in an overly casual or tentative, hovering way – occasionally in an object-like way	Handles baby in an agitated* or awkward-looking way – frequently in an object-like way.
Preens occasionally using smoothing motion	Preens occasionally using picking motion and/or putting finger into baby's mouth	Preens frequently using picking motion, and/or pokes or prods baby
		Kisses baby frequently – interacts with the baby without looking
When talking to another adult seems to find it hard not to look at baby and /or frequently glances at baby	When talking to another adult occasionally glances at baby	When talking to another adult may not look at baby for extended period i.e. several minutes

* 'well-positioned for gaze' – cradled in arm about 20-25 cm from face (the optimal viewing capacity for infants is about 20-25 cm (Papousek & Papousek 1987; Stern 1985)
* absorbed – engrossed, captivated,
* scrutinize – inspect, examine, study
* concentrated – concerted, determined
* riveted – intense, staring
* agitated – restless, tense, feels frantic

Figure 3.7: Typology of looking Version 1 - three categories and their associated descriptors, 11/02/2013

Scoring the tool

Up to this point:

1. Each observed behaviour had been described
2. These descriptions were allocated to identified groups or constructs e.g. positioning for gaze

3. In turn these groups or constructs were arrayed using the notion of categories of comfortable, uncomfortable and worrisome that differentiated one description from another across each construct.

The next step was to decide how to score the tool.

It was decided to score for the presence or absence of particular behaviours (items) because the items were more suited to a present/absent judgement than gradations across categories. This decision to use presence or absence as a scoring method was also taken in the interests of simplicity. It was important to differentiate the purpose of this typology as a clinical tool from a more research-based instrument like Feldman's (1998) system for coding interactive behaviours between mother and newborn.

As has been noted above, shadowing midwives had highlighted that the tool needed to be brief and able to be accommodate to midwives' work routines. It also needed to be scored as simply and naturalistically as possible so that it wasn't received as yet another bureaucratic or administrative task.

Midwife shadowing had also verified that midwives could reasonably easily identify those mothers who are doing well and those who are clearly struggling. They recognised a middle group, but teasing out this middle range from those just 'above' or 'below' seemed a more difficult task. Because it was thought that mothers in the worrisome category would need an intensive intervention and those in the comfortable category would not require any intervention, it was posited that these mothers in the middle group would be the group that midwives could most assist with extra support and/or a simple early intervention.

It seemed reasonable that the typology could be given an overall score based on the highest number of descriptors (items) noted in any particular category. For example, if most descriptors that were observed fell under the heading of 'comfortable', then that mother would be rated as 'comfortable'.

A 'Don't know' option was added into the typology at a later point to allow for the possibility that a midwife using the typology to rate the tapes for reliability may have been unable to choose from any of the three meaningful options. This fourth option subsequently proved to be unnecessary when using the typology in real life, as the midwife could simply go back and observe a bit longer to get a stronger sense of what is happening.

Maximizing content validity – further refinement of the tool with an expert group

The development of the typology to date had been achieved by disciplined observation, description and an intuitive grouping of these descriptions into groups of behaviour that became the categories of looking.

The next step was to have a group of experts in the field review the tool to test the definition of the phenomena and evaluate the meaningfulness of the descriptions. Would they be able to identify the descriptions and if so, to what level would they agree? They were also asked to clarify the language used in the descriptions noting any ambiguity or inconsistency and identifying any gaps.

This process would therefore evaluate both how much the tool actually does measure what it claims to measure—its construct validity (Brown 1996)—and to some extent its content validity—the degree to which the tool contains all facets of the given construct (DeVellis 1991).

The tool was reformatted into a landscape format at this point. Three changes were also made from the original version (Figure 3.7.)

1. A ‘Don’t know' option was added to allow for the possibility that some experts would not be able to identify the descriptors.
2. The ways of looking were reduced from four constructs or parameters to two. That is ‘looking with a smiling, soft face’, ‘looking delighted’ and ‘seems to enjoy looking’ (and their equivalents in the other two categories) were grouped together as one construct.
3. 'Kisses baby frequently' in the worrisome category was added to the preening construct rather than standing alone.

At this point the experts could now view the typology in a structured format which was called Version 2 (V2).

3 States / 'Patterns of Looking' V2 April 2 2013

Comfortable	Uncomfortable	Worrisome	Don't know
Mostly holds baby well-positioned for gaze*/interaction	Holds baby well-positioned for gaze*/interaction some of time, but may also: • hold baby in front facing her with her arms extended, *and/or* • face baby slightly outwards or to side	Mostly holds baby poorly positioned for gaze: • too close to face, *or* • too far away, *or* • side on to her body. Doesn't hold baby	
Looks at baby in an absorbed* way – *rapt, captivated, fascinated*	Looks at baby in a scrutinizing* way – (*what do I need to do for this baby now?)*	Looks at baby in a riveted*, prolonged way, *or* Interacts with the baby without looking, *and/or* Doesn't look or seldom looks at baby	
Looks at baby with smiling soft face, *and/or* Looks delighted with baby, *and/or* Seems to enjoy looking at baby	Looks at baby with a concentrated* searching face, *and/or* Looks thoughtful about baby – may seem uncomfortable, nervous, puzzled or worried, *and/or* Sometimes look past the baby into the distance	Looks at baby with an expressionless, flat face *or* Frowning and smiling simultaneously Looks scared of baby Eyes occasionally widen momentarily when looking at baby	
Handles baby in a calm soothing way	Handles baby in an overly casual *or* Tentative, hovering way – occasionally in an object-like way	Handles baby in an agitated* *or* Awkward-looking way – frequently in an object-like way.	
Preens occasionally using smoothing motion	Preens occasionally using picking motion *and/or* putting finger into baby's mouth	Preens frequently using picking motion, *and/or* pokes or prods baby Kisses baby frequently	
When talking to another adult, mother seems to find it hard not to look at baby *and/or* frequently glances at baby	When talking to another adult, mother occasionally glances at baby	When talking to another adult, mother may not look at baby for extended period i.e. several minutes	

- 'well-positioned for gaze' – cradled in arm about 20-25 cm from face (optimal viewing capacity for infants is about 20-25 cm Stern 1985; Papousek & Papousek 1987)
- absorbed – engrossed, captivated,
- scrutinize – inspect, examine , study
- concentrated – concerted, determined
- riveted – intense, staring
- agitated – restless, tense, feels frantic

Figure 3.8: Typology of looking Version 2, 02/04/2013

Expert group composition

Eight WCH professionals with specialist skills in infant mental health were invited to participate in focus groups to verify the underlying constructs of the tool and refine the descriptions. The expert groups were convened in two rounds over six sessions. Each group watched the same four tapes in the first round and the same five tapes in the second. Multiple sessions were necessary to accommodate people's work schedules.

The table below summarises the timing and composition of the focus groups, the versions of the tool that were used and the tapes that were viewed by each group.

Table 3.12: Expert group schedule in 2013

Date	Group	Workers	Tapes	Typology Version
Round 1				
4 April	1A	3, 7, 5	2, 4, 10, 6	V2
9 April	1B	2, 6	2, 4, 10, 6	V2
17 April	1C	4, 1, 8	2, 4, 10, 6	V2
Round 2				
15 April	2A	5, 3, 6	5, 7, 11, 9, 12	V3
1 May	2B	1, 8	12, 9, 5, 7, 11	V4
7 May	2C	2, 4	12, 9, 5, 7, 11	V5

The following professional disciplines were represented and are numbered here to de-identify them:

- 2 occupational therapists (1, 2)
- 2 child and adolescent psychiatrists (3, 4)
- 2 social workers (5, 6)
- 1 psychologist (7)
- 1 midwife (8)

Each expert group discussed and rated each of the tapes and provided feedback on the descriptions in the typology using the then current version of the typology.

Possible questions for expert group

What I'm to do is to assess whether each of these descriptions (items) has any validity?

The process is we will do one tape then have a discussion about each description (item) – will be really good to hear all of your thoughts. Then watch another tape and review and so on.

If you disagree with one another that too will be very interesting to me to understand why.

Does each description (item) make sense? Are you able to identify the behaviours as described?

Can you understand what is being asked?

Is it worded well enough? How can the language be improved?

When you say 'yes' what is it that makes you say 'this' or 'that'? Is it more your interpretation? Or is it what you see? Or do you think it's your experience that just lets you know??

Do you think it works with 3 categories plus an "I don't know"? (To what extent do they agree that these behavioural constructs could together signify an end state?)

As we will want to assign them to a state or category – would it be useful to go for:

Present / absent? or a range like 'very sure', 'probably' or 'don't know'.

Figure 3.9: Possible questions for the expert groups, 04/04/2013

Expert group process - Round 1

In the first round of expert groups, using Version 2 of a typology of looking (see Figure 3.8 above), reviewers were asked to:

1. attempt to allocate one or more looking descriptions when they viewed the videos
2. further refine the looking descriptions by identifying any ambiguities or inconsistencies in wording
3. further refine the layout of the typology for ease of use.

Each expert group reviewed tapes 2, 4, 6 and 10.

The typology was briefly explained, the expert group then watched each tape together, and questions were welcomed at any point. A discussion then followed about what was observed, how useful, robust and inclusive the descriptors for each item were, whether the descriptors were self-explanatory and if the behaviours they described were recognisable.

These discussions were audio-taped. Group members were asked to explicitly discuss their reasoning and make comments on the language used. An outline of the questions asked of each expert group appear in Figure 3.9 above. Comments were sought regarding difficulties making distinctions between descriptors, lack of clarity in layout and misunderstandings. Any disagreements were encouraged and reasons for differences explored. Where there was agreement, was this more an interpretation based on their clinical experience or was it based on what was actually observed?

Finally there was inquiry into the three categories. Was it better to simply assign a category or was there a need to provide some graded response like ‘very sure’, ‘probably’ or ‘don’t know’?

In summary, there was a focus on the overall structure, the use of language and whether what was being asked was clear.

Allocation of descriptors to constructs

While each member of the expert group was able to assign a descriptor to each construct (row) in every tape, a number of salient points emerged.

The one high-risk mother (tape 10) in this sample had 100% agreement on the category assigned for each construct. There was almost 100% agreement on tape 2 (‘comfortable’) except for the last construct (‘talking to another adult’) when one expert rated this as uncomfortable. The smoothness and the flow of this mother’s looking,

handling and preening contrasted markedly with tape 10. Comments on tape 2 like 'I'd like to be that baby' and 'felt like silk' contrasted markedly with those relating to tape 10—'looks both scared and scary', 'so intrusive'—and when commenting on 'positioning'—'way too close, very close'.

For tape 4, there was some variation in categorisation of item descriptors. While there was 100% agreement on preening, and seven experts rated looking quality uncomfortable and only one rated it worrisome, positioning and handling created more disagreement. Five people rated positioning as uncomfortable and three rated it as comfortable, while five people rated handling as uncomfortable, with three rating it worrisome. This variation seemed to reflect ambiguous wording and unclear formatting at this point.

The final construct, 'talking to another adult', again yielded the highest lack of clarity with people rating across all item descriptors.

Tape 6 had the most variation of responses of the four tapes. There was more discussion around this tape as people rated this mother across the full range of item descriptors. There was very little handling and preening demonstrated. Positioning and both looking constructs were rated either worrisome or uncomfortable.

There was much discussion about each tape, particularly tapes 4 and 6, which on most constructs fell between either comfortable and uncomfortable (tape 4) and uncomfortable and worrisome (tape 6). It was noted how on tape 4 there was a general shift from the mother appearing reasonably comfortable at the beginning to increasingly uncomfortable. Tape 6 was judged by most to be worrisome because of the overall awkwardness of this mother.

Findings – Round 1 Expert groups

Refining the item descriptors

General discussion yielded the following suggested changes in language:

- Simplify the language used where possible to enable ease of use
- In the worrisome category, further develop the notion of 'interacts without looking' and introduce the idea of intrusive behaviour described as 'may use looming behaviours'.
- Handling as a construct needed more definition and increased clarity across all item descriptors. In the comfortable category, an increased emphasis on smoothness was suggested. The uncomfortable category required more definition and 'business-like'

was added. In the worrisome category, more clarity of language was needed to bring out the components of what was generally seen as awkward.

- The last construct, 'talking with another adult', needed recalibrating as people felt the item descriptors did not help differentiate behaviours sufficiently. Additional descriptors were added in the uncomfortable category and the worrisome categories.

Formatting changes

A need for more clarity in formatting was widely agreed. The following changes were made:

- A title was added on the left side for each construct (row). Just as the categories were named across the top of the typology, it became apparent that, for clarity, the constructs also needed to be named on the typology. These then could be identified more easily as separate constructs/ e.g. positioning.
- The two constructs about looking also required further clarification. Were they sufficiently different from one another? Conceptually they measure two different components of looking—observed facial expression and differing intensity of looking. Looking was therefore divided into two types—'looking quality' and 'looking intensity'—and these were moved to the top of the list of constructs to emphasise them more. Having two different constructs that addressed looking also biased the typology towards looking, an emphasis I wanted to maintain.
- Using dot-points within item descriptors to identify and clarify different behaviours within the item descriptor rather than 'either/or'.
- Where there are a number of possible behaviours under one item descriptor, standardising the choice by consistently using the phrase of 'one or more of…'
- Adding a tick box for each item descriptor.

There was a general discussion about ticking the behaviours as they were seen and then counting the ticks. However, as some item descriptors had more description, it was felt that this could be used more as a guide than an actual scoring mechanism.

Summary – Round 1 Expert groups

The main results from this first round demonstrated that the tool did have construct validity, as all workers could use the behavioural descriptors of maternal looking and allocate them on each tape. Furthermore, it was agreed that the item descriptors were exhaustive, distinctive and mutually exclusive.

There was disagreement about allocating individual item descriptors for some tapes; however, this was mainly due to a lack of clarity of language, and a lack of training in use of the typology.

The language and the layout of the typology had been fully discussed and this led to further refinement incorporating the feedback provided.

Expert group process – Round 2

The second round of expert groups began approximately two weeks after the first round finished. The same expert group (minus one person who no longer worked at the WCH) viewed different tapes, i.e. tapes 12, 9, 5, 7 and 11.

3 States / 'Patterns of Looking' V3 April 14 2013

	Comfortable	Uncomfortable	Worrisome	Don't know
Positioning	Mostly holds baby well-positioned for gaze*/interaction	Holds baby well-positioned for gaze*/interaction some of time, *but may also:* • hold baby in front facing her with her arms extended, *and/or* • face baby slightly outwards or to side	Mostly holds baby poorly positioned for gaze: • too close to face, *and/or* • too far away, *and/or* • seated side-on to her body. Doesn't hold baby	
Looking	Looks at baby in an absorbed* way – may be rapt, captivated, fascinated	Looks at baby in a scrutinizing* way – *(what do I need to do for this baby now?)*	Looks at baby in an intense staring way, *and/or* • may use looming behaviours, *and/or* • doesn't look or seldom looks at baby	
	Looks at baby with smiling soft face, *and/or* Looks delighted with baby, *and/or* Seems to enjoy looking at baby	Looks at baby with a concentrated* searching face, *and/or* Looks thoughtful about baby – may seem uncomfortable, nervous, puzzled or worried, *and/or* Sometimes looks past the baby into the distance (fleetingly)	Looks at baby with an expressionless, flat face *and/or* Frowns and smiles simultaneously, *and/or* Looks scared of and/or scary to the baby, *and/or* Eyes may widen momentarily when looking at baby	
Handling	Handles baby in a calm soothing way Uses smooth movements	Handles baby in an overly casual *and/or* • business-like way, *and/or* • tentative/hovering way, *and/or* • occasionally in an object-like way	Handles baby in an agitated*, *and/or* • awkward-looking way, *and/or* • frequently as an object.	
Preening	Preens occasionally using smoothing motion	Preens occasionally using picking motion *and/or* putting finger into baby's mouth	Preens frequently using picking motion, *and/or* Pokes or prods baby Kisses baby frequently	
When talking	When talking to another adult, mother seems to find it hard not to look at baby *and/or* frequently glances at baby	When talking to another adult, mother occasionally glances at baby. May have a quick checking quality. May seem disconnected from baby.	When talking to another adult, mother may not look at baby for extended period. Seems to forget about baby.	

- 'well-positioned for gaze' – cradled in arm about 20-25 cm from face (optimal viewing capacity for infants is about 20-25 cm Stern 1985; Papousek & Papousek 1987)
- absorbed – engrossed, captivated,
- scrutinize – inspect, examine , study

Figure 3.10: Typology of looking Version 3, 14/4/2013

In Round 2, each of the three groups worked with newer versions of the typology, i.e. V3 (Figure 3.10 above), V4 and V5 (Figures 3.11 and 3.12 below). This meant feedback could be immediately incorporated from the previous group. In this way the language and layout of the typology was progressively developed and clarified. This resulted in the final version, V6 (Figure 3.13).

In this second round, the tapes were reviewed and rated by each expert with discussion held at the end. The review comprised two main parts:

A. Trial the changes to the constructs, descriptors and formatting that had been incorporated into the typology from feedback from the first round of focus groups.

B. See if the expert groups could consistently identify the three underlying categories by allocating each tape to a category or to the 'Don't know' option.

A. Trial of new descriptors and formatting

In this second round, no one expressed any difficulty with rating. The process was faster, which may have been a result of increased familiarity with the tool and also increased clarity of formatting.

Minor changes made to the typology during this second series were:

- In describing positioning, instead of moving from 'mostly well-positioned' to 'sometimes well positioned' to 'mostly poorly positioned', the language was made consistent across the item, becoming 'often…', 'sometimes…' and 'seldom holds the baby well positioned'.
- In the last construct, talking with another adult, 'often' and 'seldom' were introduced to further standardise the language.

In terms of scoring, the addition of a tick box with bullet points underneath was seen as helpful because it enabled people to note various behaviours as they occurred and then weigh these up when they made a final decision about which category to allocate to.

The two later versions V4 and V5 incorporating these changes are set out below.

3 States / 'Patterns of Looking' V4 April 29 2013

		Comfortable	Uncomfortable	Worrisome	Don't know
Looking	Intensity	☐ Looks at baby in an absorbed* way – may be rapt, captivated, fascinated	☐ One or more of: • Looks at baby in a scrutinizing* way – (what do I need to do for this baby now?) • Sometimes looks past the baby into the distance (fleetingly)	☐ One or more of: • Looks at baby in an intense staring way, • Uses looming behaviours, • Doesn't or seldom looks at baby • Interacts with baby without looking	
	Quality	☐ One or more of: • Looks at baby with smiling soft face • Looks delighted with baby • Seems to enjoy looking at baby	☐ One or more of: • Looks at baby with a concentrated* searching face • Looks uncomfortable, nervous, puzzled or worried	☐ One or more of: • Looks at baby with an expressionless, flat face • Frowns and smiles simultaneously • Looks scared of and/or scary to the baby • Eyes widen momentarily when looking at baby	
Positioning for gaze/ interaction		☐ Mostly holds baby well-positioned for gaze cradled in arm about 20-25 cm from face **And** mostly looks comfortable	☐ Sometimes holds well-positioned but also one or more of: • Holds baby in front facing her with her arms extended • Faces baby slightly outwards or to side • Holds high on arm **And** often looks awkward	☐ Mostly holds baby poorly positioned for gaze in one or more of: • too close to face • too far away • seated side-on to her body **Or** Doesn't hold baby.	
Handling		☐ Handles baby in a calm soothing way using smooth movements	☐ Handles baby in one or more of: • an overly casual • business-like way • tentative/hovering way • occasionally as an object	☐ Handles baby in one or more of: • an agitated* way • jerky way • frequently as an object • frequently intrusive **Or** Doesn't handle baby.	
Preening		☐ Preens occasionally using smoothing motion	☐ One or more of: • Preens occasionally using picking motion • Puts finger into baby's mouth	☐ One or more of: • Preens frequently using picking motion • Pokes or prods baby • Kisses baby frequently	
If talking to another adult		☐ One or more of: • Seems to find it hard not to look at baby • Frequently looks at baby	☐ One or more of: • Glances at baby with a quick checking quality • Seems less connected to baby	☐ One or more of: • Does not look at baby for extended period (30 secs) • Seems disconnected from baby • Seems to forget about baby	

• *absorbed – engrossed, captivated* • *scrutinize – inspect, examine , study* • *agitated* – restless, tense, feels frantic • *concentrated* – concerted, determined

Figure 3.11: Typology of looking Version 4, 29/04/2013

3 States / 'Patterns of Looking' V5 1 May 2013

		Comfortable	Uncomfortable	Worrisome	Don't know
Looking	Intensity	☐ Looks at baby in an absorbed* way – may be rapt, captivated, fascinated	☐ One or more of: • Looks at baby in a scrutinizing* way – (what do I need to do for this baby now?) • Sometimes looks past the baby into the distance (fleetingly)	☐ One or more of: • Looks at baby in an intense staring way, • Uses looming behaviours, • Doesn't or seldom looks at baby • Interacts with baby without looking	
	Quality	☐ One or more of: • Looks at baby with smiling soft face • Looks delighted with baby • Seems to enjoy looking at baby	☐ One or more of: • Looks at baby with a concentrated* searching face • Looks uncomfortable, nervous, puzzled or worried	☐ One or more of: • Looks at baby with an expressionless, flat face • Frowns and smiles simultaneously • Looks scared of and/or scary to the baby • Eyes widen momentarily when looking at baby	
Positioning for gaze/ interaction		☐ Mostly holds baby well-positioned for gaze cradled in arm about 20-25 cm from face **And** mostly looks comfortable	☐ Sometimes holds well-positioned but one or more of: • Holds baby in front facing her with her arms extended • Faces baby slightly outwards or to side • Holds high on arm • Often looks awkward	☐ Mostly holds baby poorly positioned for gaze in one or more of: • too close to face • too far away • seated side-on to her body **Or** Doesn't hold baby.	
Handling		☐ Handles baby in a calm soothing way using smooth movements	☐ Handles baby in one or more of: • an overly casual • business-like way • tentative/hovering way • occasionally as an object	☐ Handles baby in one or more of: • an agitated* way • jerky way • frequently as an object • frequently intrusive **Or** Doesn't handle baby.	
Preening		☐ Preens occasionally using smoothing motion	☐ One or more of: • Preens occasionally using picking motion • Puts finger into baby's mouth	☐ One or more of: • Preens frequently using picking motion • Pokes or prods baby • Kisses baby frequently	
If talking to another adult		☐ When talking to you, one or more of: • Seems to find it hard not to look at baby • Frequently looks at baby	☐ When talking to you, one or more of: • Glances at baby with a quick checking quality • Seems less connected to baby	☐ when talking to you, one or more of: • Does not look at baby for extended period (30 secs) • Seems disconnected from baby • Seems to forget about baby	

absorbed – engrossed, captivated, *scrutinize* – inspect, examine, study *agitated* – restless, tense, feels frantic *concentrated* – concerted, determined

Figure 3.12: Typology of looking Version 5, 01/05/2013

B. Identification of three underlying categories

In this group of tapes, there were three high-risk mothers, tapes 12, 9 and 11. Tape 9 was rated by everyone as worrisome on all constructs, with one exception in preening. One person did not rate this construct as they did not see any example of this[43].

Tape 11 was another high-risk mother. However, everyone rated this tape in the overall category of uncomfortable. Most constructs were rated uncomfortable, except in preening and positioning, where four people rated comfortable, and in handling, where two people rated comfortable.

There was unanimous agreement on tape 7 on all constructs and the overall category. It was rated comfortable on all counts.

Tape 12 and tape 5 were both rated in the overall category as worrisome by five experts and uncomfortable by two others. These overall categories were mirrored in how the constructs were rated: the same two experts rated both tapes uncomfortable across most constructs. Both of these tapes are of mothers from the Indian subcontinent who were relatively new arrivals in Australia. In response to these ratings, there was some

[43] This is discussed further in the Results section as it relates to issues that arose for midwives during the process of their rating of the tapes.

discussion about the contribution of cultural factors. The cultural significance of certain patterns of behaviours like handling was raised.

It was considered possible that there could be some bias in the tool that relates to unfamiliarity with other cultural practices. However, the fact that these two mothers were both relatively new arrivals in Australia, which placed them at greater risk for psychosocial problems, was also highlighted.

The discussion around culture led the group to consider the subjective nature of the tool, and that all looking is influenced by our own point of view. The main discussion points were about cultural differences and how much these may influence ways of handling and preening in particular.

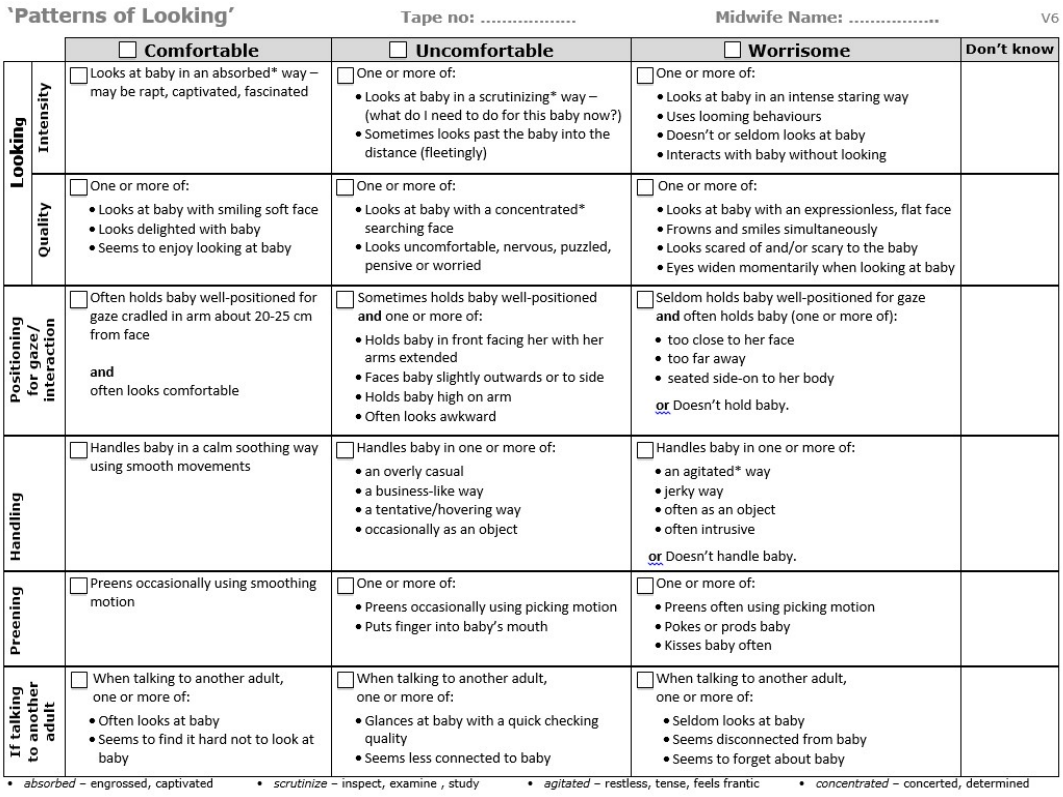
Summary – Round 2 Expert groups

In summary, the changes made in descriptors on the final construct 'talking with another adult' assisted with calibrating that construct. The simplification and clarity of the language was absorbed without comment, and the various changes to the formatting were all noted as beneficial as it was easier to scan and compare across item descriptors.

While there was discussion about how people decided on the overall category, everyone was able to consistently assign a tape to an overall category. Comfortable and worrisome were seen as easy and relatively quick to identify. The general agreement was that some tapes in the uncomfortable category could veer towards comfortable while others tapes would veer towards worrisome. Importantly there was no occasion when a single tape was assigned to both worrisome and comfortable by different members of the expert group.

Outcomes of Study 1

A draft typology of looking had been produced by multiple reviews of a set of videotapes of mothers and newborns. This involved defining the underlying theoretical concepts and describing how these could be identified in practice. The descriptors identified were fully expanded before being simplified and grouped taking into account that the end use was a clinical tool for midwives. This clinical tool was then tested and further refined by a number of expert groups. This produced the final version of the typology (Version 6) below.



'Patterns of Looking' Tape no: ..... Midwife Name: V6

		☐ Comfortable	☐ Uncomfortable	☐ Worrisome	Don't know
Looking	Intensity	☐ Looks at baby in an absorbed* way – may be rapt, captivated, fascinated	☐ One or more of: • Looks at baby in a scrutinizing* way – (what do I need to do for this baby now?) • Sometimes looks past the baby into the distance (fleetingly)	☐ One or more of: • Looks at baby in an intense staring way • Uses looming behaviours • Doesn't or seldom looks at baby • Interacts with baby without looking	
	Quality	☐ One or more of: • Looks at baby with smiling soft face • Looks delighted with baby • Seems to enjoy looking at baby	☐ One or more of: • Looks at baby with a concentrated* searching face • Looks uncomfortable, nervous, puzzled, pensive or worried	☐ One or more of: • Looks at baby with an expressionless, flat face • Frowns and smiles simultaneously • Looks scared of and/or scary to the baby • Eyes widen momentarily when looking at baby	
Positioning for gaze/ interaction		☐ Often holds baby well-positioned for gaze cradled in arm about 20-25 cm from face **and** often looks comfortable	☐ Sometimes holds baby well-positioned **and** one or more of: • Holds baby in front facing her with her arms extended • Faces baby slightly outwards or to side • Holds baby high on arm • Often looks awkward	☐ Seldom holds baby well-positioned for gaze **and** often holds baby (one or more of): • too close to her face • too far away • seated side-on to her body **or** Doesn't hold baby.	
Handling		☐ Handles baby in a calm soothing way using smooth movements	☐ Handles baby in one or more of: • an overly casual • a business-like way • a tentative/hovering way • occasionally as an object	☐ Handles baby in one or more of: • an agitated* way • jerky way • often as an object • often intrusive **or** Doesn't handle baby.	
Preening		☐ Preens occasionally using smoothing motion	☐ One or more of: • Preens occasionally using picking motion • Puts finger into baby's mouth	☐ One or more of: • Preens often using picking motion • Pokes or prods baby • Kisses baby often	
If talking to another adult		☐ When talking to another adult, one or more of: • Often looks at baby • Seems to find it hard not to look at baby	☐ When talking to another adult, one or more of: • Glances at baby with a quick checking quality • Seems less connected to baby	☐ When talking to another adult, one or more of: • Seldom looks at baby • Seems disconnected from baby • Seems to forget about baby	

• *absorbed* – engrossed, captivated • *scrutinize* – inspect, examine , study • *agitated* – restless, tense, feels frantic • *concentrated* – concerted, determined

Figure 3.13: Typology of looking Version 6

The flowchart (Figure 3.14) below summarises the complete process of developing the typology of looking to date.

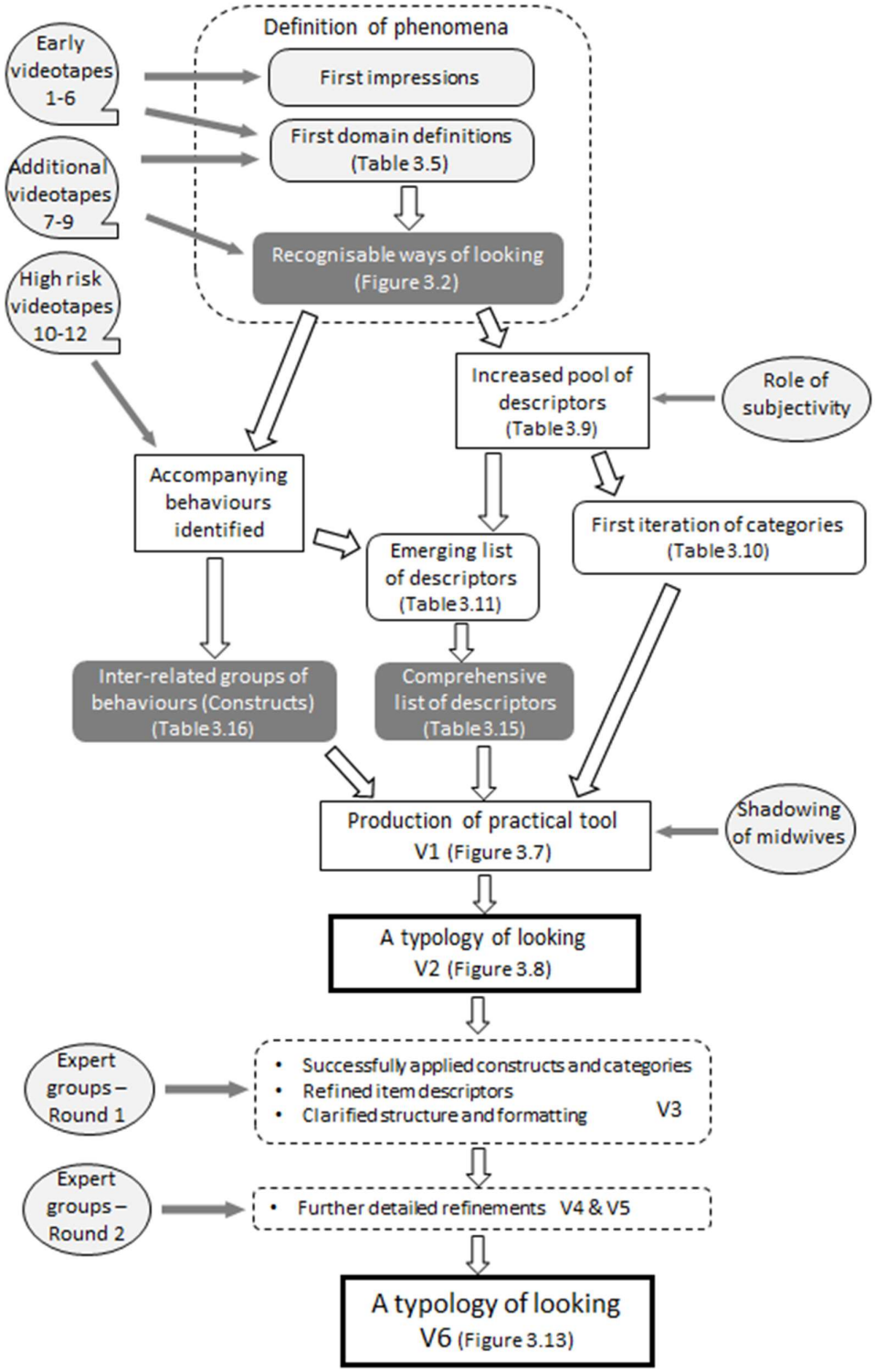


Figure 3.14: Development of a typology of looking

The typology was now ready for the next step in development. This was to determine if midwives could use the tool predictably and consistently. To investigate this, the typology was subjected to a test of inter-rater reliability. This process is described in the next chapter.

Chapter 4
Study 2: The Maternal Looking Guide: Reliability testing

'There's nothing like looking if you want to find something'

J.R.R. Tolkien

The next stage in the development of the typology[44] developed in Study 1, subsequently named the Maternal Looking Guide, was to determine its reliability. The categories and constructs that had been identified and described needed to be predictably and consistently recognised by midwives following appropriate training in the use of the typology.

Research questions

At this point hypothesis 3, p. 46 (that patterns of looking could be reliably identified by those involved in the everyday care of mothers and their newborns, such as midwives) was reformulated as the following two testable hypotheses:

1. Midwives would be able to reliably rate each of the six constructs on the Maternal Looking Guide.
2. Midwives would be able to reliably assign mothers to one of three categories on the Maternal Looking Guide[45].

It was decided to test these hypotheses by having midwives view nine-minute sequences, excerpted from a new set of videotapes made on the postnatal ward of mothers being with their babies within 48 hours of giving birth.

[44] The tool was titled 'Patterns of Looking' throughout reliability testing. However, it was renamed the 'Maternal Looking Guide' and for simplicity this title is used from this point on.

[45] Therefore the null hypotheses were:

1. It would not be possible for midwives to reliably rate each of the six constructs on the Maternal Looking Guide.
2. It would not be possible for midwives to reliably assign mothers to one of the three overall categories on the Maternal Looking Guide.

Methodological issues

Reliability testing

In order for the typology to be used confidently by midwives as a clinical tool, any midwife on any shift needed to be able to use it, and most of the time come up with the same results as another midwife.

Measurement error arises whenever a subject's true score cannot be directly observed. Such errors can arise from: issues of inconsistency within the instrument (lack of definition, factual errors, and inadequate scaling); the measure being unstable because it does not yield the same results when retested over time; and instability, where measures between coders substantially vary (Hallgren 2012).

While any of these problems can negatively affect reliability, the choice was made to use inter-rater reliability. Test-retest reliability was not used because it requires a considerable time delay between tests due to recall and practice recall effects.

An assessment of inter-rater reliability is a way of measuring the degree of agreement between two or more raters (midwives) who independently score the constructs of the measurement tool, in this case the item descriptors and categories of the typology, with multiple subjects.

The higher the inter-rater reliability, the greater the confidence that observations of behaviour are meaningful and reliable.

Factors that can influence reliability

Inter-rater reliability training

To ensure acceptable levels of reliability and reduce the rate of errors due to rater incompetence as opposed to tool inadequacy, it is important to develop a standardised training procedure for observer-raters (Kopenhaver-Haidet et al. 2009; Shaunessy, Zechmeister & Zechmeister 2012).

This training needs to instruct raters on the specific definitions and descriptors in the tool and how to interpret and apply the different behavioural descriptors and operational rules (Castorr et al. 1990; Kopenhaver-Haidet et al. 2009; Shaunessy, Zechmeister & Zechmeister 2012).

The training protocol needs to outline the content of the training session, the order of content delivery, how long the session will take and how to apply the rules of scoring. The training should also allow time for raters to practise using the definitions and

applying the operational rules to actual video data from the project (Shaunessy, Zechmeister & Zechmeister 2012, p. 131).

It is best to pilot the training to ensure that content and process cover all aspects required to understand how to score the measure (Castorr et al. 1990).

Other factors that can affect reliability include fatigue and subjective bias due to emotional upset or illness of a rater on the day (Kopenhaver-Haidet et al. 2009).

Design considerations

In order to be robust, inter-rater reliability testing needed to be carried out on ten new tapes rather than using those created for Study 1.

It was decided that the new video sample would be rated by a single set of coders. This fully crossed design (Hallgren 2012) requires a high number of overall ratings to be made. It allows for the assessment and control of systematic bias between coders to be estimated.

Recruitment difficulties were again likely to be an issue. New tapes of mothers and newborns would need to be made and a number of additional midwives would also need to be recruited.

Statistical advice was sought regarding the number of midwives and tapes required to be able to assert that the distribution of scores had not occurred by chance alone. The power analysis was discussed with statistical advisers, who were unable to provide a definitive number. The advice received was that, while it was difficult to create an appropriate power analysis for a measure of this kind, if between 20 and 30 observers rated ten tapes, the number of possible combinations this would afford could enable calculations that would be statistically significant.

Standardisation was enhanced as the observations to be rated were videotaped (Castorr et al. 1990).

Ethical considerations

The consent and information forms previously approved for Study 1 needed to be amended for Study 2 (Appendices 5 and 6).

Ethics approval for mothers and newborns

As new videos of mothers being with their newborns were required for the inter-rater reliability study, an amendment was submitted to the original ethics approval of December 2010. This amendment related to a change in the recruitment process for

mothers with their newborn babies and was necessitated by a new discharge policy having been introduced at the Women's and Children's Hospital (WCH) (Appendix 7).

The amendment was approved by the Human Resources Ethics Committee (HREC) in November 2013.

Ethics approval for midwives

Full ethics approval for midwives in Study 2 was obtained from the Women's and Children's Health Network (WCHN) HREC in July 2013.

The consent form and information sheet were in accordance with HREC requirements (Appendix 8 and Appendix 9).

Midwives were informed of their right to refuse to participate in the research at any stage without providing a reason or needing to be concerned that this would adversely affect their employment at the hospital or their professional practice.

It was not expected that participation would cause any discomfort or distress or pain as midwives were viewing material that they normally encountered every day at work.

Setting

The setting for creating the tapes in Study 2 was the same as in Study 1.

Midwives were recruited from those midwives and registered nurses (RNs) working on the Postnatal Wards and in the Special Care Baby Unit (SCBU). Babies are usually admitted to the nurseries in this unit when they are premature, ill or have low birth weight.

Engagement with midwives

In order to create a tool that could be clinically useful for midwives, it was essential to engage them in the project by creating working relationships with them. This was achieved by meeting senior and specialist staff:

- Midwife Educators in the Centre for Education and Training
- Clinical Practice Consultant
- Clinical Service Co-ordinator
- Postnatal Ward Educator

These consultations gave me an understanding of the constraints they operate under as well as enabling me to enlist their support.

Midwife Educators in the Centre of Education

An initial meeting with Midwife Educators working in the Centre for Education and Training, WCH, was held to outline the working proposal of engaging midwives in an inter-rater reliability study and gauge their support. The aims of the research were outlined to these educators, and the principal ideas regarding the pivotal nature of relationship for development, the nature of mother-infant interaction, its early foundations, its importance for the baby's developmental trajectory were described. The clinical tool development thus far was discussed and met with a generally positive response.

Clinical Practice Consultant / Clinical Service Co-ordinator

In consultation with the Clinical Practice Consultant, Nursing and Midwifery, Clinical Practice Development Unit, and the Clinical Service Co-ordinator, Postnatal, a different process for creating the new sample of tapes for reliability testing was developed. There was also a broader discussion about how the rating process could work effectively within midwifery and nursing time constraints.

Consultation with Postnatal Ward Educator

Consultation with midwives about their work on the ward began prior to midwife shadowing in Study 1. A productive working relationship with the Postnatal Ward Educator had been established. At this stage in Study 2, the Postnatal Ward Educator was consulted prior to and where necessary throughout the following steps:

- Creating a new sample of tapes of mothers and babies - shift co-ordinators were informed of the research and their support was enlisted to identify possible mothers.
- Recruiting midwives - time slots were created within the professional development programme schedule for the research to be presented and midwives subsequently to be recruited.
- Developing the training material for reliability testing.
- Piloting the typology and training with a small group of midwives.
- Practical assistance with organising the process for midwives to be trained in the typology and to complete the rating.

Participant recruitment

This Study had two sets of participants:

- Group 1 - first-time mothers and their newborns

- Group 2 - midwives working on the postnatal ward and in the Special Care Baby Unit.

Recruitment process for Group 1: Mothers and newborns

A new sample of mothers with their newborn babies was required to ensure a robust and independent process was followed. In this way tapes used to develop the typology were in the main differentiated from those used in the inter-rater reliability testing.

Recruitment into Study 1 had previously taken place at the WCH in women's assessment and at antenatal classes. At that time there was at least a 48-hour window of opportunity to make the video of women and their newborns on the postnatal ward.

As reported earlier, a significant new policy was introduced at the WCH in 2013. This encouraged early discharge and meant shorter postnatal hospital stays for women with increased follow-up in the home by domiciliary midwives. Except in special circumstances, women were encouraged to go home with their babies within 24 hours of delivery.

This significantly reduced the window of opportunity to video mothers and their babies and meant that women were recruited on the postnatal ward on the day of their delivery. As agreed with the Clinical Practice Consultant and the Clinical Service Co-ordinator, the postnatal afternoon shift co-ordinators were consulted before any mothers were approached to be part of Study 2. They filtered out any mothers identified as experiencing any of the exclusion criteria listed below and any mothers who were to be discharged that same day.

Identified women were then approached, introduced to the research and if they were prepared to consider participation, the information sheet (Attachment 14) was left with them to discuss more fully with their partner and family.

The following morning, if they agreed to participate, a suitable time to make the video and conduct the interview was negotiated before their discharge.

Recruitment of Group 1: mothers and newborns

As with Study 1, only first-time mothers aged 18 or over, who experienced full-term birth were included in the sample. Mothers who developed severe health difficulties during pregnancy, had a premature delivery, a sick baby, were non-English speakers or had substance abuse difficulties were excluded from the research.

Between November 2013 and January 2014, 60 women were identified as possible recruits into Study 2. Of this group, 32 either agreed outright, or expressed interest and

were given information. However, for a variety of reasons, 21 of these women did not participate. These reasons are outlined in Table 4.1 below.

Recruitment and videoing ceased when videotapes of 11 first-time mothers with their newborn babies had been made.

Table 4.1: Recruitment and attrition in recruitment process Group 1

Date	Source of recruitment and number of mothers	Attrition losses pre-video
Nov 2013	60 women identified by Shift Coordinator	28 chose not to take part in research
↓	32 agreed outright or expressed interest	21 withdrew: 5 Early discharge 2 Pain and complications 2 Limited English language 3 Breast-feeding problems 4 Adverse first night 3 Baby went to SCBU or NICU 1 Found process too hard 1 Twins
Jan 2014	11 women successfully videoed	

Participants: Group 1 - Mothers and newborns

Eleven first-time mothers were videoed and interviewed with their newborn babies on the postnatal ward, within 48 hours of giving birth. All women had given birth at the WCH. Ten of the women lived in metropolitan Adelaide and one lived in rural Australia.

The eleven women were aged between 18 and 42 years old, with a mean age of 31.1. Five of the women were born in Australia. Two women had arrived within the past year, two had arrived within the last two years, one within three and one within the last five years. Six women reported speaking only English at home. Other languages spoken were Hindi (1), Marathi (1), Italian (1), Pidgin English (1) and Dutch (1).

Table 4.2: Relevant demographic data of participant mothers

Mother	Age	Marital status	Education level	Occupation	Socio -econ status #	Country of birth / first language**	ANRQ High risk >22	EPDS High risk >12
MYB 21	31	Married	Uni degree	Unemployed	4	Italy /Italian	13	6
MYB 22	35	Defacto	Uni degree	Playwright	5	Wales	**23**	2
MYB 23	42	Married	Uni degree	Optometrist	6	Australia	-	-
MYB 24	33	Married	Uni degree	Unemployed	3	India / Hindi	10	7
MYB 25	31	Married	TAFE	Unemployed	3	India / Marathi	**27**	5
MYB 26	37	Defacto	Uni degree	RN/Midwife	6	Australia	**40**	10
MYB 27*	18	Single	Year 12	Unemployed	7	Liberia / Pidgin English	**29**	**18**
MYB 28	21	Engaged	Year 12	Unemployed	7	Australia	11	0
MYB 29	29	Married	Uni degree	Program Manager	6	Australia	15	6
MYB 30	24	Married	Uni degree	Teacher	7	Australia	9	3
MYB 31	41	Defacto	Uni degree	Manager	6	USA	21	0

* Denotes high risk as identified by NPDI screening ** English unless otherwise specified

Socio-economic status values

1	Less than $20,000 pa
2	$20,000 - $39,999 pa
3	$40,000 - $69,999 pa
4	$70,000 - $99,999 pa
5	$100,000 - $149,999 pa
6	$150,000 pa or over
7	Don't know

Low risk vs high risk

One of these women was identified as high risk for mental health problems, with scores above the cut-off on the EPDS and ANRQ. Two other women did score above 24 on the ANRQ but below the cut-off on the EPDS.

One woman had no scores recorded for either screening tool, as her first antenatal assessment was completed at another hospital.

Birthing experiences

The following table summarises the birth experiences of the Group 1 participants recruited for Study 2.

Table 4.3: Pregnancy and birth experience of Group 1 mothers

Mother	Pregnancy	Induction	Delivery	Tear	Apgar	Weight
MYB 21	Poor foetal growth	Y	Vaginal	Episiotomy	8/9	2260g
MYB 22	-	N	Vaginal	-	9/9	4050g
MYB 23	Preterm prelabour rupture of membranes, gestational diabetes, OCD, Anxiety /Postnatal depression	N	Vaginal	Episiotomy	8/9	2380g
MYB 24#	Gestational diabetes	N	LSCS Emerg – failure to progress	-	9/10	3500g
MYB 25#	Gestational thrombocytopenia	N	LSCS Emerg – failure to progress	-	9/9	3190g
MYB 26#	IVF pregnancy 10 cycles, depression /anxiety, breech	N	LSCS Elect - breech at term with ruptured membranes	-	9/9	3750g
MYB 27*	-	N	Vaginal	2nd degree	9/9	3200g
MYB 28	Gestational hypertension	N	Vaginal	2nd degree	9/9	3690g
MYB 29	-	N	Vaginal PPH 1050 mls	2nd degree	9/9	3760g
MYB 30#	-	Y	LSCS Emerg – failure to progress		9/10	3800g
MYB 31#	-	N	Forceps &Vacuum extractor	Episiotomy & 2nd degree	9/9	3880g

* Denotes high risk as identified by NPDI screening # Denotes traumatic or medicalised birth

Compared to Study 1, slightly fewer women had traumatic or medicalised births. Five woman in Study 2 had vaginal births that required no medical intervention. Six of the ten women had major medical interventions ranging from forceps and vacuum extraction to emergency caesarean section.

Antenatally, four women had medical diagnoses and two other women had mental health diagnoses. All babies were born with normal Apgar scores and healthy weight except one previously identified with poor foetal growth. One woman had a diagnosis of depression and anxiety; however, her score on EPDS was only 10.

Recruitment process for Group 2: Midwives

Participation by midwives was voluntary.

Following consultation with the Postnatal Ward Educator, a presentation about the research within the context of infant mental health was included in the schedule of one-hour professional development sessions that occurred routinely at the beginning of most afternoon shifts. Most midwives from across the WCH access these sessions regularly.

One-hour professional development sessions entitled ‘Meeting your Baby’ were made to 14 groups of five to ten midwives, each focusing on the nature of mother-infant interaction, its importance for the baby’s developmental trajectory and the role of

looking. The Maternal Looking Guide was introduced, the research aims were discussed and the role of midwives in this second study was outlined.

At the end of the professional development session, midwives were invited to register their interest in participating. They were informed that this would involve three hours of their professional development time—one hour of training in use of the typology and two further hours to code tapes. Those interested were provided with information sheets and their names and contact details were taken for later follow up.

Recruitment of Group 2 participants

Any midwife employed at the WCH and working with mothers and neonates was free to participate in Study 2.

Fourteen 'Meeting your Baby' sessions were conducted on the postnatal ward over a nine-month period from September 2013 to early July 2014.

Over this time 48 midwives registered initial interest, 26 completed the training, and 24 of them rated the required 10 tapes.
Reasons given for not continuing to participate are shown in the following table.

Table 4.4: Reasons for midwives non-participation / non-completion

Number of midwives	Reason for non-participation
8	Did not respond to email
2	Too busy
3	Maternity leave
3	No longer working at WCH
1	Jury duty
1	Annual leave
1	Full time night shift
2 Completed training only	Unable to complete rating tapes – difficulties with timetable (pool workers)

Participants: Group 2 – Midwives

Fifteen midwives from postnatal and nine from SCBU completed the inter-rater reliability training and coded the tapes.

The following table shows the work location and length of service of participant midwives.

Table 4.5: Midwives' length of service by current work context

Length of service	Postnatal	SCBU
> 10 years	10	4
5 - 10 years	1	0
< 5 years	4	5

Data collection - video clip creation

Primary data were initially captured as eleven 10-15 minute video sequences of mothers being with their infants. This was followed by a brief semi-structured interview that was also videoed. Overall video capture varied between 20 and 30 minutes depending on the length of the responses during the interview.

The method for gathering the data was the standardised procedure developed in Study 1 and previously outlined. As in Study 1, the tapes themselves lack uniformity, as it was not possible or preferable to control all variables.

Excerpts from ten tapes were needed for inter-rater reliability coding and excerpts from a further two tapes were required for practice purposes in the training.

Preparation of ten video clips for rating

The midwives needed to be able to complete the inter-rater reliability rating within two hours. A standardised nine-minute selection of clips was prepared from ten tapes.

The first clip began two minutes into the taping and ran for six and a half minutes of the mother being with her newborn. A further two and a half minutes, beginning when the mother began answering the question 'What did you name your baby?', was added.

There were two reasons for selecting the clips in this way. Systematically selecting video clips two minutes into the taping provided some time for mothers to become accustomed to the camera as discussed in Chapter 3. The reason for beginning the second selection when women began talking about naming their baby was to include video of women speaking with someone else while avoiding women speaking of their birthing process. This was because while birthing was varyingly traumatic for the women; all the women seemed to withdraw into themselves as they spoke about this very recent life-changing event.

These selections were connected to create a standardised nine-minute video clip from each tape. In this way ten video clips were made and numbered 1 to 10 by random selection.

The ten tapes chosen for rating purposes were primarily those made in Study 2, i.e. tapes 22, 23, 24, 26, 27, 28, 29 and 30. Two tapes from the Study 1 were also included – tapes 9 and 12. This was done for the following reasons:

- The recruitment process in Study 2 had made it difficult to recruit high-risk mothers. It was therefore decided to include two high-risk mothers from Study 1.
- Tape 9 was included instead of tape 25, because in tape 25 the mother glanced only once towards her baby sleeping the cot in the entire period of taping. Hence this gave very limited opportunity to rate any of the behaviours in the worrisome/withdrawn category that she manifested. Tape 9 was considered a more effective example of worrisome/withdrawn.
- Tape 12 was substituted for tape 31 so that another high-risk example could be included in the rating exercise. Tape 12 was the first high-risk tape following saturation.

Tape 21 was not used at all in the rating as this mother talked during the interview about giving birth five days earlier and about the fact that her discharge had been delayed as her baby had a low birth weight. The baby had spent time in the SCBU.

Selection of tapes for training package

A training package and protocol were required to train midwives in how to use the typology and to enhance inter-rater reliability (Castorr et al. 1990). The training utilised excerpts from five tapes from Study 1 (tapes 7, 4, 10, 11 and 6) and two from Study 2 (25 and 31) to demonstrate the various items and categories needing to be identified by use of the tool. Two tapes were required as practice tapes.

Tapes 7, 4, 10, 11, and 25 were used in the training package. In order to assist midwives in the calibration process, short excerpts from these tapes illustrated the following:

- one unambiguous example of a comfortable mother
- two unambiguous examples of worrisome mothers (one withdrawn and one intrusive).

This provided midwives with clear examples of mothers at each end of the spectrum outlined by the typology.

Two more ambiguous examples of items in the uncomfortable category were included to illustrate the more grey areas:

- one on the border with comfortable
- one on the border with worrisome.

Excerpts from these tapes illustrated the qualities noted in uncomfortable mothers by highlighting the differences in behavioural descriptors from either comfortable or worrisome descriptors of the same constructs. This helped clarify when one would be used as opposed to another.

Tapes 31 and 6 were used for midwives to practise the rating task at the end of the training. These videos were selected because of their ambiguous qualities and the discussion points they raised.

Data collection - inter-rater reliability rating process

Midwives had agreed to allocate three hours of professional development time to the project. This allowed for one hour of training on how to use the tool and two further hours to rate ten tapes. Five tapes could be completed in each hour.

Development of the training package

Familiarisation with the tool and training in its application needed to occur within one professional development session of approximately 50 minutes training time. This allowed time for midwives to arrive and leave, and to prepare for their day's work.

Piloting the training package

As recommended by Shaunessy et al. (2012), Kopenhaver-Haidet et al. (2009) and Castorr et al. (1990), the training package was piloted before being fully implemented.

Pilot 1

The first draft of the package was delivered to a small group of infant mental health professionals who provided the following feedback:

- For uncomfortable behaviour items, there was a need to keep contrasting the differences in behaviour from comfortable and worrisome.
- The training process needed to emphasise that qualitative difference in behaviour is often more important than frequency of a behaviour.
- At the beginning of the training, it needed to be emphasised that a single descriptor on each row of the typology that best matches the mother's behaviour should be chosen.
- Each video clip needed a title explaining which category it illustrated. This would help with recall and assist learning.
- Two practice videos needed to be created and inserted into training.

These suggestions were incorporated into the training package and this modified second draft was then delivered to two midwives in Pilot 2.

Pilot 2

Two midwives were asked to provide feedback on the training while it was also being delivered to them. This request created some confusion, however, as it proved difficult for them to learn how to use the typology and critique the training simultaneously. For example, a number of times they asked for clarification that was provided on the following slide.

Practical feedback provided from this second pilot included:

- Not all slides were necessary.
- Both handling and preening needed to be demonstrated.
- A different introduction was needed as there was a muddle about 'mutual gaze'.
- When first explained, the typology needed to be displayed and the pointer or arrow used to show constructs (across) and then categories (down).
- It needed to be emphasised that a single tick is required for every construct.
- The term 'intrusive' needed to be elaborated and illustrated more.
- A longer clip of the 'uncomfortable mother' was needed because the midwives took time to recognise that it was uncomfortable rather than comfortable.

My overall impression from this second pilot was that the calibration process was quite difficult for these midwives. I had assumed they knew more than they did about the mother-infant relationship and they definitely did seem to find it hard to take in the information about mothers and babies and come to terms with the typology. As there was not going to be a lot of time for the midwives to get familiar with the typology, I decided to leave them with a copy following the training so they could retain some familiarity before returning to rate the videos.

Pilot 3

The above feedback and observations were incorporated into the third draft of the training that was then delivered to two more midwives.

There was more consistency in their responses and their rating on the two practice excerpts agreed almost completely. They both agreed on the overall category of each tape; however, one had omitted putting a tick in the appropriate box.

This reinforced the need to remind the midwives that, when they were rating the tapes, they needed to make sure that:

- Each construct (row) has one tick.
- Each category has one tick.
- Each coding sheet has the tape number.
- Each midwife writes her name on the coding sheet.

This checklist was written on the back of the coding sheet.

Finally when asked for comment, they both agreed that:

- they found the two final constructs, 'preening'[46] and 'talking with another adult', the most challenging
- they felt reasonably confident at the end of the training.

The final training package

The final training package was created as a 29-slide presentation using short video clips to illustrate the contrasting use of item descriptors and overall categories. The 50-minute training package had to be delivered at different times because of complex hospital timetabling issues. A protocol for delivery was developed to ensure that, as far as possible, each midwife received the same information and commentary for each slide (Appendix 10).

The training ended with two practice tapes for midwives to rate. These two practice tapes were shorter (four minutes and four and a half minutes respectively) than the nine-minute video clips they would be rating because there was not time within the 50-minute training for practice tapes of nine minutes. There was discussion about the choices midwives had made after the first practice tape before the second tape was rated.

There was not always time to discuss the second tape as there were a number of times, for various unavoidable reasons, that training began late.

Inter-rater reliability training delivery and rating process

Inter-rater reliability training delivery

The midwives who had registered their interest in the initial professional development sessions were recontacted when the training package had been developed and as coding tapes were being finalised.

[46] Interestingly this item was one of two rated most reliably by midwives in the inter-rater reliability.

Moodle, an open source on-line software package, was sourced because it was thought to be the best way the midwives could train and then view and code the tapes. The Moodle course was to be hosted on the intranet (a secure network) at the WCH and therefore could only be accessed by midwives while they were working at the hospital.

In the end this could not be implemented because the midwives each needed their own WCH email in order to have their unique Moodle username and password sent to them. Most midwives do not have WCH email accounts and their home accounts could not access the intranet and would not have met confidentiality requirements.

Following further consultation, it was decided to use the Centre for Education and Training (CET) for training and rating because it provided a suite of computers and a training room. The CET is a 5 to 10 minute walk from the ward. The Midwifery Practice Consultant had suggested that being away from the stress of the ward might also be helpful for midwives.

Midwives were emailed a schedule of sessions and asked to register their attendance.

It became clear that doing the training and the rating off-site was creating unnecessary difficulties. Most midwives found it more time-consuming and required extra effort.

Access to the few available computers on the ward was then negotiated. Some of the midwives completed the training on the ward and in the SCBU in small groups. They were then followed up to complete the rating of tapes when they could access a computer at a time that suited them.

These changes meant that the standardisation in training delivery and rating was not optimal and this could possibly have affected the overall outcome[47].

Timing delays between midwife training and rating

In total 24 midwives completed the training and rating process over a period of four months. 19 midwives completed both training and rating within a month. For three midwives, more than two months passed between their training and their rating of the tapes. Two other midwives completed the training but did not complete any rating.

This is summarised in Table 4.6 below.

[47] This is further discussed in the Discussion section.

Table 4.6: Delay in days between midwives' training and rating sessions

Midwife	Days between training and rating tapes 1-5	Days between rating tapes 1-5 and rating tapes 6-10
1	3	8
2	42	1
3	11	1
4	7	1
5	5	1
6	3	17
7	5	1
8	11	6
9	3	21
10	91	7
11	3	10
12	14	1
13	92	1
14	28	7
15	22	32
16	6	15
17	6	22
18	9	14
19	8	8
20	16	5
21	7	7
22	1	25
23	1	15
24	21	1
25	Did not complete rating	Did not complete rating
26	Did not complete rating	Did not complete rating
Mean	**17.3**	**10.2**
Median	**46.5**	**16.5**

For visual clarity these delays for the midwives who completed both training and rating are illustrated as histograms in the table below.

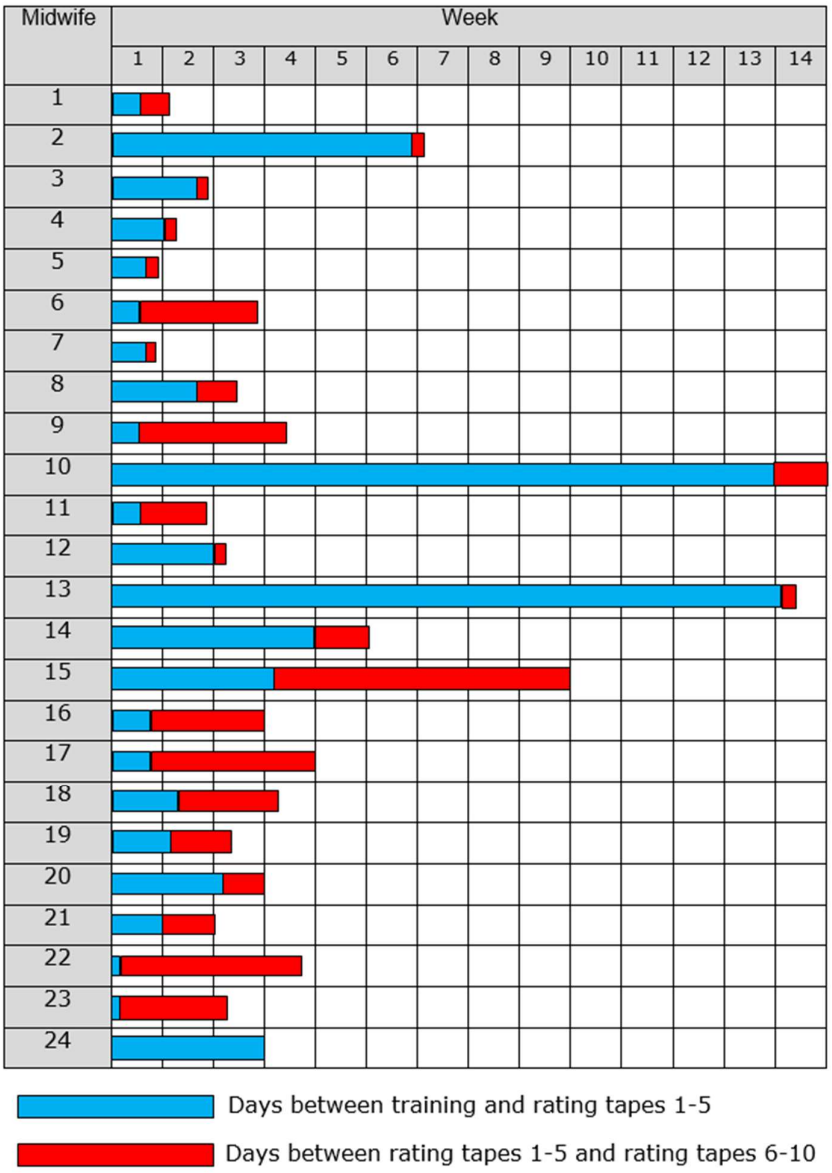


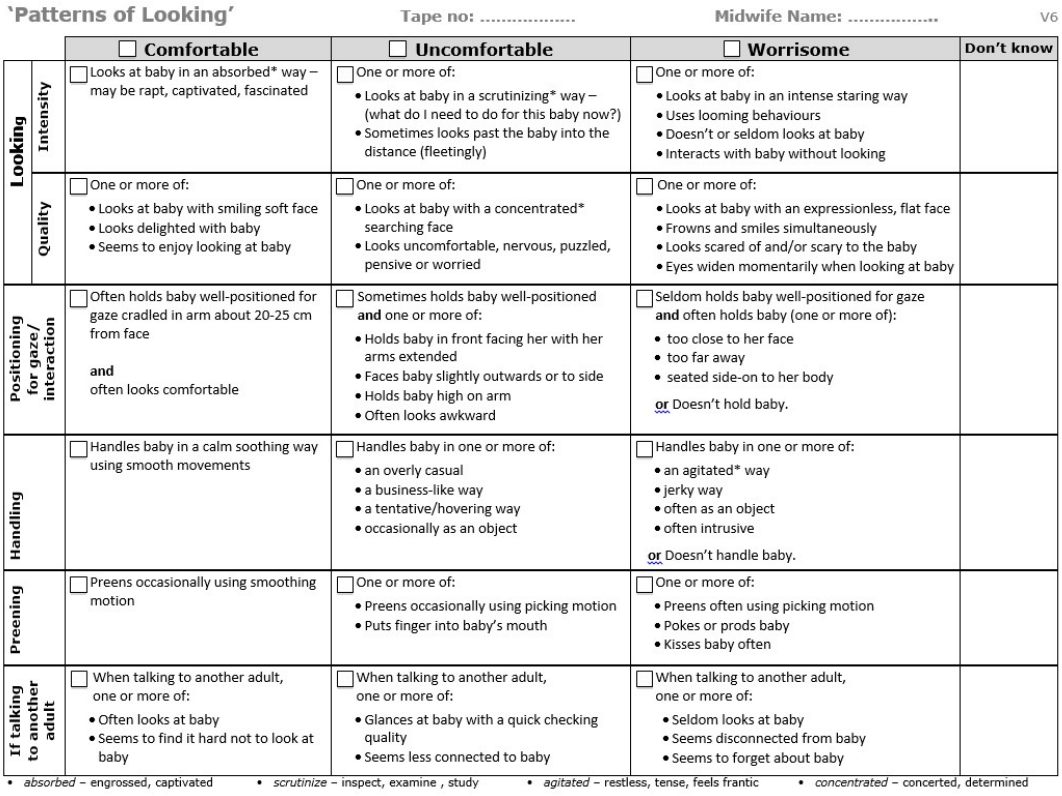
Figure 4.1: Histogram of midwives' delay between training and rating sessions.

Summary of data collection process

Standardisation in training and rating of the tapes was far from optimal. It was difficult for the midwives to view and rate the tapes because of limited access to suitable infrastructure, finding a suitable location and the midwives being able to complete the rating in a standardised way. This is discussed in the next section of this chapter.

Study 2 Results

Version 6 of the typology was used by all midwives when rating the tapes.



'Patterns of Looking' Tape no: ..... Midwife Name: V6

		☐ Comfortable	☐ Uncomfortable	☐ Worrisome	Don't know
Looking	Intensity	☐ Looks at baby in an absorbed* way – may be rapt, captivated, fascinated	☐ One or more of: • Looks at baby in a scrutinizing* way – (what do I need to do for this baby now?) • Sometimes looks past the baby into the distance (fleetingly)	☐ One or more of: • Looks at baby in an intense staring way • Uses looming behaviours • Doesn't or seldom looks at baby • Interacts with baby without looking	
	Quality	☐ One or more of: • Looks at baby with smiling soft face • Looks delighted with baby • Seems to enjoy looking at baby	☐ One or more of: • Looks at baby with a concentrated* searching face • Looks uncomfortable, nervous, puzzled, pensive or worried	☐ One or more of: • Looks at baby with an expressionless, flat face • Frowns and smiles simultaneously • Looks scared of and/or scary to the baby • Eyes widen momentarily when looking at baby	
Positioning for gaze/ interaction		☐ Often holds baby well-positioned for gaze cradled in arm about 20-25 cm from face **and** often looks comfortable	☐ Sometimes holds baby well-positioned **and** one or more of: • Holds baby in front facing her with her arms extended • Faces baby slightly outwards or to side • Holds baby high on arm • Often looks awkward	☐ Seldom holds baby well-positioned for gaze **and** often holds baby (one or more of): • too close to her face • too far away • seated side-on to her body **or** Doesn't hold baby.	
Handling		☐ Handles baby in a calm soothing way using smooth movements	☐ Handles baby in one or more of: • an overly casual • a business-like way • a tentative/hovering way • occasionally as an object	☐ Handles baby in one or more of: • an agitated* way • jerky way • often as an object • often intrusive **or** Doesn't handle baby.	
Preening		☐ Preens occasionally using smoothing motion	☐ One or more of: • Preens occasionally using picking motion • Puts finger into baby's mouth	☐ One or more of: • Preens often using picking motion • Pokes or prods baby • Kisses baby often	
If talking to another adult		☐ When talking to another adult, one or more of: • Often looks at baby • Seems to find it hard not to look at baby	☐ When talking to another adult, one or more of: • Glances at baby with a quick checking quality • Seems less connected to baby	☐ When talking to another adult, one or more of: • Seldom looks at baby • Seems disconnected from baby • Seems to forget about baby	

• *absorbed* – engrossed, captivated • *scrutinize* – inspect, examine , study • *agitated* – restless, tense, feels frantic • *concentrated* – concerted, determined

Figure 4.2 Typology of looking Version 6

Raw data

Scores were recorded for 10 tapes by 24 midwives. Each midwife gave a rating of 1 (Comfortable), 2 (Uncomfortable), 3 (Worrisome) or 9 (Don't know) for each of the six constructs describing looking or looking associated behaviour, and then assigned each tape to one of three categories: 1 (Comfortable), 2 (Uncomfortable), 3 (Worrisome).

The intention of the 9 (Don't know) rating was to provide midwives with an option they could use if they were unable to rate any of the items because they did not see that behaviour demonstrated[48].

[48] In the standardised training protocol, the midwives were told: 'There is also the 'Don't know' Option which you can use for any construct–You won't necessarily see all of the behaviours because the tapes you are rating are only 9 minutes long. When you haven't seen any behaviour for a particular construct, you need to tick 'Don't know' – Remember for this rating exercise, it is important you tick a box for each construct and the overall category'.

Separate tables for each construct appear in Appendix 11. Summary tables of the count of midwife scores for each construct plus the overall category for each of the ten tapes appear in Figure 4.3 below.

Looking Intensity

Tape	Comf.	Uncomf.	Worri.	Don't know
1	11	3	10	0
2	13	9	2	0
3	1	12	11	0
4	2	17	5	0
5	12	9	2	1
6	0	8	16	0
7	21	3	0	0
8	21	3	0	0
9	1	22	1	0
10	24	0	0	0

Looking Quality

Tape	Comf.	Uncomf.	Worri.	Don't know
1	17	5	2	0
2	11	10	3	0
3	2	15	7	0
4	3	14	7	0
5	15	9	0	0
6	0	14	9	1
7	20	3	0	1
8	21	3	0	0
9	2	17	5	0
10	23	1	0	0

Positioning for gaze

Tape	Comf.	Uncomf.	Worri.	Don't know
1	3	12	8	1
2	17	3	4	0
3	1	11	11	1
4	6	11	7	0
5	2	0	15	7
6	0	0	22	2
7	13	3	4	4
8	23	1	0	0
9	3	11	10	0
10	24	0	0	0

Handling

Tape	Comf.	Uncomf.	Worri.	Don't know
1	2	2	20	0
2	19	5	0	0
3	0	7	16	1
4	7	12	5	0
5	5	6	8	5
6	0	0	20	4
7	18	4	1	1
8	23	1	0	0
9	4	12	6	2
10	24	0	0	0

Preening

Tape	Comf.	Uncomf.	Worri.	Don't know
1	1	4	19	0
2	20	4	0	0
3	1	4	19	0
4	3	14	4	3
5	7	10	2	5
6	2	5	6	11
7	21	0	1	2
8	20	4	0	0
9	3	12	6	4
10	23	0	0	1

Talking

Tape	Comf.	Uncomf.	Worri.	Don't know
1	6	16	0	2
2	11	11	2	0
3	1	17	6	0
4	1	15	8	0
5	9	11	4	0
6	0	13	11	0
7	23	0	1	0
8	21	3	0	0
9	7	17	0	0
10	23	1	0	0

Overall Category

Tape	Comf.	Uncomf.	Worri.	Don't know
1	4	12	8	0
2	14	8	2	0
3	1	10	13	0
4	1	14	9	0
5	11	11	2	0
6	0	4	20	0
7	20	4	0	0
8	21	3	0	0
9	2	17	5	0
10	24	0	0	0

Figure 4.3: Counts of midwives' scores for each construct

These raw scores demonstrate a high level of agreement between the scores for each construct and those for the overall category. Every construct matches the overall scores in at least 6 of the 10 tapes as demonstrated in Table 4.7.

Table 4.7: Count of matches between construct scores and overall category

Construct	Number of times the construct rating matched the overall category (n=10)
Looking intensity	7
Looking quality	6
Positioning for gaze	9
Handling	8
Preening	8
Talking	7

This demonstrates that based on the raw scores each construct is valuable in predicting the overall category.

Data analysis

Nominal versus ordinal data

The statistical measure to be used to assess inter-rater reliability depends on underlying assumptions that are made regarding the data. There was disagreement among my statistical advisors about whether these categorical data should be treated as nominal (can be counted but not ordered) or ordinal (can be both counted and ordered). Because of this difference of opinion, the data was treated initially as ordinal and then subsequently as nominal and therefore subjected to two types of statistical analysis.

Nominal values would simply name the phenomena, identifying them without the accompanying ordering or ranking. The results when treating the data as nominal are in Appendix 12 and further analysis of these results is discussed under the heading 'Sensitivity Analysis' below.

However, the scores in the raw data were treated as ordinal because on this tool, although no actual measure has been created or ascribed, the values or observations can be ranked or rated, in this case on a scale of 1 to 3. The midwives were asked to rate the tapes using arbitrary numerical values and these values had no significance beyond the ability to establish a ranking.

Use of the Intraclass Correlation Coefficient (ICC)

Historically, the Kappa statistic was developed to assess agreement between two raters: either two raters or a single rater across two time points. There are two types of Kappa, weighted and unweighted. Unweighted Kappa is used for binary measures or for

nominal measures and weighted Kappa used for ordinal measures to take account of the fact that disagreement involving categories at either end of the scale is more serious than disagreement between categories next to one another.

The methods developed to calculate Kappa for three or more raters can only be applied to binary and nominal measures and cannot be applied to weighted Kappa as no one has yet found a method for doing this (Hallgren 2012). The Intraclass Correlation Coefficient (ICC) is therefore used as a generalisation of the Kappa statistic to assess consistency and conformity of measurements where the data is considered to be categorical and ordinal. The Intraclass Correlation Coefficient can accommodate three or more raters whereas weighted Kappa can only accommodate two coders (Norman & Streiner 2008).

The Intraclass Correlation Coefficient assumes that the measure is ordinal and represents some underlying linear construct. In the analysis it is assumed that the measure was ordinal (1, 2 and 3) and represented a graded linear scale. The 9s here are treated as missing values and excluded from the analysis.

Method

The Intraclass Correlation Coefficient was to be used to approximate the Kappa statistic in accordance with Fleiss and Cohen (1973). The Intraclass Correlation Coefficient was estimated from the covariance construct estimates of a linear mixed effects model, which included tape and midwife as random factors. All analyses were completed using SAS v9.3 (SAS Institute, Cary, NC, USA).

Interpretation

Based on Fleiss's (1981) guidelines for Kappa, the inter-rater agreement was in the middle to upper end of the fair to good range (0.40-0.75). Agreement appeared to be better for constructs that aim to measure more concrete behaviours such as handling (0.67), preening (0.63) and positioning (0.57) than for the remaining constructs.

Inter-rater agreement results

Table 4.8: Results of Inter-rater agreement

Variable	Intra Class Coefficient
Looking intensity	0.52
Looking Quality	0.52
Positioning	0.57
Handling	0.67
Preening	0.63
Talking	0.50
Overall	0.60

The reliability demonstrated by the ICC was therefore modest.

Rationale for exclusion of the 9 (Don't know) ratings

The decision to either exclude or include the 9s was based on an interpretation of what the 9s mean. Did a midwife choosing a 9 mean that she really did not think that any of the other ratings was appropriate, or did she not provide a rating as she did not have enough information?

In the former case, the 9s are treated as another value and the midwife would use 9 as none of the other three options apply and something else is actually going on. In this case the 9s would have needed to be included and the Kappa statistic used to calculate the results.

The alternative is that the midwife used the 9s when she was unable to make a choice because she did not have sufficient information. This second option was considered more likely as that was how the use of 9 was defined in the training given.

The 9s were therefore considered an indication that a midwife could not choose from one of the three meaningful options; in effect, that she had no opinion. It is irrelevant whether a midwife who does not have an opinion, agrees or disagrees with another midwife who does not have an opinion. In this instance the interest is in the 'rate' of agreement for midwives when they did express an opinion. Therefore the 9s were treated as not applicable.

Thus if the 9s are used due to insufficient information on particular tapes, it was better to remove them as they were creating additional noise in the data. They were treated as missing values and excluded from the analysis, as their inclusion is not compatible with a linear construct.

Further investigation of results

Although the 9s were ultimately excluded, the raw data was interrogated in a variety of ways to better understand the significance of their contribution, including whether their frequency correlated with levels of disagreement across different constructs or tapes.

It was impractical to recruit more mothers and more midwives to see whether modifications would improve the precision of the measure because of difficulties recruiting both mothers and midwives, and time constraints.

I therefore decided to investigate the sources of disagreement to determine if they were sufficient to conclude that the measure itself was poorly constructed.

I investigated the midwives, the tapes and the constructs as sources of disagreement and assessed how these might be relevant.

Is there a relationship between the frequency of Don't knows (9s) and levels of disagreement across tapes?

When the midwives could not decide and they scored 9, was it related to tape difficulty? This could be measured by the level of disagreement among the other midwives for that tape. Disagreement was defined as the count of midwives with a score >1 away from the mode.

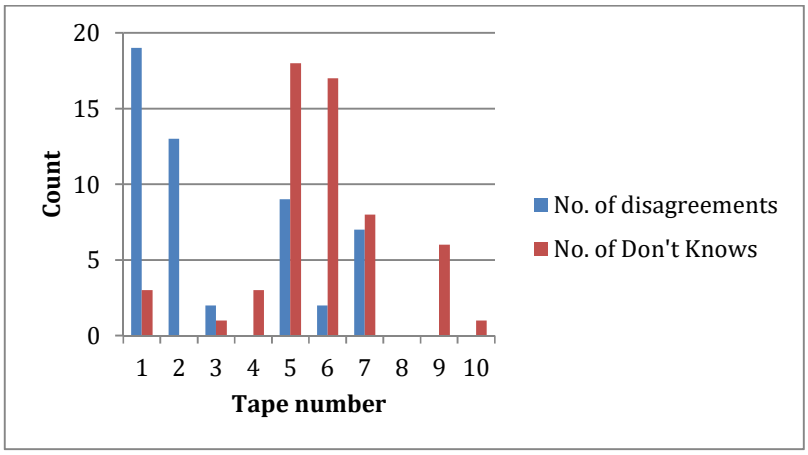


Figure 4.4: Disagreement and 9s by tape number

This graph illustrates that there is no apparent relationship between the frequency of 9s and the level of disagreement in the scores.

Is there a relationship between the level of disagreement and the tape number?

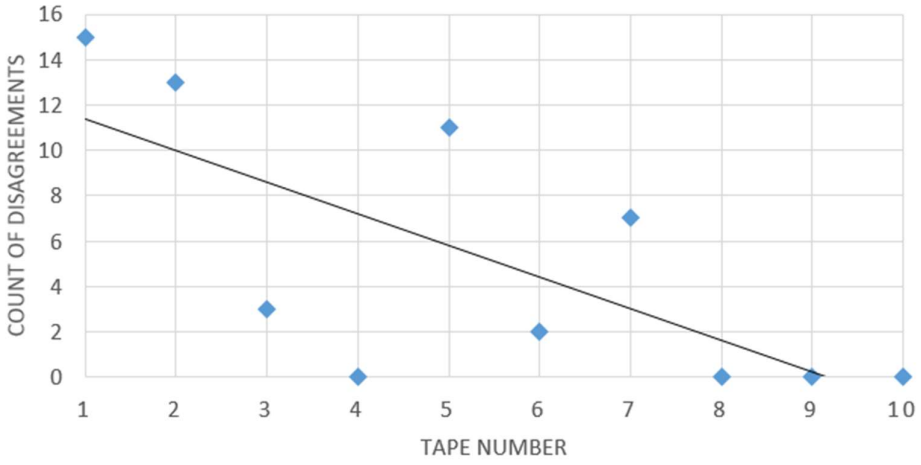


Figure 4.5: Disagreements by tape number

Figure 4.5 shows that the level of disagreement among midwives seems to be greater at the beginning of the rating process compared to the end, with no disagreement in tapes 8 to 10.

When the midwives scored 9, was it related to difficulty with that particular construct?

Individual constructs were examined to see if a correlation could be detected between the number of disagreements between midwives and the number of 9s recorded.

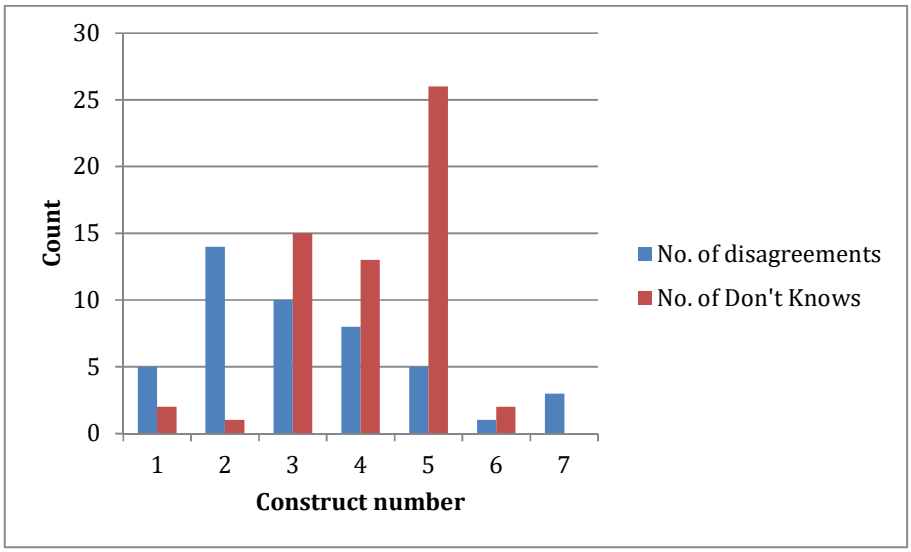


Figure 4.6: Disagreements and 9s by construct number

This graph illustrates that there is no apparent relationship between the frequency of 9s and the range of disagreement across individual constructs.

Conclusion

The most common reason for using a 9 seemed to be a lack of relevant data. Two tapes (tapes 5 and 6) scored twice as many 9s as the mean, scoring 18 and 17 respectively. In both of these tapes, the baby was asleep and the mother did not pick the baby up.

Tapes 7 and 9 had the next highest number of 9s scoring 8 and 6 respectively. It seems likely that where a behaviour was not seen or possibly only occurred briefly, some midwives scored that as a 9.

Similarly those constructs that involved handling the baby—positioning for gaze, handling and preening—all scored an increased number of 9s on tapes where there was little or no handling, i.e. tapes 5 and 6.

Sensitivity analysis

The data was further interrogated to see if any tape or midwife made a more significant contribution than others.

Two sensitivity analyses on the data were done based on calculating Kappa (thereby treating the data as nominal and including the 9s). This subjected the data to the most unsympathetic analysis possible, as the inter-rater reliability results obtained when the Kappa statistic was used were generally lower.

Midwives

The first sensitivity analysis concerned midwives and involved calculating Kappa values after systematically excluding each midwife in turn. For example, midwife 1's score for looking intensity was excluded and a new Kappa value was calculated using results from midwives 2 to 24 (Appendix 13).

This enables each midwife's individual contribution to the overall Kappa to be demonstrated and thus identifies any midwife whose performance is reducing the apparent reliability.

To demonstrate these results most effectively, three calculations were made:

1. The average Kappa value for all midwives over each construct and the overall category (last row in the table below).
2. The sum of the deviations from the average Kappa value when the scores of each midwife are successively excluded from each construct and the overall category (values in the body of the table below).
3. The sum of these deviations across all constructs for each excluded midwife (final column in the table below).

Therefore, in the table below, where a value is positive, this indicates the midwife performance is reducing the apparent reliability. When the value is negative, the midwife is increasing the apparent reliability.

Table 4.9: Deviation from the average Kappa value for non-excluded midwives by construct and the sum of deviations

Excluded Midwife	Intensity	Quality	Positioning	Handling	Preening	Talking	Overall	Sum
1	0.002	-0.027	0.011	-0.004	-0.003	0.011	0.003	-0.007
2	0.002	0.013	-0.009	-0.004	-0.013	-0.009	-0.008	-0.027
3	-0.018	-0.007	-0.019	-0.014	-0.023	-0.019	-0.008	-0.107
4	0.012	0.003	0.011	0.006	0.007	0.011	0.013	0.063
5	0.012	-0.007	0.001	0.006	0.018	0.001	-0.008	0.023
6	0.012	0.003	0.011	0.006	-0.013	0.011	0.013	0.043
7	0.012	0.013	0.001	0.006	0.007	0.001	0.013	0.053
8	0.002	0.003	0.001	-0.004	0.007	0.001	0.003	0.013
9	0.002	0.003	-0.009	-0.014	0.007	-0.009	-0.018	-0.037
10	-0.008	-0.007	-0.019	-0.004	0.007	-0.019	-0.018	-0.067
11	-0.018	-0.007	0.001	-0.004	-0.003	0.001	-0.008	-0.037
12	0.012	0.003	0.011	0.006	-0.003	0.011	0.013	0.053
13	-0.008	-0.007	0.001	0.006	-0.003	0.001	0.003	-0.007
14	0.002	-0.017	-0.009	0.006	0.018	-0.009	0.003	-0.007
15	0.002	0.013	0.011	0.006	0.007	0.011	0.003	0.053
16	0.002	-0.007	0.001	0.006	0.007	0.001	0.003	0.013
17	0.012	0.003	0.001	0.006	0.007	0.001	0.013	0.043
18	-0.008	-0.007	0.001	-0.004	-0.013	0.001	0.003	-0.027
19	0.002	0.003	0.001	-0.004	0.007	0.001	0.003	0.013
20	-0.008	0.013	0.011	-0.004	-0.013	0.011	0.013	0.023
21	-0.018	0.013	-0.009	-0.004	-0.013	-0.009	-0.018	-0.057
22	0.012	0.003	-0.009	0.006	-0.013	-0.009	0.003	-0.007
23	0.002	0.003	0.001	-0.014	0.007	0.001	-0.008	-0.007
24	-0.008	0.003	0.001	0.006	-0.003	0.001	-0.008	-0.007
Average Kappa value for item	**0.372**	**0.303**	**0.351**	**0.396**	**0.368**	**0.337**	**0.363**	

These results are plotted in Figure 4.7 below.

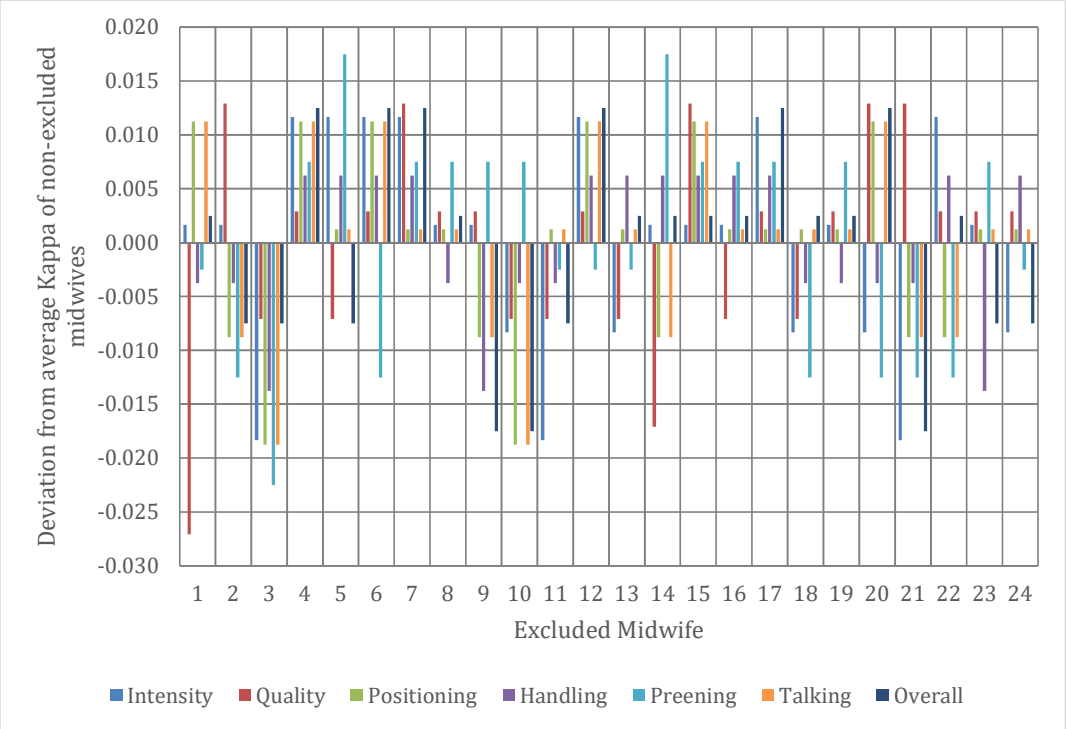


Figure 4.7: Deviation from average Kappa of non-excluded midwives for all constructs and the overall category

For clarity, these values have been summed in Figure 4.8 below.

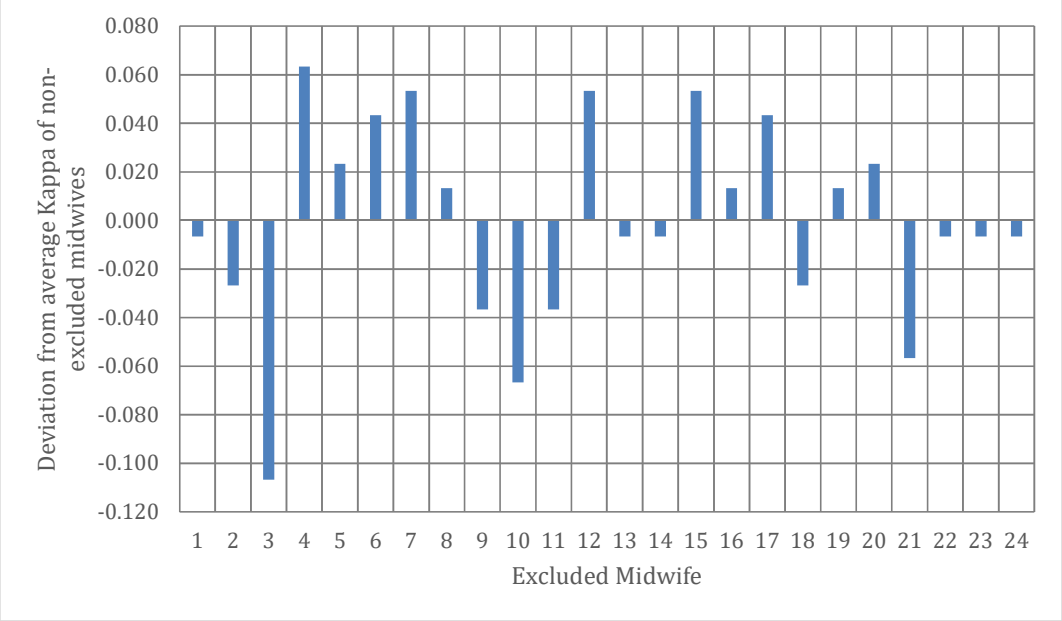


Figure 4.8: Deviation from average Kappa of non-excluded midwives for the sum of all constructs and the overall category

Figure 4.8 above shows that when the scores of midwives 3, 10 and 21 are successively excluded, the kappa values for the remaining midwives show a significant negative shift. These three midwives therefore increase the reliability score. Midwives 4, 7, 12 and 15, by contrast, appear to decrease the overall reliability since when each of them is excluded from the scoring, the overall Kappa values increase for each construct.

Midwives summary

This sensitivity analysis identified specific midwives that made a larger contribution, both positive and negative, to reliability results.

The length of time between training and rating tapes did not appear to have a strong impact on reliability.

All three midwives who made an increased positive contribution were in the longest group for length of service. However, the midwife who made the most negative contribution was also in that group.

Nine midwives had less than five years' work experience, and three of these midwives made significant negative contributions to reliability.

Figure 4.9 below summarises the negative or positive contribution by midwives to reliability by years of service.

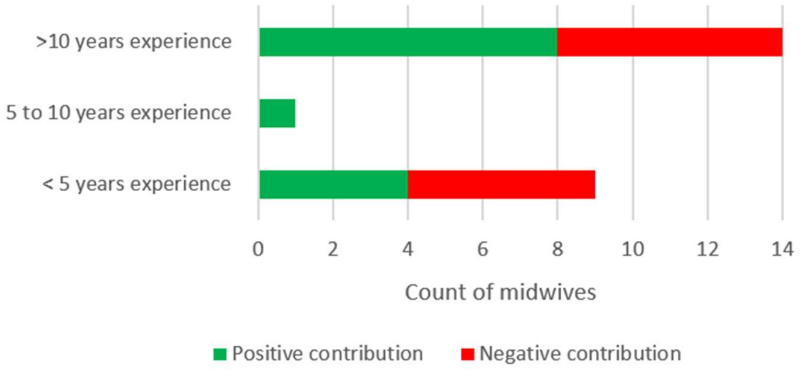


Figure 4.9: Relationship between midwife experience and impact on reliability

Tapes

Using a similar process of successively excluding tapes one at a time from the scoring, another sensitivity analysis was performed on each of the ten tapes (Appendix 14). As reported for the sensitivity analysis concerning midwives, to demonstrate these results most effectively, the difference from the average Kappa value for each tape over each

construct was calculated and compared with the average Kappa value for that tape. The deviations from the average Kappa value are reported in Table 4.10.

Table 4.10: Deviation from the average Kappa value for non-excluded tapes by each construct and the sum

Excluded tape	Looking Intensity	Looking Quality	Positioning	Handling	Preening	Talking	Overall	Sum
1	0.03	0.02	0.02	-0.03	-0.03	0.02	0.03	0.06
2	0.04	0.04	0.01	-0.02	-0.01	0.04	0.03	0.13
3	0.01	0.00	0.02	0.00	-0.03	0.00	0.01	0.01
4	0.00	0.01	0.03	0.03	0.01	0.00	0.01	0.09
5	0.04	0.03	0.00	0.04	0.03	0.04	0.04	0.22
6	-0.02	-0.02	-0.05	-0.04	0.02	-0.01	-0.05	-0.17
7	-0.02	-0.01	0.03	0.01	-0.01	-0.06	-0.01	-0.07
8	-0.02	-0.02	-0.05	-0.04	-0.01	-0.03	-0.02	-0.19
9	-0.04	-0.01	0.02	0.03	0.02	0.01	0.00	0.03
10	-0.06	-0.04	-0.06	-0.06	-0.04	-0.06	-0.06	-0.38
Average Kappa value for tape	0.31	0.30	0.35	0.40	0.37	0.34	0.36	

These results are plotted in Figure 4.10 below.

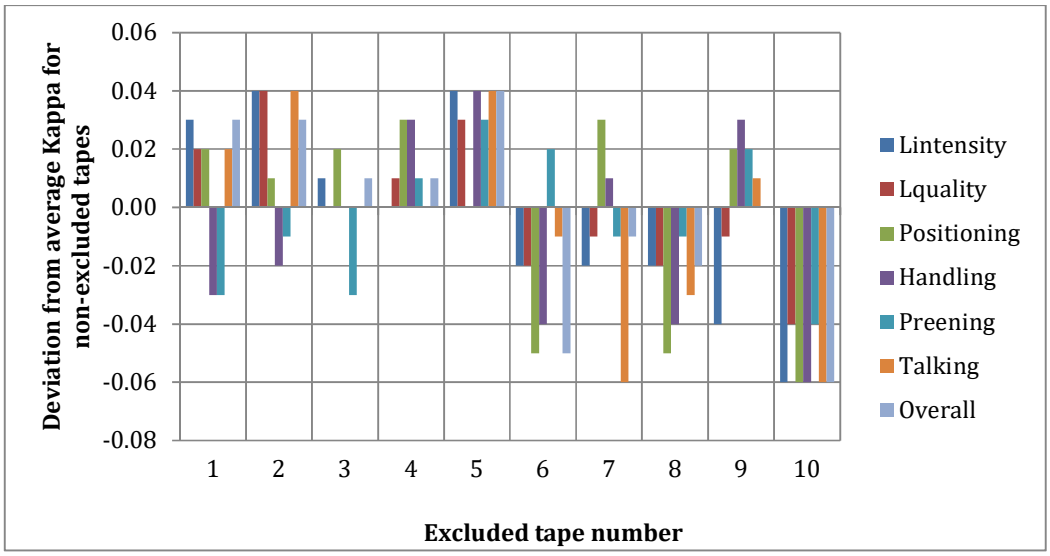


Figure 4.10: Deviation from average Kappa of non-excluded tapes for all constructs and the overall category

For clarity, these values have been summed in Figure 4.11 below.

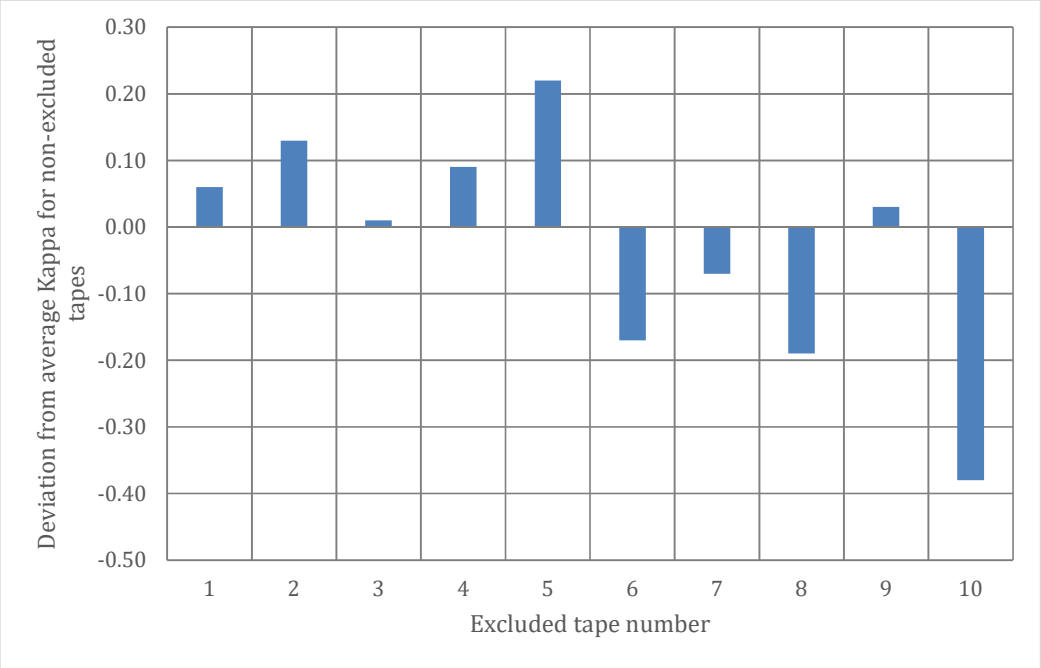


Figure 4.11: Deviation from Kappa of non-excluded tapes—sum of all constructs

This graph shows that tape 5 may have presented particular difficulties for all midwives since the Kappa values for all constructs increased when it is excluded. By contrast in tape 10 there was very high agreement over most constructs and the overall category, and the Kappa values for all constructs decreased significantly.

Tapes summary

Tape 5[49] impacted most negatively on reliability. This tape appears to present a mixed pattern of smiling attention, nervous fiddling and repeated intrusion. In the timeframe given, it is possible that different midwives focused on different elements of this mother's presentation. This tape is the one where the midwives were most split in their responses in the overall category: 11 midwives rated 1 (Comfortable); 11 midwives rated 2 (Uncomfortable); two midwives rated 3 (Worrisome).

By contrast, tape 10 is completely congruent. Here the mother positions the baby in the crook of her arm, handling and preening with smooth sensitivity and looking throughout at the baby, completely absorbed.

[49] For a summary qualitative description comparing tapes 5 and 10 see Appendix 15

Conclusion

Inter-rater reliability

At this point it was determined that the Maternal Looking Guide was sufficiently robust to support the two hypotheses outlined at the beginning of this chapter:

1. Midwives would be able to reliably rate each of the six constructs on the Maternal Looking Guide.
2. Midwives would be able to reliably assign mothers to one of three categories on the Maternal Looking Guide.

The results were not a series of random events. The variability observed can in part be explained by a few outlier midwives with very different ratings and one tape in particular that was difficult to rate.

What has been shown is that constructs of maternal looking can be identified by midwives and measured reasonably reliably. If it had been possible to have a larger number of measurements (more constructs and/or more finely grained rating), the precision would have improved because individual variants would have less impact, as the effect of individuality would have balanced out.

However, a more sophisticated tool with high levels of specificity and sensitivity would sacrifice considerations of practicality and ease of use. These considerations were important because it made no sense to have a highly sophisticated and sensitive tool that would be less likely to be used because of the time-pressured environment midwives work in.

When considering the applicability of these results to everyday practice, of concern is the fact that although the reliability overall was satisfactory, the reliability on tape 5 was very poor. Reasons for this might include that the mother on this tape was particularly aware of the presence of the camera and that as the baby was asleep she did not pick up or handle the baby.

However, several factors suggested that reliability of the tool might improve in everyday practice. For logistical reasons the rating tapes are only nine minutes long. Over an eight-hour shift, however, it is very likely that midwives will have more time and opportunity to observe a mother with her newborn in a variety of situations, though their focus will sometimes be on other things.

The lack of standardisation in the rating process and the time delays that some midwives experienced between rating the first group of tapes and the second, also

suggests that the tool may possibly be more reliable than the rating achieved. If these factors were rectified and the midwives had been less pressured, had had better access to computers and more consecutive time slots, some people's rating scores may have been more consistent which in turn would improve the tool's measured reliability.

In addition the level of disagreement among midwives seems to be more prevalent at the beginning of the rating process and tends to diminish over the ten tapes with no level of disagreement shown in tape 10.

This may indicate a 'practice effect', with the midwives becoming more confident the more tapes they rated. However, it is possible that it is a random effect and the last tapes were the easiest to rate.

What has been shown is that the descriptors and constructs developed in Study 1 could be measured with moderate reliability. When the sources of variability were closely looked at, there were as expected individual tapes and individual midwives that affected the results.

Following the detailed investigation of the sources of disagreement, it is reasonable to conclude that it is possible to proceed with the measure as it stands rather than seek a major reconstruction. However, while limited reliability has been demonstrated, construct validity—the degree to which the tool measures the constructs it is intended to measure—has not been fully tested.

Construct validity

As outlined at the end of Chapter 3, a number of sources of evidence from which construct validity for the tool could be inferred are still required. Inter-rater reliability does go some way to providing evidence of internal structure. Also the piloting of the training package with midwives as part of the development of the training package for inter-rater reliability did involve enquiry into the response process of users of the tool, i.e. the second source of evidence Cook and Beckman (2006) identify as necessary for construct validity.

When considering the correlation of typology scores with scores of another instrument, there was no readily available gold standard measure against which to compare the Maternal Looking Guide. This, plus a time constraint on the project as it is PhD research, precluded further work in this area at this time.

It was therefore decided that the next step would be to use the Maternal Looking Guide and validate it clinically. This involved making a training video based on the training package developed for inter-rater reliability.

The Maternal Looking Guide training video for midwives

From the outset it was hoped that this research project could have a practical outcome. At the least this would be an increased awareness and understanding of the importance of the mother-infant relationship and the nature of its early origins for a limited number of midwives. At best it could provide some scaffolding for midwives to support the relationship of mothers with their newborn baby.

Following the results of Study 2 and the understanding and interest shown by midwives, it was decided to proceed immediately with making an enhanced training tape for midwives on how to use the Maternal Looking Guide in order to maintain the momentum the research had created.

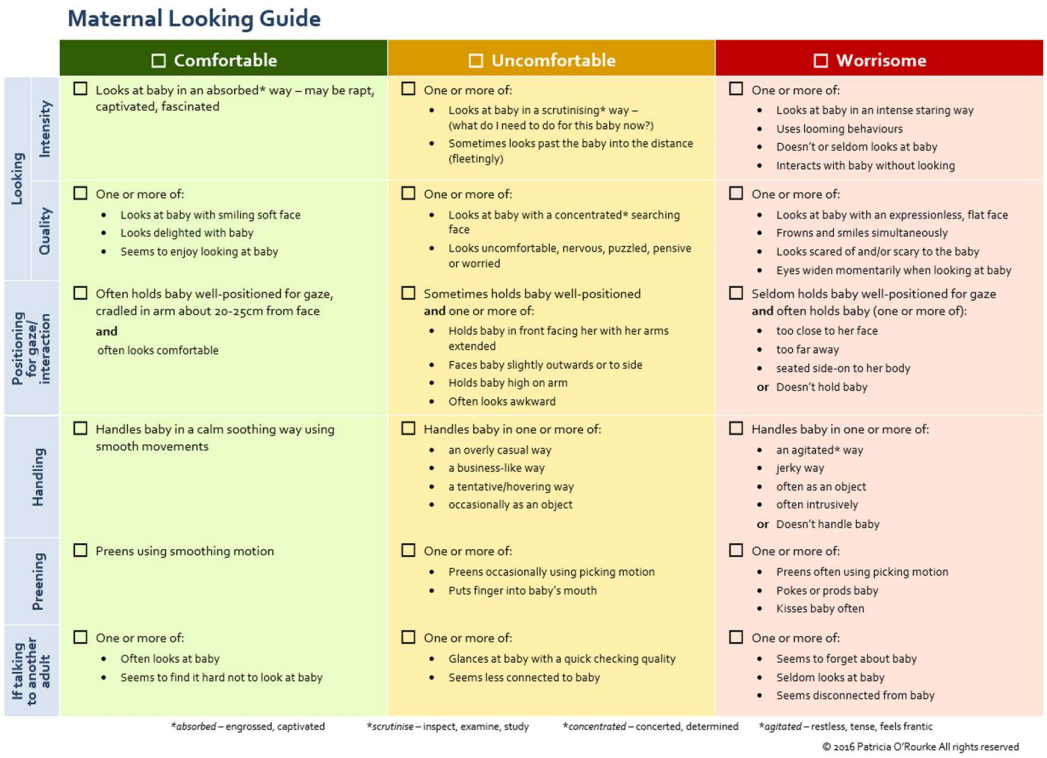
The concept was discussed with my primary supervisor, the Director of a Paediatric Mental Health Training Unit (PMHTU). I was to provide the intellectual product (the Maternal Looking Guide), and the PMHTU would provide their expertise with using video in training and with production and post-production services.

Vignettes using trained actors were necessary to maintain confidentiality. The training tape needed to be able to stand-alone and be conducted over one professional development session, which in our hospital is 50-60 minutes' duration.

A small amount of funding was available to pay the up-front costs of four trained actors and a screen director to film the vignettes that could be used to illustrate the clinical tool. It was decided to use real babies, accessed from new mothers known to my supervisor and me. I prepared character vignettes for each actor based on characteristics of mothers in each category of the Maternal Looking Guide, and each actor was cast and briefed by the director in consultation with my supervisor and me.

The actual videoing was completed over one day at the WCH in a room simulating the postnatal ward.

The vignettes were then edited and built into a new video training package. This training video was based on the one previously used for the inter-rater reliability training. However, it was significantly improved with the addition of colour coding of the categories on the Guide (see Figure 4.12 below and Appendix 16). This enables the categories and constructs to be easily illustrated by vignettes and these are repeated for improved retention. I prepared a script to accompany the video and then recorded it as a voice-over.



Maternal Looking Guide

		☐ Comfortable	☐ Uncomfortable	☐ Worrisome
Looking	Intensity	☐ Looks at baby in an absorbed* way – may be rapt, captivated, fascinated	☐ One or more of: • Looks at baby in a scrutinising* way – (what do I need to do for this baby now?) • Sometimes looks past the baby into the distance (fleetingly)	☐ One or more of: • Looks at baby in an intense staring way • Uses looming behaviours • Doesn't or seldom looks at baby • Interacts with baby without looking
	Quality	☐ One or more of: • Looks at baby with smiling soft face • Looks delighted with baby • Seems to enjoy looking at baby	☐ One or more of: • Looks at baby with a concentrated* searching face • Looks uncomfortable, nervous, puzzled, pensive or worried	☐ One or more of: • Looks at baby with an expressionless, flat face • Frowns and smiles simultaneously • Looks scared of and/or scary to the baby • Eyes widen momentarily when looking at baby
Positioning for gaze/ interaction		☐ Often holds baby well-positioned for gaze, cradled in arm about 20-25cm from face **and** often looks comfortable	☐ Sometimes holds baby well-positioned **and** one or more of: • Holds baby in front facing her with her arms extended • Faces baby slightly outwards or to side • Holds baby high on arm • Often looks awkward	☐ Seldom holds baby well-positioned for gaze **and** often holds baby (one or more of): • too close to her face • too far away • seated side-on to her body **or** Doesn't hold baby
Handling		☐ Handles baby in a calm soothing way using smooth movements	☐ Handles baby in one or more of: • an overly casual way • a business-like way • a tentative/hovering way • occasionally as an object	☐ Handles baby in one or more of: • an agitated* way • jerky way • often as an object • often intrusively **or** Doesn't handle baby
Preening		☐ Preens using smoothing motion	☐ One or more of: • Preens occasionally using picking motion • Puts finger into baby's mouth	☐ One or more of: • Preens often using picking motion • Pokes or prods baby • Kisses baby often
If talking to another adult		☐ One or more of: • Often looks at baby • Seems to find it hard not to look at baby	☐ One or more of: • Glances at baby with a quick checking quality • Seems less connected to baby	☐ One or more of: • Seems to forget about baby • Seldom looks at baby • Seems disconnected from baby

*absorbed – engrossed, captivated *scrutinise – inspect, examine, study *concentrated – concerted, determined *agitated – restless, tense, feels frantic

Figure 4.12: Maternal Looking Guide

The end result is a 42.5 minute training video (see Attachment 1) for midwives that demonstrates how to use the Maternal Looking Guide. Participants are provided with a copy of the Guide to use while watching the video.

The training video acknowledges the important role midwives have at this crucial stage of the mother-infant relationship and states that the tool validates their intuition and provides them with a process for identifying those mothers that can best use a brief intervention from them.

Verbal feedback from midwives who took part in the inter-rater reliability study indicated that they wanted to know how best to help those mothers they identified as needing an intervention. The Maternal Looking Guide training video concludes by outlining extra support midwives can provide uncomfortable mothers and introduces them to a relational intervention—the Neonatal Behavioural Observation System (NBO) (Nugent et al. 2007)—that they could effectively use.

The NBO is a well-validated instrument that can be administered in about 10 minutes. Midwives can be trained in how to use the NBO and it is a very suitable intervention for use in the population that the Maternal Looking Guide can identify.

Chapter 5
Discussion

'We shall not cease from exploration. And the end of all our exploring will be to arrive where we started and know the place for the first time.'

T.S. Eliot

This chapter outlines the key findings of the research and discusses how these relate to the aims set out in the introduction and to theory and previous research. It evaluates the importance of the findings, highlighting the significance of these results for the field of infant mental health. Finally limitations and future directions of the research are discussed.

Key findings

This thesis explores 'maternal looking' in the early interaction between a mother and her newborn. This uni-directional looking by the mother at her infant over the first hours and days post birth is different from mutual gaze, which is a dyadic interaction between mother and infant.

The first key finding was that, using an iterative and systematic process, a number of discrete patterns of maternal looking could be identified. This categorised maternal looking in a meaningful and clinically useful way, and allowed it to be expressed in the form of a typology of looking. Based on this, a clinical tool for midwives, the Maternal Looking Guide was then developed.

The second key finding was that midwives were able to use the clinical tool with moderate reliability when they rated standardised 9-minute excerpts of tapes of first-time mothers 'being with' their newborns. Until now, the role of midwives in facilitating mothers' relationships with their babies by encouraging and supporting the mother-infant relationship in general and in maternal looking in particular has been largely unexplored.

This research has brought the role that midwives can play to the fore, reinforcing their prime position as the health workers most involved in the everyday routine care of

mothers and newborns. Midwives are the professional group most involved in the everyday care of mothers and their newborn babies. They could therefore reliably use the Maternal Looking Guide as an evidence-based way of assessing mother-infant interaction to better target those mother-infant dyads who would most benefit from some form of intervention to help them meet their baby and promote affective resonance in their interaction.

The Maternal Looking Guide can also guide their judgment as to whether to provide an intervention themselves or refer them to other services.

By developing a clinical tool that is user friendly, easily accessible and specifically targets midwives, the research enables midwives to participate more fully in this area of work. Learning how to use the tool and thinking about brief interventions they can provide may also increase midwives' overall interest in infant mental health and their contribution to the field.

Key findings and the aims of the research

When I started this project my original intention was to explore associations between a mother's internal representation of her baby and their relationship and her actual interactions with that newborn. The purpose of this was to see if it would be possible to bring together the imagined baby and the real baby soon after birth as a way of intervening early where indicated in the mother-infant relationship.

It became apparent that this was too ambitious and that the research needed first to focus on understanding more about how mothers meet their newborns and to explore whether this way of meeting could be categorised with a view to intervening earlier in the mother-infant relationship.

The focus on maternal looking and associated looking behaviours emerged as a key feature of this meeting and the aim then became to categorise maternal looking in a way that could be used clinically. This was achieved with the development of the typology in Study 1.

Choosing midwives as the professional group targeted by the Maternal Looking Guide fulfilled both the aim to intervene earlier in the mother-infant relationship, and the aim to engage their interest in midwifery practice that promotes the mother-infant relationship. Midwives were always recognised as potentially being central to any early intervention because of their primary role with mothers and newborns.

The production of the Maternal Looking Guide as a clinical tool for midwives that can be used consistently and predictably by them as evidenced by the achievement of modest inter-rater reliability in Study 2 enabled the key aims of the project to be met.

How the research relates to theory or previous research

This research differs from most other research on the mother-infant relationship in that it specifically focuses on maternal rather than interactional behaviours. While it was impossible to ignore the infant's experience during the making and reviewing of the videotapes, the focus was on the mother's looking. The underlying aim, however, remained to identify occasions when it would be beneficial to intervene in the relationship.

Relatively little research has been carried out in the area of mother-infant interaction in the period immediately after birth. It is a very vulnerable and intensely personal time for any new parents as they struggle to make the required shifts to meet this, their actual baby.

It is well accepted that prenatal representations—how a woman has thought and felt about her baby and her relationship with her baby during her pregnancy—predict the quality of the mother-infant relationship at twelve months (Madigan et al. 2015; Benoit et al. 1997; Zeanah et al. 1994). Similarly, it is well established that attachment security at twelve months is an important marker for that infant because it can provide a buffer against later adverse life events like socioeconomic risk and family psychopathology (Graham & Easterbrooks 2000).

We also know that these prenatal representations predict at three months both the mother's ability to regulate herself and her baby, and the interactive behaviour between her and the baby (Thun-Hohenstein et al. 2008). Moreover, Beebe et al. (2003) have demonstrated that at four months the quality of mother-infant face-to-face interactions predicts attachment security at twelve months.

Therefore it was considered likely that when the baby is born, how the mother interacts with that baby will reflect those representations already formed in pregnancy and will begin the shaping of those actual face-to-face interactions at four months highlighted by Beebe et al. (ibid.).

By focusing on how a mother uses looking to meet her actual baby, this research makes a valuable contribution to further exploring continuities in the developmental process. The typology developed to create the Maternal Looking Guide can be used to further

elucidate continuities and discontinuities in the developmental pathway from pregnancy through infancy.

Setting this research in the perinatal period created significant challenges. However, the immediate postnatal period was the natural time to begin because it is the beginning of the actual relationship. It also offers a significant window of opportunity to positively influence developmental outcomes.

Reasons for giving primacy to maternal looking and not touch or vocalisation have been discussed at length in the literature review (Chapter 2).

However, it is the connection with reflective function—the capacity to reflect on our own mental states and those of others—that is perhaps most crucial when it comes to 'looking'. Reflective capacity or mentalising means there is an ability to understand that there is a relationship between the real world and the mental representation of that world. Furthermore while the subjective experience still closely represents reality, reflective capacity permits some separateness from actual reality to be maintained.

Therefore how a mother thinks and feels about her baby—her internal representations of that baby—must influence and be influenced by what she sees when she looks at her actual baby because she has to match up what she is actually seeing with the baby she has imagined over the pregnancy. She needs to look at her baby at this early stage, to bring the mental representation and the real baby together and this must be linked in some way to what the baby means for her and also what her relationship with her baby means for her. If we are able to identify whether she is comfortable looking or struggles to look we will be in a position to intervene effectively.

The development of this typology, the Maternal Looking Guide, was intended to contribute to identifying at this early stage those mothers who struggle to look. Further research could use the typology of looking to elucidate how robustly, struggling to look, correlates with other measures of mother-infant interaction, and how robustly it predicts developmental outcomes.

Clinical application

As a clinician it was important to me that the research should have a clinical application. There is an urgent need for applied research that can change clinical practice or at least help people think about their clinical practice. There are research tools, like the Atypical Maternal Behaviour Instrument for Assessment and Classification (AMBIANCE), the Working Model of the Child Interview (WMCI) and the Coding Interactive Behaviour (CIB) that are available to assist clinicians in their

work within the area of mother-infant interaction. However, often they are complex and require extensive training before they can be used. These tools are often not easily applied in everyday work.

At the same time, systemic changes in practice should follow an evidence-based approach both for scientific reasons and to satisfy funding requirements. Practice-based evidence is rarely sufficient. Similarly if we want to get most value from intervening early in mother-infant interaction, valid mechanisms for targeting resources are required.

However, choosing to make the typology a clinical tool placed several restrictions on the research. As previously discussed, making it brief and simple to use meant that a degree of sensitivity and specificity were sacrificed in the interests of useability. The world is very complex. Therefore trying to create a tool that reduces responses in the overall population of new mothers to three categories can be viewed as overly simplistic. I argue that instead it is a realistic simplification whereby the tool rates mothers over a continuum of behaviours placing them in a 'best-fit' category without rigid boundaries. The continuum takes into account the wide range of maternal behaviours identified in the sample population, the limitations of which are discussed below.

Discussion of the results

Study 1 demonstrated that looking could be identified and characterised in the form of a typology. While there were some limitations in the methodology of using video to capture maternal looking in the days immediately after birth, a strength of the approach is that it meant the data could be subjected to multiple types of review by multiple reviewers. These reviews were performed by the researcher, by other experts in the field and by multiple midwives. This meant a range of clinical experience and expertise contributed to the thinking over this development phase.

Study 2 aimed to establish the reliability of a tool for midwives to identify different patterns of looking and this was achieved, albeit to only a modest level. However, it needs to be emphasised that this result was based on midwives viewing only nine minutes of tape of women who were otherwise quite unknown to them. In reality, midwives will be able to use the Maternal Looking Guide over an eight-hour shift and after a handover process, where they are provided with background information about the mothers and babies in their care. This means that midwives will generally have more information and time to use the guide with any mother and baby of concern.

Another consideration is the level of difficulty encountered in the practical administration of the inter-rater reliability training and rating. This process was not optimal. If the midwives had had more time, easier access and a more consistent process, scores may have improved. If, for example, the training package that has since been developed had been able to be used, the reliability might have been enhanced.

Significance for the field

The Maternal Looking Guide is a reliable tool for midwives to use for early assessment and decision-making about mother-infant relationships. The structured visual template can be used by midwives in the midst of their busy work shift. Involving midwives in the development process proved to be valuable, increasing the tool's useability and making it more readily acceptable.

Like any screening tool, false positives with the Maternal Looking Guide can lead to unnecessary interventions with unknown adverse outcomes. A patient judged to be uncomfortable might receive a poor intervention from a midwife. A woman incorrectly judged 'worrisome' might receive an unnecessary referral that could do harm. With regard to false negatives, women who would not previously have received a service would still miss out. In any event, it is essential that implementation of the Maternal Looking Guide be supported by supervision and mentoring for midwives who use it.

Implications for midwifery training

This research has highlighted the need for midwifery training programmes to provide an increased focus on the mother-infant relationship. The midwives who participated in my research were all interested in this area of their work.

While they are highly trained in multiple aspects of midwifery practice, this does not routinely include an understanding of the dynamics of the mother-infant relationship, the extent of its co-regulatory function and its critical role in the infant's development trajectory. Increased understanding would enhance midwives' capacity to systematically provide support both in normal birthing situations and in more complex contexts like neonatal intensive care units and special care baby nurseries.

The role of subjectivity

The Maternal Looking Guide differs from many other screening tools in that it is not a self-report tool. Ratings are inevitably affected by the midwife's subjective intuition, and this can be seen as a disadvantage. On the other hand, valuing midwives' intuition can be seen as a strength because it openly acknowledges and makes workers aware of their subjective responses.

The notion of supporting a midwife's intuition is important because midwives are highly trained and qualities essential for caring form an important component of their training. In the professional development sessions that I conducted, the midwives would always become very interested at the point where I began to identify their knowing, that sense they have when they walk into the room and meet a new mother and her baby.

The work of Boudykis (2012) over many years identifying and describing the 'felt sense' would, if applied to professional development with midwives, support them to use this capacity and add to their professional skill base. The fact that the Maternal Looking Guide is a clinical tool that does not exclude the midwives' subjective feeling state and their intuition adds to its value.

Limitations and future directions

Recruitment

There were a number of recruitment difficulties encountered in both studies. Recruitment of mothers and babies was always going to be difficult given that the period under study was the first 48 hours post birth.

It is possible that the women missed in the recruitment process may have contributed characteristics different from those who agreed to be involved. However, this is unlikely, as the reasons for not being included mainly related more to pragmatic circumstances like giving birth on the weekend when the researcher was unavailable, or the baby being ill or mothers choosing to go home early.

Population samples

In spite of some recruitment difficulties, an adequate sample size was achieved in both studies. In Study 1 there were sufficient subjects to achieve saturation for the descriptors. Study 2 successfully achieved the sample size suggested by statistical advice.

If more professionals than just the researcher had contributed to identifying the behavioural descriptors, the set of behaviours associated with looking might possibly have been expanded.

A test-retest study for reliability would add to the robustness of the clinical tool's reliability.

Another possible limitation was that all women were recruited and had birthed in a tertiary hospital. This meant that the sample recruited possibly contained more difficulties in birthing compared with local hospitals based in the community. Similarly

some women at the WCH choose to go home immediately after birthing. These women, like those in community-based hospitals, are less likely to have any birthing complications. Birthing complications plausibly do make it more likely that a woman struggles to look at their baby.

However, while the sample in this project may have contained proportionately higher numbers of uncomfortable and worrisome mothers, this would not have affected the range of behaviours identified. Moreover this feature of the sample used in the project provided more opportunity to identify a wide range of uncomfortable and worrisome behaviours.

Bias

The identification of descriptors in Study 1 was limited to those described by only the researcher. Although the salient features were identified from multiple videotape reviews, and further validated based on clinical experience and reading of the literature, there is a risk that some personal bias may have corrupted this process. While other infant mental health experts informally confirmed these descriptors, no formal attempt was made to see if anyone else would have come up with a different set of descriptors if they had used a comparable process to review the tapes.

In Study 2 midwives were only asked to identify occurrences of the descriptors but not to advance any other possible candidate descriptors. The midwives were asked to rate the tapes in four categories that included a 'Don't know' category. This method did not allow the midwives the possibility of separating the 'Don't know' category into an additional category like 'there is something else going on' and to offer additional descriptors that might express this.

However, the possibility of something else going on was not raised by any of the midwives, which implies that they found the provided set of descriptors exhaustive.

In summary, it is possible that a wider group or a different researcher may have identified some different descriptors and accompanying behaviours. However, whether this has significantly affected the results remains to be seen when the tool is tested further in the field.

Cultural bias

The sample in both studies was not confined to Anglo-European mothers—they were, however, in a majority in both studies. It was decided not to limit the sample to a narrower cultural group, for example Anglo-European mothers, because the midwives have to deal with this cultural complexity in their everyday practice.

A number of women from the Indian subcontinent were included in both studies as well as one from Africa. These women in the main were categorised as uncomfortable or worrisome. Possible reasons for this include that there is some bias related to unfamiliarity with other cultural practices that the typology does not recognise as it may be culturally biased or it may be too blunt an instrument.

However, the women from diverse cultures in the research and in this hospital setting generally, as new arrivals, have often had migration experiences that may have been traumatic and they may feel, and in fact be, less supported. So the fact that most were categorised as uncomfortable or worrisome does not necessarily mean that the tool is biased; it may simply mean that these women are more vulnerable and at risk.

It is therefore not possible at this stage to know if the Maternal Looking Guide will function effectively in other cultural contexts. Although the clinical tool achieved moderate reliability with a culturally diverse sample, this research does not provide robust support for extrapolating its use across other cultural groups. To do that, a comparative study would need to be done with other cultural groups such as Aboriginal women.

Future directions

The development of a typology of looking provides the basis for several studies that could enrich our understanding of mother-infant relationship in the perinatal period. Some of these studies would relate specifically to the use of the Maternal Looking Guide, while other projects could further explore the concept of maternal looking and its role in the development of the mother-infant relationship.

Future projects relating to the Maternal Looking Guide include:

a. Studies that provide further validation and reliability testing of the instrument. The Maternal Looking Guide would benefit from replication, possibly with a larger sample and an enhanced training methodology that reduces the risk of possible bias. Testing the tool in other cultural contexts and clinical settings would enhance its robustness and could lead to further modifications and enhancements. Further validation of the Maternal Looking Guide as a clinical tool against, say, Feldman's Coding Interactive Behaviour Newborns (1998) would be useful.
b. An intervention study using the Maternal Looking Guide to identify uncomfortable mothers and providing them with a brief intervention. The intervention could be as simple as five minutes being with mothers in a

structured way, supporting them to look at their babies and reflecting with them on what they are seeing. Alternatively a well-researched intervention like the NBO could be used. Outcome measures could include maintenance of breastfeeding, referrals to services for excessive crying and sleep or feeding disorders in the early months of life. Measures such as the WMCI given pre and post intervention could also be considered.

c. Qualitative research could explore midwives' use of the Maternal Looking Guide and how its use affects their practice. This would include but not necessarily be limited to midwives' level of interest in mother-infant relationship and infant mental health more generally and their sense of efficacy in this area of midwifery care.

Research studies could also investigate maternal looking as a predictor of mother-infant interaction and:

d. Explore whether maternal looking in the immediate perinatal period represents the overall quality of the mother-infant relationship and whether the Maternal Looking Guide has a useful place on the predictive pathway of mother-infant relationship. For example, correlating the Maternal Looking Guide outcome with prenatal maternal representations using the Prenatal WMCI, and then mother-infant interaction and the WMCI again at four months.
e. Measuring the effect of supporting mothers in their looking at antenatal ultrasounds, by using the Maternal Looking Guide to gauge whether this has any effect on a mother's looking at her baby in the first 48 hours of the infant's life, compared to matched mothers that have not had their looking at the ultrasound supported.

However, the main applicability of the Maternal Looking Guide is in clinical practice and it is ready to be implemented in its current form. The development of the video training package means that the guide can be introduced in different clinical settings and further evaluated and validated in the field.

In conclusion, research in mother-infant interaction in the perinatal period is still relatively uncommon. This thesis advances our understanding of the beginning of the mother-infant relationship—a relationship that is known to be critical for infant development.

This research has created a coherent and cohesive typology of looking, based on intensive and iterative examination of many hours of mothers with their new babies. That typology has in turn generated a practical tool (the Maternal Looking Guide) to

allow midwives to systematically identify mothers who might benefit from a simple intervention, and to deliver this as required during their working day.

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Appendix 1
Consent form Study 1 2010

CHILDREN, YOUTH & WOMEN'S HEALTH SERVICE (CYWHS)
HUMAN RESEARCH ETHICS COMMITTEE (HREC)

CONSENT FORM

Phase 1

Meeting your baby

Associations between how first-time mothers get to know their newborns and their internal representations of the baby

I _____ (name)

hereby consent to my involvement in the research project entitled:

Meeting your baby

1. The nature and purpose of the research project described on the attached Information Sheet has been explained to me. I understand it and agree to taking part.
2. I understand that I may not directly benefit by taking part in this study.
3. I acknowledge that the possible risks, discomforts and inconveniences, as outlined in the Information Sheet, have been explained to me.
4. I understand that I can withdraw from the study at any stage and that this will not affect medical care or any other aspects of my relationship with this healthcare service.
5. I understand that there will be no payment to me for taking part in this study. However I will receive a copy of the video taken of me with my baby.
6. I have had the opportunity to discuss taking part in this research project with a family member or friend.
7. I am aware that I should retain a copy of this Consent Form, when completed, and the Information Sheet.

8. I consent to:

   - completing a questionnaire which provides demographic data about me.
   - a 5–10 minute video of me being with my baby being made on the postnatal ward within 48 hours of birthing. This will take approximately 15 minutes.
   - after the above video, participating in a videod semi-structured interview with the researcher. This will take approximately 20 minutes.
   - the video and transcripts being seen and discussed by a small group of CYWHS health workers and researchers.
   - the study being written up for a doctoral thesis and in an academic journal article reporting the results.

9. I consent to the video being used in any follow-up research project, provided the project has the approval of the Women's & Children's Hospital Research Ethics Committee.

10. I understand that I am free to stop participating in this research project at any stage, without giving any reason, and that my withdrawal will not affect (i) my treatment at the Women's and Children's Hopsital or (ii) any other conceivable situation.

11. I agree to the accessing of my medical records for the purpose of this study.

12. I understand that my information will be kept confidential as explained in the information sheet except where there is a requirement by law for it to be divulged.

Signed: .....

Full name of participant: .....

Date: .....

I certify that I have explained the study to the participant and consider that she understands what is involved.

Signed: .....

Title: .....

Dated: .....

Appendix 2
Information Sheet Study 1 2010

Meeting your baby

Associations between how first-time mothers get to know their newborns and their internal representations of the baby

Introduction

Patricia O'Rourke is a Child Psychotherapist working at the Women's and Children's Hospital. As part of her doctoral studies at the University of Adelaide, she is researching how mothers get to know their babies in those first couple of days after they've been born.

Purpose of the study

The study is to help increase our knowledge about what mothers and their newborn babies need, by gaining a better understanding of the mother-infant relationship in the first days and months

How being in the study will help

By participating in this study it is hoped that you will help identify how mothers think and feel about their babies so that they can be better supported. There may be no direct or immediate benefit to you and your baby but you will receive a copy of a short video clip of you with your baby, made while you are on the postnatal ward.

What will happen if you agree to be in the study

You will need to agree to:

- allow your score on the screening measures, the Antenatal Risk Questionnaire and the Edinburgh Postnatal Depression Scale that you have completed at your antenatal appointment, to be given to the researcher.
- fill in another short questionnaire that asks for general information about you – things like where you were born, your education, employment, marital status and income.
- meet the researcher on the postnatal ward within 48 hours of your delivery at a time negotiated with you.
- the researcher making a 5–10 minute video of you being with your baby and completing a short semi-structured interview about how you feel and think when you interact with your baby. This will also be videoed and will take about 20 minutes.

- these videos being transcribed, viewed and discussed by the researcher and a small group of other CYWHS health workers.

Parts of the transcripts and discussions may be written up as part of the doctoral thesis for Adelaide University and in an academic journal article reporting the results.

Personal information other people will see

Your screening results and responses to general information questions will be seen by the researcher. She will access your case notes before videoing to check that you are still able to be part of the study. She will also review the video and your responses to the interview with a small group of other CYWHS health workers. Your video may be sent to Monash University or Flinders University and will be seen there only by two research supervisors for quality control purposes.

Confidentiality

All of your information will be managed as confidential data. While nothing that can identify you will be written on the video recording or the transcripts, your face cannot be de-identified on the video and may be recognisable by anyone who knows you. However, as noted above the video will only be seen by the researcher, her supervisors and a small group of CYWHS health workers. When the study is written up for the university thesis or for any academic paper, no identifying information will be included.

Your information will remain confidential except in the case of a legal requirement to pass on personal information to authorised third parties. This requirement is standard and applies to information collected both in research and non-research situations. Such requests to access information are rare; however we have an obligation to inform you of this possibility.

Possible risks if you are involved

Apart from a time commitment, which may cause inconvenience, there are minimal risks involved in participation in this study.

You may find that a range of feelings arise as you consider your answers to some of the questions. These are likely to be of an everyday nature. However, should you want to explore them further you can contact the researcher and she will refer you to appropriate support services.

Similarly, if it becomes apparent during the interview that you are experiencing significant problems, the researcher will discuss this with you and help you access suitable support.

Do you have to be involved and can you pull out if you wish?

You do not have to be involved. If you decide not to be involved, it will not change how you are treated at the CYWHS.

At any time you can withdraw from the study without needing to give a reason for doing so. Again this will not change how you are treated at the CYWHS.

There is no payment for participation.

How do you agree to be in the study?

You take this information sheet home, where you can discuss your participation with family and friends. Within a week the researcher will ring you to ask if you are willing to participate.

If you are willing to be in the study, she will make a time to meet you at your next antenatal visit when you will need to sign a consent form.

If you have any concerns or questions about being in the study you can contact any of the following people:

Primary researcher	**Research supervisor**
Patricia O'Rourke Child Psychotherapist Department of Psychological Medicine Women's and Children's Hospital Telephone: 8161 7226 or 0415 244 858 Email: patricia.orourke@health.sa.gov.au	Dr Jon Jureidini Head Of Department Department of Psychological Medicine Women's and Children's Hospital Telephone : 0418897530 Email: jon.jureidini@health.sa.gov.au
Professor Louise Newman Child and Adolescent Psychiatrist; Professor of Developmental Psychiatry, Director of Monash University Centre for Developmental Psychiatry and Psychology Telephone: (03) 9594 1354 Email: louise.newman@monash.edu	Professor David Ben-Tovim Clinical Professor of Psychiatry School of Medicine Flinders University Telephone: (08) 8204 3093 Email: david.ben-tovim@health.sa.gov.au

Ethics approval

This research study has been given approval by the Children, Youth and Women's Health Service Research Ethics Committee. If you wish to discuss the approval process or if you have any concern or complaint about this study, you are advised to contact the Secretary of the Research Ethics Committee, Ms Brenda Penny, telephone: 8161 6521.

Appendix 3
Amendment Work-shadowing Request

8 November 2012

Dr Tamara Zutlevics
Chair
WCHN Human Resources Ethics Committee

Dear Tamara

RE: Meeting your baby: Associations between how first-time mothers look at their newborns and their internal representations of the baby
REC2230/12/2013

Further to your email dated 7 November 2012, I apologise for not providing sufficient information in response to your request.

I misunderstood your request in question 1 – I thought your main concern was the timing of the proposed shadowing of the midwives. Optimising the bonding between mother and infant is the overarching goal of my research and I am acutely aware of the primacy of this relationship.

I wish to accompany a midwife as they work in order to clarify how they spend their time with mothers and babies. This will allow me to determine whether the tool currently in development is practical in a midwife's day-to-day functioning.

My expectation is that the midwife would introduce me as someone watching her (the midwife's) work so I can better understand what a midwife actually does. I do not intend to speak with either the midwife or the mother when we are in the mother's room, or to remain present during any medical procedures or examinations. I will be as unobtrusive as possible throughout and I have no intention of interfering in any way with either a midwife's care of the mother and baby or a mother's care of her baby.

If a mother seems uncomfortable with me being there, or if she wants to talk privately with the midwife, I would leave. Because I am only trying to ascertain whether midwives are in a position to use this tool, I don't need to remain in any situation where a mother appears to be uncomfortable with me being there.

I will only be present for up to two hours of any one mother's stay on the post-natal ward.

I trust that this information addresses your concerns, however if you need further clarification or have any suggestions, please contact me.

Yours sincerely

Patricia O'Rourke

Child Psychotherapist, DPM

PhD Candidate, Adelaide University

Appendix 4
Demographic Questionnaire

Meeting your baby

The following questionnaire concerns aspects of ***your*** life, including information regarding your family background. The information obtained from this questionnaire will remain confidential. We appreciate your time in completing this.

Part 1 - About You

1. Today's date: _____
2. What is your last name?
   _____
3. What is your first name?
   _____
4. Residential address:
   _____
   Suburb: _____ Postcode: _____
5. Telephone contact numbers:
   Home: _____ Work: _____ Mobile: _____
6. Email address: _____
7. What is your date of birth: ____/ _____/ _____
8. In which country were you born? _____
9. If you were born overseas, which year did you first arrive in Australia?
   _____
10. What language/s do you speak at home? _____
11. What is your highest level of education?
    - ❑ less than Year 10
    - ❑ Year 10/11
    - ❑ Year 12
    - ❑ TAFE/College certificate
    - ❑ Trade/Apprenticeship
    - ❑ University Degree
12. Are you currently in paid employment? ❑ Yes ❑ No
    If yes, how many hours per week? _____ hours
    If applicable, what is your job title?
    _____

13. Do you have any current medical conditions? ❑ Yes ❑ No

_____

Are you taking any medication for your medical condition?_____

Part 2 - About Your Family

1. What is your current marital status?

❑ Married ❑ Never Married ❑ Living with partner

❑ Widowed ❑ Separated ❑ Single ❑ Divorced

2. At present who lives at home with you? Please include yourself.

Name	Age	Date of Birth	Sex	Relationship to You

3. Which best describes the household in which you are presently living?

❑ Original family (both biological or adoptive parents) ❑ Foster family

❑ Step family (two parents, one being a step parent) family ❑ Sole parent

❑ Other (please specify)

_____

Part 3 - About Your Family Income

Which of these income bands **BEST** describes the **TOTAL ANNUAL INCOME** for your family (Gross – i.e. **before tax**)

❑ Less than $20,000 per year
❑ $20,000 - $39,999
❑ $40,000 - $69,999
❑ $70,000 - $99,999
❑ $100,000 - $149,999
❑ $150,000 or over per year
❑ Don’t know

Appendix 5
Amended Consent Form Study 2 2013

CHILDREN, YOUTH & WOMEN'S HEALTH SERVICE (CYWHS)
HUMAN RESEARCH ETHICS COMMITTEE (HREC)

CONSENT FORM

Meeting your baby

Associations between how first-time mothers get to know their newborns and their internal representations of the baby

I _____ (name)

hereby consent to my involvement in the research project entitled:

Meeting your baby

1. The nature and purpose of the research project described on the attached Information Sheet has been explained to me. I understand it and agree to taking part.
2. I understand that I may not directly benefit by taking part in this study.
3. I acknowledge that the possible risks, discomforts and inconveniences, as outlined in the Information Sheet, have been explained to me.
4. I understand that I can withdraw from the study at any stage and that this will not affect medical care or any other aspects of my relationship with this healthcare service.
5. I understand that there will be no payment to me for taking part in this study. However I will receive a copy of the video taken of me with my baby.
6. I have had the opportunity to discuss taking part in this research project with a family member or friend.
7. I am aware that I should retain a copy of this Consent Form, when completed, and the Information Sheet.
8. I consent to:
    - completing a questionnaire which provides demographic data about me.

- a 5–10 minute video of me being with my baby being made on the postnatal ward within 24 hours of birthing. This will take approximately 10 minutes.
- after the above video, participating in a videod semi-structured interview with the researcher. This will take approximately 10 minutes.
- the video and transcripts being seen and discussed by a small group of WCHN health workers and researchers.
- the study being written up for a doctoral thesis and in an academic journal article reporting the results.

9. I consent to the video being used in any follow-up research project, provided the project has the approval of the Women's & Children's Hospital Research Ethics Committee.

10. I understand that I am free to stop participating in this research project at any stage, without giving any reason, and that my withdrawal will not affect (i) my treatment at the Women's and Children's Hopsital or (ii) any other conceivable situation.

11. I agree to the accessing of my medical records.

12. I understand that my information will be kept confidential as explained in the information sheet except where there is a requirement by law for it to be divulged.

Signed: .....

Full name of participant: .....

Date: .....

I certify that I have explained the study to the participant and consider that she understands what is involved.

Signed: .....

Title: .....

Dated: .....

Appendix 6
Amended Information Sheet 2013

Meeting your baby

Associations between how first-time mothers get to know their newborns and their internal representations of the baby

Introduction

Patricia O'Rourke is a Child Psychotherapist working at the Women's and Children's Hospital. As part of her doctoral studies at the University of Adelaide, she is researching how mothers get to know their babies in those first couple of days after they've been born.

Purpose of the study

The study is to help increase our knowledge about what mothers and their newborn babies need, by gaining a better understanding of the mother-infant relationship in the first days and months

How being in the study will help

By participating in this study it is hoped that you will help identify how mothers think and feel about their babies so that they can be better supported. There may be no direct or immediate benefit to you and your baby but you will receive a copy of a short video clip of you with your baby, made while you are on the postnatal ward.

What will happen if you agree to be in the study

You will need to agree to:

- allow your score on the screening measures, the Antenatal Risk Questionnaire and the Edinburgh Postnatal Depression Scale that you have completed at your antenatal appointment, to be given to the researcher.
- fill in another short questionnaire that asks for general information about you – things like where you were born, your education, employment, marital status and income.
- the researcher returning the next morning and at an agreed time making a 5–10 minute video of you being with your baby and completing a short semi-structured interview about how you feel and think when you interact with your baby. This will also be videoed and will take about 10 minutes.
- these videos being transcribed, viewed and discussed by the researcher and a small group of other WCHN health workers.

Parts of the transcripts and discussions may be written up as part of the doctoral thesis for Adelaide University and in an academic journal article reporting the results.

Personal information other people will see

Your screening results and responses to general information questions will be seen by the researcher. She will access your case notes before videoing to check that you are still able to be part of the study. She will also review the video and your responses to the interview with a small group of other WCHN health workers. Your video may be sent to Monash University or Flinders University and will be seen there only by two research supervisors for quality control purposes.

Confidentiality

All of your information will be managed as confidential data. While nothing that can identify you will be written on the video recording or the transcripts, your face cannot be de-identified on the video and may be recognisable by anyone who knows you. However, as noted above the video will only be seen by the researcher, her supervisors and a small group of WCHN health workers. When the study is written up for the university thesis or for any academic paper, no identifying information will be included.

Your information will remain confidential except in the case of a legal requirement to pass on personal information to authorised third parties. This requirement is standard and applies to information collected both in research and non-research situations. Such requests to access information are rare; however we have an obligation to inform you of this possibility.

Possible risks if you are involved

Apart from a time commitment, which may cause inconvenience, there are minimal risks involved in participation in this study.

You may find that a range of feelings arise as you consider your answers to some of the questions. These are likely to be of an everyday nature. However, should you want to explore them further you can contact the researcher and she will refer you to appropriate support services.

Similarly, if it becomes apparent during the interview that you are experiencing significant problems, the researcher will discuss this with you and help you access suitable support.

Do you have to be involved and can you pull out if you wish?

You do not have to be involved. If you decide not to be involved, it will not change how you are treated at the WCHN.

At any time you can withdraw from the study without needing to give a reason for doing so. Again this will not change how you are treated at the WCHN.

There is no payment for participation.

How do you agree to be in the study?

You keep this information sheet and discuss your participation with family and friends. Tomorrow the researcher will return to ask if you are willing to participate.

If you are willing to be in the study, you will need to sign a consent form and she will either video you and your baby then or make a more suitable time with you prior to discharge.

If you have any concerns or questions about being in the study you can contact any of the following people:

Primary researcher	**Research supervisor**
Patricia O'Rourke Child Psychotherapist Department of Psychological Medicine Women's and Children's Hospital Telephone: 8161 7226 or 0415 244 858 Email: patricia.orourke@health.sa.gov.au	Dr Jon Jureidini Head Of Department Department of Psychological Medicine Women's and Children's Hospital Telephone : 0418897530 Email: jon.jureidini@health.sa.gov.au
Professor Louise Newman Child and Adolescent Psychiatrist; Professor of Developmental Psychiatry, Director of Monash University Centre for Developmental Psychiatry and Psychology Telephone: (03) 9594 1354 Email: louise.newman@monash.edu	Professor David Ben-Tovim Clinical Professor of Psychiatry School of Medicine Flinders University Telephone: (08) 8204 3093 Email: david.ben-tovim@health.sa.gov.au

Ethics approval

This research study has been given approval by the Children, Youth and Women's Health Service Research Ethics Committee. If you wish to discuss the approval process or if you have any concern or complaint about this study, you are advised to contact the Secretary of the Research Ethics Committee, Ms Brenda Penny, telephone: 8161 6521.

Appendix 7
Ethics Amendment Request 2013

12 November 2013
Dr Tamara Zutlevics
Chair
WCHN Human Resources Ethics Committee

Dear Tamara

RE: Meeting your baby: Associations between how first-time mothers look at their newborns and their internal representations of the baby
REC2230/12/2013

I am writing to request an amendment regarding the recruitment process of this protocol.

Recruitment into this study has previously taken place at the WCH in women's assessment and at antenatal classes. Previously there was at least a 48 hour window of opportunity to make the brief video of women and their newborns on the post natal ward. However given the recent changes to admission times, the window of opportunity to video mothers and their babies has been significantly reduced.

Following consultation with Belinda Biddle, Clinical Service Co-ordinator, and Susan Dyer, Clinical Practice Consultant, Nursing and Midwifery Clinical Practice Development Unit, I now propose to recruit women on the post natal ward the day of delivery with the videoing occurring the following day prior to discharge. It is proposed that I first speak with the shift co-ordinators of the day about 1.30pm in order for the shift co-ordinator to filter anyone who may be experiencing any difficulty or who is to be discharged that same day.

I would then approach the women identified by the shift co-ordinator, introduce them to the study and leave the information with them to discuss more fully with their partner and family before returning the next morning to hear their decision. If they are agreeable I will negotiate a suitable time to make the video and conduct the interview before discharge.

Some of these women I may see in the course of my work at the WCH.

I have attached an updated Information sheet for mothers and Consent Form with track changes for your information.

Yours sincerely

Patricia O'Rourke

Child Psychotherapist, Dept of Psychological Medicine

PhD Candidate, Adelaide University

Appendix 8
Consent Form Study 2 Midwives

WOMEN'S & CHILDREN'S HEALTH NETWORK (WCHN)
HUMAN RESEARCH ETHICS COMMITTEE (HREC)

CONSENT FORM FOR MIDWIVES

Meeting your baby: Part Two – Engaging Midwives

Associations between how first-time mothers get to know their newborns and their internal representations of the baby – Engagement of midwives in reliability testing

I _____ (name)

hereby consent to my involvement in the research project entitled:

Meeting your baby: Part Two – Engaging Midwives

1. The nature and purpose of the research project described on the attached Information Sheet has been explained to me. I understand it and agree to taking part.
2. I understand that I may not directly benefit by taking part in this study.
3. I acknowledge that the possible risks, discomforts and inconveniences, as outlined in the Information Sheet, have been explained to me.
4. I understand that I can withdraw from the study at any stage and that this will not affect any aspects of my work.
5. I understand that there will be no payment to me for taking part in this study.
6. I have had the opportunity to discuss taking part in this research project with a family member or friend.
7. I am aware that I should retain a copy of this Consent Form, when completed, and the Information Sheet.
8. I consent to:

- Participating in a 1 hour training session on how to use of the 'Typology of looking' instrument followed by 2 x 1 hour sessions coding video tapes of mothers being with their newborn babies. This will involve watching 10 X 5-10 minute tapes of mothers being with their babies and completing a one page sheet. This willutilise 3 hours of your professional development time.
- The results of this being discussed by a small group of WCHN midwife educators, health workers and researchers
- The study being written up for a doctoral thesis and in an academic journal article reporting the results.

9. I consent to the information being used in any follow-up research project, provided the project has the approval of the Women's & Children's Hospital Research Ethics Committee.

10. I understand that I am free to stop participating in this research project at any stage, without giving any reason, and that my withdrawal will not affect (i) my treatment at the Women's and Children's Hospital or (ii) any other conceivable situation.

12. I understand that my information will be kept confidential as explained in the information sheet except where there is a requirement by law for it to be divulged.

Signed: .....

Full name of participant: .....

Date: .....

I certify that I have explained the study to the participant and consider that she understands what is involved.

Signed: .....

Title: .....

Date: .....

Appendix 9
Information Sheet Study 2 Midwives

Meeting your baby: Part Two – Engaging Midwives

Associations between how first-time mothers get to know their newborns and their internal representations of the baby – Engagement of Midwives in reliability testing

Introduction

Patricia O'Rourke is a Child Psychotherapist working in the Department of Psychological Medicine at the Women's and Children's Hospital. As part of her doctoral studies at the University of Adelaide, she is researching how mothers use 'looking' behaviour to get to know their babies in the first couple of days after birth.

Purpose of the study

The overall purpose of this study is to explore the experience of 'looking' in the context of the first 48 hours of a mother's developing relationship with her baby. It seeks to understand the role that 'looking' plays as mothers reconcile their actual newborn baby with the imagined baby of their hopes, fears, reveries, dreams and fantasies. This reconciliation may be pivotal for the mother-infant relationship and thus the infant's developmental trajectory.

In this second phase, the research seeks to clarify if it is possible for midwives, within the course of their everyday work routine, to reliably document observations of the interaction between mother and the baby using a simple typology (see attached sheet).

How being in the study will help

By participating in this study it is hoped that you will assist the researcher to determine whether the typology under development (see attached sheet) reliably categorises how women look at their babies in the first days after birth. There may be no direct or immediate benefit to you.

What will happen if you agree to be in the study

The researcher will give you training in how to use the typology (see attached sheet). In a group of approximately 10 midwives over three professional development sessions you will receive training in the use of the typology and view 10-12 videotapes of

mothers being with their babies on the postnatal ward and code their behaviour using the typology.

Personal information other people will see

There is no personal information that will be gathered or that anyone else will see.

Confidentiality

Nothing that can identify you will be written up in the researcher's thesis.

Your information will remain confidential except in the case of a legal requirement to pass on personal information to authorised third parties. This requirement is standard and applies to information collected both in research and non-research situations. Such requests to access information are rare; however we have an obligation to inform you of this possibility.

Possible risks if you are involved

Apart from possible time inconvenience, there are minimal risks involved in participation in this study.

Do you have to be involved and can you pull out if you wish?

You do not have to be involved. If you decide not to be involved, it will not change how you are treated at the WCHN.

At any time you can withdraw from the study without needing to give a reason for doing so. Again this will not change how you are treated at the WCHN.

There is no payment for participation.

How do you agree to be in the study?

If you are willing to be in the study, the researcher will make a time to meet you on the postnatal ward when you will need to sign a consent form.

If you have any concerns or questions about being in the study you can contact any of the following people:

Primary researcher	**Research supervisor**
Patricia O'Rourke Child Psychotherapist Department of Psychological Medicine Women's and Children's Hospital Telephone: 8161 7226 or 0415 244 858 Email: patricia.orourke@health.sa.gov.au	Dr Jon Jureidini Head Of Department Department of Psychological Medicine Women's and Children's Hospital Telephone : 0418897530 Email: jon.jureidini@health.sa.gov.au

Professor Louise Newman Child and Adolescent Psychiatrist; Professor of Developmental Psychiatry, Director of Monash University Centre for Developmental Psychiatry and Psychology Telephone: (03) 9594 1354 Email: louise.newman@monash.edu	Professor David Ben-Tovim Clinical Professor of Psychiatry School of Medicine Flinders University Telephone: (08) 8204 3093 Email: david.ben-tovim@health.sa.gov.au

Ethics approval

This research study has been given approval by the Women and Children's Health Network Research Ethics Committee. If you wish to discuss the approval process or if you have any concern or complaint about this study, you are advised to contact the Secretary of the Research Ethics Committee, Ms Brenda Penny, telephone: 8161 6521.

Appendix 10
Protocol for delivery of Inter-rater reliability training

IRR Training Running Sheet

(Remember connector, baby doll, typology sheets plus one for me)

Slide 1 Intro -

Thanks for coming. You'll remember that I've developed a typology of how mothers look at their babies – it's an attempt to identify patterns of how mothers look at their newborns. The overall goal of the research is to assist midwives use the way mothers look at their newborn babies to intervene where indicated in the mother /infant relationship.

I think 'how a mother looks' is important because it's how a mother takes in her baby – this is the new person who she has imagined for 9 months, whom she has waited to meet for 9 months and who will be unrelentingly connected to her for the rest of her life.

I think that how a mother looks at her newborn, the pattern of her looking could point to how the mother-infant relationship may progress.

Slide 2 – This hour

I'm currently trying to work out if the typology I developed is reliable – is it consistent and predictable? Can any midwife on any shift use it and come up with the same results as another midwife would? If that can happen most of the time, the typology is reliable.

You all have a copy of the typology – (hold up).

It's made up of 6 items (down) and 3 categories (across)

We're going to look at a 'comfortable' pattern of looking and then look at the worrisome patterns – there are 2 of them – an intrusive type and a more withdrawn type. If you get an idea of either end of the spectrum it helps you to work out the 'uncomfortable' pattern which can be a bit trickier.

Finally there are 2 practice tapes to help you get familiar with this clinical tool before you start the actual rating sessions.

Slide 3 - Typology

Typology is made up of 6 items (down) of behaviours associated with looking behaviour - and each item has 3 separate categories (across).

To use the tool you need to rate a mother on each of the items in one of the 3 possible categories according to what you observe –so you tick one of these boxes. **For the rating exercise it is important you tick a box for each item.**

Let's go through the items:

Looking is in 2 sections

- **the intensity** as she looks at the baby, and –
- **the quality of** how a mother looks at the baby- or how her face looks

how mothers **position** their babies for interaction, (demonstrate)

how they **handle** their babies, (demonstrate)

Then what I've called 'preening' which is a behaviour that will be familiar to you where mothers touch and groom their babies (demonstrate)

Finally how talking to someone else affects her looking behaviour - mums often have partners, visitors and of course you.

Do they seem to find it hard to look at you and not their baby? Do they look at you and keep checking quickly on their baby or does their baby drop out of their mind?

'**Don't know' Option**.

There is also the '**Don't know' Option** which you can use for any item– You won't necessarily see all of the behaviours because the tapes you are rating are only 7 minutes long.

When you haven't seen any behaviour for a particular item, you need to tick 'don't know' – **Remember for this rating exercise it is important you tick a box for each item.**

So let's look at this first one together – you rate what you see as we go

Just a reminder -

When I was making these tapes, the instruction to all mums was to 'be with your baby how you would normally be' – some mum's take that very literally – one pretends to go to sleep… In all tapes there is enough to rate on – but you need to be alert from the beginning because you don't know how much time you'll have! In real life this will be less of an issue.

Slide 4

Video – MYB7 Comfortable 3 min – no sound in any video - too distracting

Look at MYB7 3minutes

Pause a couple of times and go over what people are seeing / coding

Point out:

- (1st 30 sec) qualitative difference - Absorbed? Or scrutinising then increasingly looks rapt and captivated – face is soft and smiling – **enjoyment**
- Well positioned? – bit high perhaps but accommodates with head back
- Handling – smoothly undoes wrap – removes hand gently – **no picking**
- Preening – smooth – and **occasional –** not frenetic.
- Overall absorbed with her baby – giving the baby space – feels good watching

Slide 5

Video - MYB7 Talking 39 Sec

When talking all mum's are talking about what they named their baby and how breastfeeding is going.

No sound as it is too distracting.

Again pause a couple of times to highlight what seeing – you'll notice she

- often looks
- finds it hard not to look

Not the quick checking of uncomfortable – nor does the baby drop out of her mind like in worrisome

Slide 6 - Typology

Talk for a minute about the 3 Categories – (Click for circle)

You'll see that there are

2 ends of the spectrum are Comfortable ……..Worrisome

Comfortable – this mum makes you feel like you want to be her baby! She is enamoured with her baby and you feel it pretty quickly – I find myself smiling generally watching the tape.

Other end of spectrum we have - Worrisome

This has the exact opposite effect. These mums clearly need help. Pretty quickly it feels alarming - I'm feeling concerned for the baby. Again they are not so difficult to pick.

Worrisome comes in 2 overall types – intrusive / withdrawn.

I'm going to show you both

Slide 7

Video MYB10 'worrisome' intrusive - 1 min 19 sec –

Define intrusive i.e.

intrusive behaviour includes - looming, being the baby's face without much attention to the effect of that on the baby

She looms, intense, staring – smiles at times but also flat quality

Seldom hold well positioned – mainly too close plus seated side-on

Point out how it's different to the other mum – i.e. comfortable moves back to give baby space

Handles – very agitated, jerky, intrusive

Preening - picking, poking, prodding

Now we'll have a look at her talking

Slide 8

Video MYB10 Talking - 37 sec

She does look but then seems to forget about the baby - disconnected - point out how it's different to MYB 7

Slide 9

Video - MYB25 Not looking - final 1min 47 sec

Here she raises bed 'to look' - and tells me that but she only has one quick look in the next 27 minutes!

partner goes and looks

– when she talks to me tells me she really enjoyed it after birth but baby even moving and she doesn't notice – disconnected

Comment about how some mum's think they look – tell me they do but actually don't!

Look at sheet – go thru all behaviours

Slide 10

- Typology with ring around 'uncomfortable'

Now get to the more gray area -Uncomfortable

this is the most difficult because

- lots of first mums in this category
- its generally a **qualitative** difference.

The things that get in the way of looking are experiences like

traumatic births,

unresolved earlier trauma,

using avoiding as a way of coping with big feelings,

a distorted view of the baby etc.

So these mum's do look but it's not so rapt and comfortable feeling

- there's often an element of looking to work out what to do
- their level of anxiety makes them want to 'do' something
- they struggle to just 'be' with their baby.

Uncomfortable mum's are sometimes veering towards comfortable with some ticks there - but is doesn't feel quite right –

or they veer towards worrisome on some items but again perhaps only once or twice – **not so overall concerning**.

Slide 11 Typology

Overall Category –

You'll remember that there are 3 overall categories – Comfortable uncomfortable and worrisome. As well as **rating each item** in one of these 3 categories,

at the end of each tape **you need to choose an over all category** for that mother.

How you've been rating the items in each category guides your overall choice.

Sometimes it's straight-forward – all of the behaviours seen are in the same category so all of the boxes in one category will be ticked.

But sometimes you may have 2 boxes ticked in one category and 4 in another – or 3 and 3 – you still need to choose one overall.

Remember -this is based on how you feel about what you're seeing - Comfortable? - uncomfortable? or worried?

So let's look at some video of an uncomfortable mum who is talking to me (an earlier tape)

Slide 12

Video MYB4 1 Min 14 sec

Look at your typology and see how you'd rate her on:

Looking - positioning - handling - preening.

- note: smooth preening ie not always in every same category. Also – might preen smoothly sometimes but then do the picking or finger in the mouth once or twice

Slide 13

- Typology with ring around **Uncomfortable 'looking intensity'**

- Scrutinising **-** *looking to work out what to do* – not so rapt

Slide 14

Video MYB4 16 Sec., - 'Scrutinizing'

Slide 15

Video MYB4 - Looking Past - 19 Sec

Slide 16

- Typology with ring around **'looking quality' -** note the positioning – holds in front / awkward

Slide 17

Video MYB4 18 Sec - Searching pensive

Slide 18

Video MYB4 21 Sec - looks uncomfortable worried

Plus handles casually also – note how well she is preening though – i.e. again can have different categories across items (in the full tape she does pick /

Slide 19

- **Typology** with ring around **handling**

- main difference here is that it's not so smooth as comfortable – but perhaps not as jerky/agitated as worrisome – **more awkward**

Slide 20

Video MYB4 - Overly casual / object - 19 sec

Slide 21

Typology with ring around **preening**

Remember these uncomf mums do preen smoothly (like comf mums) but they also might once or twice might pick or poke the baby – put their fingers into the baby's mouth. Its more a matter of degree here

Slide 22 Video MYB11 11 sec - Handling and preening

Business-like, object -

picking also

Slide 23

MYB11 - 'preens picking 2' - 5 sec

- uncomfortable mums also preen smoothly – but they will occasionally do this picking thing that worrisome mums do a lot of.

Slide 24

- **Typology** with ring around **talking**

This is a qualitative difference too – *uncomfortable mums can look a lot* – but it has a more of this *checking quality* than *a hard to take eyes off* quality.

And if they are closer to the worrisome end of the spectrum, they might not look for quite awhile –

so its important to tick the box you fix most fits.

Where would you tick this mum for talking?

Slide - 25

MYB11 glances - less connected - 38 sec

- at worrisome end

Slide 26

what about this mum for talking?

MYB4 talking - **only play 30 sec – this is the best bit of her tape**

- at comfortable end? – looks more and smiles but more checking?
- So you see it can be a confusing picture

tick items based on behaviour you see

Slide 27

'finally' –

You get to the **overall category** by counting the ticks

- – and where they seem to be exactly equal – it's a judgement call on your part.
    - In a comfortable pattern it looks easy for the mum to 'be' with her baby.
    - In an uncomfortable pattern the mum is struggling to just 'be with' her baby - they feel more anxious/ intent on doing– it generally feels uncomfortable
    - And in worrisome patterns you feel concerned for the baby and the mother
- There are **always exceptions -** not every item can always be rated - there are times when the baby is asleep, or the mum is just about to put the baby down when I start and the mother doesn't handle the baby.
- So **Use the don't know option** when you haven't seen any behaviour on that item eg. handling or preening the baby

And

Watch all of the tape to decide the overall category.

Now we're going to watch 2 practice tapes

Slide 28 – Practice 1 - 4 minutes

Slide 29 - Practice - 4 min 30 sec

Need 2 minutes to tell - take a coding sheet with you – might help to prompt your memory before you come back to rate the tapes

The coding sheets have a **check list on the back**

plus **instructions** about how to access the video tapes on Moodle

- begin rating actual tapes here on ….(date)
- using your email you will log on to Moodle site and watch 5 tapes in each session coding on a sheet – then pass the coded sheets to me at the end
- I will be here to help – to answer any questions.

Appendix 11

Raw Data – Midwife Scores for each Construct

Looking Intensity

Tape	Midwife 1	Midwife 2	Midwife 3	Midwife 4	Midwife 5	Midwife 6	Midwife 7	Midwife 8	Midwife 9	Midwife 10	Midwife 11	Midwife 12	Midwife 13	Midwife 14	Midwife 15	Midwife 16	Midwife 17	Midwife 18	Midwife 19	Midwife 20	Midwife 21	Midwife 22	Midwife 23	Midwife 24
1	3	1	1	3	3	3	1	3	1	1	1	3	2	3	2	2	3	1	1	1	1	3	1	3
2	1	2	2	1	1	1	2	2	1	2	2	1	1	1	1	1	1	2	3	2	1	3	2	1
3	2	2	2	3	3	3	3	3	2	2	2	2	1	2	2	2	3	2	3	3	3	3	2	3
4	2	2	3	2	2	2	2	1	3	3	1	2	2	2	2	2	2	3	2	2	2	2	2	3
5	1	2	1	2	2	1	2	1	1	1	1	2	3	1	1	2	9	2	1	2	1	2	1	3
6	2	2	2	3	3	3	3	3	3	3	2	3	3	3	2	3	3	3	3	2	2	3	2	3
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	2	1	1	1
8	1	1	1	1	1	1	1	1	1	2	1	1	1	2	1	1	1	1	1	1	1	1	1	2
9	2	2	1	2	2	2	2	2	2	2	3	2	2	2	2	2	2	2	2	2	3	2	2	2
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

- Don't know

- Score >1 away from mode for the tape

Looking Quality

Tape	Midwife 1	Midwife 2	Midwife 3	Midwife 4	Midwife 5	Midwife 6	Midwife 7	Midwife 8	Midwife 9	Midwife 10	Midwife 11	Midwife 12	Midwife 13	Midwife 14	Midwife 15	Midwife 16	Midwife 17	Midwife 18	Midwife 19	Midwife 20	Midwife 21	Midwife 22	Midwife 23	Midwife 24
1	1	1	1	2	2	1	1	1	1	1	1	3	2	2	1	1	2	1	1	1	1	1	1	3
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3	2	2	2	3	2	2	3	3	3	3	2	2	1	2	2	1	2	2	3	3	2	2	2	2
4	2	2	3	2	2	1	2	1	3	2	1	2	2	2	2	2	2	3	3	3	2	3	3	2
5	1	1	1	2	2	1	2	1	1	1	1	2	2	1	1	2	2	2	1	1	1	2	1	1
6	2	2	2	3	3	3	3	3	3	3	2	2	9	2	2	3	2	3	3	3	2	3	3	3
7	1	1	1	1	9	1	1	1	1	1	1	1	1	2	1	2	1	2	1	1	1	1	1	1
8	2	1	1	1	1	1	1	1	1	2	1	1	1	2	1	1	1	1	1	1	1	1	1	1
9	2	2	1	2	2	2	2	2	3	1	3	2	2	2	2	2	2	2	3	2	2	3	3	2
10	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

- Don't know

- Score >1 away from mode for the tape

Positioning

Tape	Midwife 1	Midwife 2	Midwife 3	Midwife 4	Midwife 5	Midwife 6	Midwife 7	Midwife 8	Midwife 9	Midwife 10	Midwife 11	Midwife 12	Midwife 13	Midwife 14	Midwife 15	Midwife 16	Midwife 17	Midwife 18	Midwife 19	Midwife 20	Midwife 21	Midwife 22	Midwife 23	Midwife 24
1	3	1	3	2	3	3	2	2	9	1	2	3	2	3	2	2	3	2	2	2	1	2	2	3
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5	9	3	1	3	3	9	3	3	9	9	9	3	3	3	3	3	3	3	3	3	9	3	9	1
6	3	3	3	3	3	3	3	3	9	3	9	3	3	3	3	3	3	3	3	3	3	3	3	3
7	1	1	1	1	3	1	9	3	9	1	1	1	3	2	1	2	1	3	1	1	9	2	9	1
8	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	2	3	1	3	3	2	2	3	3	1	3	2	2	1	2	3	2	2	2	2	3	3	3	2
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

- Don't know

- Score >1 away from mode for the tape

Handling

Tape	Midwife 1	Midwife 2	Midwife 3	Midwife 4	Midwife 5	Midwife 6	Midwife 7	Midwife 8	Midwife 9	Midwife 10	Midwife 11	Midwife 12	Midwife 13	Midwife 14	Midwife 15	Midwife 16	Midwife 17	Midwife 18	Midwife 19	Midwife 20	Midwife 21	Midwife 22	Midwife 23	Midwife 24
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10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

- Don't know

- Score >1 away from mode for the tape

Preening

Tape	Midwife 1	Midwife 2	Midwife 3	Midwife 4	Midwife 5	Midwife 6	Midwife 7	Midwife 8	Midwife 9	Midwife 10	Midwife 11	Midwife 12	Midwife 13	Midwife 14	Midwife 15	Midwife 16	Midwife 17	Midwife 18	Midwife 19	Midwife 20	Midwife 21	Midwife 22	Midwife 23	Midwife 24
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10	1	1	1	1	1	9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

- Don't know

- Score >1 away from mode for the tape

Talking

Tape	Midwife 1	Midwife 2	Midwife 3	Midwife 4	Midwife 5	Midwife 6	Midwife 7	Midwife 8	Midwife 9	Midwife 10	Midwife 11	Midwife 12	Midwife 13	Midwife 14	Midwife 15	Midwife 16	Midwife 17	Midwife 18	Midwife 19	Midwife 20	Midwife 21	Midwife 22	Midwife 23	Midwife 24
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9	2	2	1	2	2	1	2	1	2	1	2	2	2	1	2	2	2	2	2	1	2	2	1	2
10	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1

- Don't know

- Score >1 away from mode for the tape

Overall

Tape	Midwife 1	Midwife 2	Midwife 3	Midwife 4	Midwife 5	Midwife 6	Midwife 7	Midwife 8	Midwife 9	Midwife 10	Midwife 11	Midwife 12	Midwife 13	Midwife 14	Midwife 15	Midwife 16	Midwife 17	Midwife 18	Midwife 19	Midwife 20	Midwife 21	Midwife 22	Midwife 23	Midwife 24
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9	2	2	1	2	3	2	2	2	3	1	3	2	2	2	2	2	2	2	2	2	3	2	3	2
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

- Don't know

- Score >1 away from mode for the tape

Appendix 12
Kappa scores – results when treating the data as nominal

Kappa results

The data were analysed using Fleiss Kappa statistic[1] which was developed to assess nominal scale agreement amongst three or more raters. Levels of agreement were classified as Poor (< 0), Slight (0.01-0.20), Fair (0.21-0.40), Moderate (0.41-0.60) Substantial (0.61-0.80) and Almost perfect (0.81-1.00) in accordance with Landis and Koch[2]. The data were analysed with the *%magree* macro[3] using SAS v9.3 (SAS Institute Inc, Cary, NC, USA).

Construct	Kappa Score
Looking Intensity	0.37
Looking Quality	0.30
Positioning for gaze	0.35
Handling	0.40
Preening	0.37
Talking	0.34
Overall	0.36

[1] Fleiss, J.L. (1981). *Statistical methods for rates and proportions* (2nd ed.). New York: John Wiley. ISBN 0-471-26370-2.

[2] Landis, J. R. and Koch, G. G. (1977) "The measurement of observer agreement for categorical data" in *Biometrics*. Vol. 33, pp. 159–174

[3] Chen B, Zaebst D, Seel L, SUGI 30 Proceedings, Paper 155-30

Appendix 13
Sensitivity Analysis - Midwives

Looking intensity

Mean: 0.37

Range: 0.36 - 0.39

Midwife excluded	Kappa
1	0.37
2	0.37
3	0.39
4	0.36
5	0.36
6	0.36
7	0.36
8	0.37
9	0.37
10	0.38
11	0.39
12	0.36
13	0.38
14	0.37
15	0.37
16	0.37
17	0.36
18	0.38
19	0.37
20	0.38
21	0.39
22	0.36
23	0.37
24	0.38

Looking quality

Mean: 0.30

Range: 0.29 - 0.33

Midwife excluded	Kappa
1	0.33
2	0.29
3	0.31
4	0.30
5	0.31
6	0.30
7	0.29
8	0.30
9	0.30
10	0.31
11	0.31
12	0.30
13	0.31
14	0.32
15	0.29
16	0.31
17	0.30
18	0.31
19	0.30
20	0.29
21	0.29
22	0.30
23	0.30
24	0.30

Positioning for gaze

Mean 0.35

Range: 0.34 - 0.37

Midwife excluded	Kappa
1	0.34
2	0.36
3	0.37
4	0.34
5	0.35
6	0.34
7	0.35
8	0.35
9	0.36
10	0.37
11	0.35
12	0.34
13	0.35
14	0.36
15	0.34
16	0.35
17	0.35
18	0.35
19	0.35
20	0.34
21	0.36
22	0.36
23	0.35
24	0.35

Handling

Mean: 0.40

Range: 0.39 - 0.41

Midwife excluded	Kappa
1	0.40
2	0.40
3	0.41
4	0.39
5	0.39
6	0.39
7	0.39
8	0.40
9	0.41
10	0.40
11	0.40
12	0.39
13	0.39
14	0.39
15	0.39
16	0.39
17	0.39
18	0.40
19	0.40
20	0.40
21	0.40
22	0.39
23	0.41
24	0.39

Preening

Mean: 0.37

Range: 0.35 - 0.39

Midwife excluded	Kappa
1	0.37
2	0.38
3	0.39
4	0.36
5	0.35
6	0.38
7	0.36
8	0.36
9	0.36
10	0.36
11	0.37
12	0.37
13	0.37
14	0.35
15	0.36
16	0.36
17	0.36
18	0.38
19	0.36
20	0.38
21	0.38
22	0.38
23	0.36
24	0.37

Talking

Mean: 0.34

Range: 0.33 - 0.36

Midwife excluded	Kappa
1	0.33
2	0.33
3	0.35
4	0.33
5	0.33
6	0.33
7	0.33
8	0.35
9	0.33
10	0.35
11	0.35
12	0.33
13	0.33
14	0.34
15	0.33
16	0.33
17	0.33
18	0.33
19	0.34
20	0.34
21	0.36
22	0.33
23	0.35
24	0.34

Overall

Mean: 0.36

Range: 0.35 - 0.38

Midwife excluded	Kappa
1	0.36
2	0.37
3	0.37
4	0.35
5	0.37
6	0.35
7	0.35
8	0.36
9	0.38
10	0.38
11	0.37
12	0.35
13	0.36
14	0.36
15	0.36
16	0.36
17	0.35
18	0.36
19	0.36
20	0.35
21	0.38
22	0.36
23	0.37
24	0.37

Appendix 14
Sensitivity Analysis - Tapes

Looking intensity

Mean: 0.37

Range: 0.31 - 0.41

Tape excluded	Kappa
1	0.40
2	0.41
3	0.38
4	0.37
5	0.41
6	0.35
7	0.35
8	0.35
9	0.33
10	0.31

Positioning for gaze

Mean: 0.35

Range: 0.29 - 0.38

Tape excluded	Kappa
1	0.37
2	0.36
3	0.37
4	0.38
5	0.35
6	0.30
7	0.38
8	0.30
9	0.37
10	0.29

Looking quality

Mean: 0.30

Range: 0.26 - 0.34

Tape excluded	Kappa
1	0.32
2	0.34
3	0.30
4	0.31
5	0.33
6	0.28
7	0.29
8	0.28
9	0.29
10	0.26

Handling

Mean: 0.40

Range: 0.34 - 0.44

Tape excluded	Kappa
1	0.37
2	0.39
3	0.40
4	0.43
5	0.44
6	0.36
7	0.41
8	0.36
9	0.43
10	0.34

Preening

Mean: 0.37

Range: 0.33 - 0.40

Tape excluded	Kappa
1	0.34
2	0.36
3	0.34
4	0.38
5	0.40
6	0.39
7	0.36
8	0.36
9	0.39
10	0.33

Talking

Mean: 0.34

Range: 0.28 - 0.38

Tape excluded	Kappa
1	0.36
2	0.38
3	0.34
4	0.34
5	0.38
6	0.33
7	0.28
8	0.31
9	0.35
10	0.28

Overall

Mean: 0.36

Range: 0.30 - 0.40

Tape excluded	Kappa
1	0.39
2	0.39
3	0.37
4	0.37
5	0.40
6	0.31
7	0.35
8	0.34
9	0.36
10	0.30

Appendix 15
Summary qualitative description of tapes 5 and 10

Tape 5

It is not immediately obvious why tape 5 presented such difficulty for most midwives. Possibly this mother is more aware of the camera and she appears to have difficulty being still and smiles frequently.

At the start she looks at length at her baby who was in the cot asleep lying facing her. She seems slightly self-conscious initially and tries lying down and looking still. When the baby stirs she sits up, leans over the cot and begins to fiddle with the blanket covering the baby. She does this repeatedly causing a number of startle responses in the baby, who turns away and moves further from her.

The baby stays asleep as she runs her fingers over his lips which causes him to shift position again and he lies on his back. The mother then lies back down, and there is another period of least 20 seconds concentrated looking before she drinks some water.

She then resumes leaning over the cot looking at the baby, fiddling again with his blankets and again causing startle responses repeating the same behaviour again.

She appears to present a mixed pattern of smiling attention, nervous fiddling and repeated gentle intrusion. In the time frame given it is possible that different midwives focused on different elements of her presentation.

Tape 10

By contrast, this mother, whose baby is also asleep and whom she picks up and holds throughout, is completely congruent throughout. Positioning the baby in the crook of her arm, handling and preening the baby with smooth sensitivity and looking throughout at the baby, completely absorbed and oblivious to the camera.

Appendix 16

Maternal Looking Guide

Maternal Looking Guide

		☐ Comfortable	☐ Uncomfortable	☐ Worrisome
Looking	Intensity	☐ Looks at baby in an absorbed* way – may be rapt, captivated, fascinated	☐ One or more of: • Looks at baby in a scrutinising* way – (what do I need to do for this baby now?) • Sometimes looks past the baby into the distance (fleetingly)	☐ One or more of: • Looks at baby in an intense staring way • Uses looming behaviours • Doesn't or seldom looks at baby • Interacts with baby without looking
	Quality	☐ One or more of: • Looks at baby with smiling soft face • Looks delighted with baby • Seems to enjoy looking at baby	☐ One or more of: • Looks at baby with a concentrated* searching face • Looks uncomfortable, nervous, puzzled, pensive or worried	☐ One or more of: • Looks at baby with an expressionless, flat face • Frowns and smiles simultaneously • Looks scared of and/or scary to the baby • Eyes widen momentarily when looking at baby
Positioning for gaze/ interaction		☐ Often holds baby well-positioned for gaze, cradled in arm about 20-25cm from face **and** often looks comfortable	☐ Sometimes holds baby well-positioned **and** one or more of: • Holds baby in front facing her with her arms extended • Faces baby slightly outwards or to side • Holds baby high on arm • Often looks awkward	☐ Seldom holds baby well-positioned for gaze **and** often holds baby (one or more of): • too close to her face • too far away • seated side-on to her body **or** Doesn't hold baby
Handling		☐ Handles baby in a calm soothing way using smooth movements	☐ Handles baby in one or more of: • an overly casual way • a business-like way • a tentative/hovering way • occasionally as an object	☐ Handles baby in one or more of: • an agitated* way • jerky way • often as an object • often intrusively **or** Doesn't handle baby
Preening		☐ Preens using smoothing motion	☐ One or more of: • Preens occasionally using picking motion • Puts finger into baby's mouth	☐ One or more of: • Preens often using picking motion • Pokes or prods baby • Kisses baby often
If talking to another adult		☐ One or more of: • Often looks at baby • Seems to find it hard not to look at baby	☐ One or more of: • Glances at baby with a quick checking quality • Seems less connected to baby	☐ One or more of: • Seems to forget about baby • Seldom looks at baby • Seems disconnected from baby

**absorbed* – engrossed, captivated **scrutinise* – inspect, examine, study **concentrated* – concerted, determined **agitated* – restless, tense, feels frantic