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Understanding Mothers of Late Preterm Infants

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Understanding Mothers of Late Preterm Infants

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy at Virginia Commonwealth University.

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Acknowledgement

In memory of my mother, Beatrice Marie Woods King Moffit, RN who started life as a premature infant in 1930, became an RN in 1950, never missed an opportunity for adventure or took the path less traveled, and most of all taught me the value of education.

And, Olivia Elizabeth Baker, who has made this journey with me every step of the way. You are a trooper and to be admired for letting your mom do this. Your smile, quirky sense of humor, and never ending patience has made the journey possible.
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Abstract:

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The experience of becoming a mother is a personal and social experience influenced by individual characteristics, friends and family, and the infant. The journey to become a mother encompasses concepts of maternal competence and responsiveness. The purpose of this study was to examine maternal competence and responsiveness to the infant in mothers of late preterm infants compared to mothers of full term infants. The conceptual model for this work was based on the work of Reva Rubin describing maternal identity and role development. Maternal competence and responsiveness are components of maternal role and are influenced by social support, maternal self-esteem, well-being, stress and mood. In

addition, infant temperament and perception of infant vulnerability influence development of maternal competence and responsiveness. A non-experimental repeated measures design was used to compare maternal competence and responsiveness in two groups of postpartum mothers. One group consisted of mothers of late preterm infants 34-36, 6/7 weeks gestation. The second group consisted of mothers of term infants, >/=37 weeks gestation. Both primiparas and multiparas were included in the study. Data was collected in the initial postpartum period prior to discharge from the hospital and again at six-weeks postpartum. No statistically significant differences in development of maternal competence or responsiveness between mothers of LPIs and term infants were identified. This study adds to our knowledge concerning outcomes of mothers of late preterm infants and development of competence and responsiveness.

CHAPTER 2

Maternal Competence: An Integrative Review of Literature

The following manuscript was prepared in partial fulfillment of the requirements for a manuscript-format dissertation.

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Abstract

An integrative review of literature was used to synthesize research findings related to maternal competence from nursing, pediatric, psychology, and sociology English language publications using the computer databases Medline, CINAHL, and PsychINFO.

Both maternal competence and maternal role competence were used as search terms. Studies published between 1985 and 2010 with samples of mothers of term or preterm infants, with maternal ages greater than 18 years, infants less than two years of age when study began, without congenital malformation or handicap, and from English written publications were included in the review. Nine studies were identified as fitting the inclusion criteria. This review further solidifies the definition of maternal competence and factors that influence competence. Perception of infant behavior, support from others, and maternal well-being play a role in development of maternal competence. Based on this review maternal competence can be defined as maternal intelligence that includes elements of sensitivity, responsiveness, and synchrony that continually change based on feedback from the infant or child and influence growth and development of the infant and child.

Key Words: Maternal competence, infant behavior, well-being, support

Background

Maternal competence is a heavily cognitive and social experience that involves moving from a known role to a new and ever changing role. Maternal competence is influenced by maternal and child traits, well-being of mother and infant, as well as cultural and family influences and support from others. Mothers are not preprogrammed with maternal behavior, but develop their behavior in response to the infant, forming a unique relationship with the child (Rubin, 1984). The developing relationship between mother and infant is one of innovativeness and adaptability of maternal behaviors that develop in relation to the infant's needs. Furthermore, the relationship is based on "maternal intelligence" that is derived from a deep and extensive knowledge of the child that is continually refreshed and refurbished based on feedback from the infant (Rubin, 1984). Competence in the role as mother supports the ever-changing evolution a mother experiences as her infant grows and develops.

Maternal competence also includes elements of maternal sensitivity, responsiveness, and maternal-infant synchrony (Mercer & Ferketich, 1995). Maternal sensitivity is coordinated interpersonal timing that contributes to a synchronous, reciprocal and jointly satisfying mother-infant experience. Sensitivity also contributes to development of attachment between the mother and her infant (Hane, Feldstein, & Dernetz, 2003). Responsiveness is the mother's ability to be warm and soothing with her infant, leading to an even more synchronous relationship where the mother reads her infant's cues, is responsive

to the infant's needs, see' her infant respond with positive behaviors, and over time the relationship continues to grow and develop (Shin, Park, Ryu, & Seomun, 2008). Maternal-infant synchrony is a dynamic relationship that is mutually engaging, temporally coordinated and is theoretically the framework for attachment. Through a synchronous relationship infants learn to read the intentions of others, engage in intimate relationships, and develop language (Feldman, 2007; Feldman & Eidelman, 2007; Harrist & Waugh, 2002; Isabella & Belsky, 1991; Shin, Park, Ryu, & Seomun, 2008).

Maternal sensitivity, responsiveness, and synchrony are individual characteristics that contribute to maternal intelligence and the development of competence in the role as mother. Sensitivity, responsiveness and synchrony ultimately contribute to growth and development of the child, while individual traits (i.e. temperament), well-being (i.e. depression and anxiety), and support from others influence the development of maternal competence. While Rubin's classic work clearly described the development of maternal identity, there remain gaps in our understanding of the relationships between factors that contribute to maternal competence and development of maternal identity as described by Rubin. Thus, the purpose of this integrative review of literature was to examine research about maternal competence and to identify factors that influence development of competence. A second purpose was to identify the ways in which maternal competence has been measured in research. The research questions guiding this review were: (a) what influences development of maternal

competence; (b) what tools have been used in research to measure maternal competence (c) and do these findings remain congruent with the earlier findings of Rubin's on maternal identity or has what we know about maternal competence evolved?

Methods

An integrative review method was used to synthesize research findings from nursing, pediatric, psychology, and sociology English language publications. The review followed the process outlined by Whittmore and Knafl (2005) who describe the method as a means to summarize empirical or theoretical literature leading to a comprehensive understanding of a particular phenomenon. Data extraction included identification of factors identified as contributing to dimensions of maternal competence or that had no influence on the development of maternal competence. The integrative review method ensures rigor by encompassing problem formulation, literature search, data evaluation, data analysis, and presentation. Integrative reviews present the state of the science, support evidence based practice, and can guide theory and policy development (Whittemore& Knafl, 2005).

A search of the computer databases Medline, CINAHL, and PsychINFO was conducted using the terms maternal competence and maternal role competence in English language publications. A manual search of references within articles found in the original search was also conducted. Eighty research articles were initially reviewed that used any methodology and focused on any of the search

terms. Studies published between 1985 and 2010 including search terms with samples of mothers of term or preterm infants, with maternal ages greater than 18 years, infants less than two years of age when study began, without congenital malformation or handicap, and from English written publications were included in the review. Studies excluded from the review:

- Examined aspects of maternal competence in mothers of children with handicaps (14),
- included children who were greater than 2 years of age (4),
- focused on mothers less than 18 years of age (6),
- addressed cultural aspects of mothering, breastfeeding experiences, care received during pregnancy/childbirth or satisfaction related to employment and mothering (22),
- (5) focused primarily on mental health issues,
- (2) were unpublished dissertations, and
- 6 were published commentaries about Mercer's (1986) and Flagler's (1988) work related to maternal role attainment or competence.

Narrowing the search by these parameters focused the review on research identifying factors influencing the development of maternal competence in mothers of healthy infants. Studies prior to 1985 were not included in the search criteria as Rubin's classic work on *Maternal Identity and the Maternal Experience,* which served as the theoretical framework for this review was

published in 1984. In addition, to answer our second research question, eight additional studies that validated study instruments used to better understand maternal competence were included.

Results

Nine studies of maternal competence or maternal role competence are included in this integrated review (see Table 1). Studies incorporated different approaches including quantitative and qualitative data from both experienced and first-mothers (Mercer, 1995; Tarkka, 2003), risk status of the pregnancy (Mercer & Ferketich, 1994), married and single mothers (Copeland & Harbaugh, 2004), and urban and minority mothers (Zayas, 2005), and mothers with varying pregnancy risk status (Mercer & Ferketich, 1994).

The eight additional studies included in this review addressed validation of instruments used to measure maternal competence (See Table 2). Three maternal competence tools were identified in the eight studies including the Parenting Sense of Competence scale (PSOC), Perceived Maternal Parenting Self-Efficacy scale (PMP S-E), and The Infant Care Questionnaire (ICQ).

Factors Influencing Development of Maternal Competence

Rubin (1984) described the development of the maternal role based on the work of Helen Deutsch (1944) as a spiraling of stages that are affected by cognitive, biological and social factors. Elements of the previous stage influence role development as experiences are regrouped to accommodate the new experience (Rubin, 1984). Studies included in this review used numerous

definitions of maternal competence and explored numerous factors that may influence the development of competence (see Table 1). Maternal competence for the purpose of this review is defined as the mother's skills and interactions in infant care that promote infant development and are a reflection of maternal confidence and capacity (Mercer & Ferketich, 1994).

In the nine studies included in this review, six identified factors that influenced the development of maternal competence, including infant behavior, support from others, and maternal well-being, primarily reported as depression (Copeland & Harbaugh, 2004; Flagler, 1988; McComish & Visger, 2009; Ngai, Chan, & Ip, 2010; Tarkka, 2003; Teti, 1991; Zayas, 2005). Two studies identified factors that did not influence the development of maternal competence (Mercer & Ferketich, 1994). Measurement of variables was accomplished through quantitative methods in eight studies using survey tools and observation (Copeland & Harbaugh, 2004; Flagler, 1988; Ngai, Chan, & Ip, 2010; Tarkka, 2003; Teti, 1991; Zayas, 2005). One study used an ethnographic method of participant observation (McComish & Visger, 2009)

Infant Behavior

Infant behavior in relationship to attainment of maternal competence was described using a variety of tools that evaluated infant characteristics, development, and temperament. Infant behavior consistently influenced the degree of ease or difficulty a mother experienced in mother-infant interactions (Flagler, 1988; Tarkka, 2003; Teti, 1991). Infants described as "easy" by their

mother provided clear signals of satisfaction; “easy” infants had predictable sleeping and eating patterns, were easy to comfort, and were adaptable to new situations. Infants who were described as “difficult” displayed rapid mood changes, were unpredictable, did not develop sleeping and eating patterns, and were difficult to comfort (Flagler, 1988). Flagler, reported a significant correlation between lower maternal competence scores, higher maternal anxiety scores, and characterization of a “difficult” infant (Flagler, 1988).

Teti (1991) used the ICQ subscale measure of maternal competence and the Carey Survey of Temperamental Characteristics to demonstrate the relationship between maternal competence and infant behavior. Maternal description of infant difficulty or ease was significantly influenced by perception of competence after controlling for selected demographic variables (Teti, 1991). Tarkka (2003) demonstrated the relationship between maternal competence and infant behavior in a group of mothers and their 8 month-old infants. Using analysis of variance and Spearman correlation coefficient infant acceptability ($r = 0.42$, $p < 0.0001$), activity ($r = 0.52$. p , 0.0001), adaptability ($r = 0.56$, $p < 0.0001$), demandingness ($r = 0.59$, $p <0.0001$), and mood ($r = 0.56$, $p< 0.0001$) were strongly correlated with maternal competence. Using a stepwise regression analysis Tarkka further demonstrated that demandingness of the child (p 0.003) and acceptability of the child (p 0.04) influenced the mother’s perception of her competence (Tarkka, 2003).

Support From Others

A key finding in many of the studies was the importance of support in relationship to attainment of maternal competence (Copeland & Harbaugh, 2004; McComish & Visger, 2009; Ngai, Chan, & Ip, 2010; Tarkka, 2003; Teti, 1991). Support from others involved both perception of available assistance and satisfaction with support received. Support has been defined as interpersonal transactions that provide esteem, stress-related aid, and emotional assistance (Haslam, 2006). Four types of support maternal support have been identified including relational (e.g. comfort), informational (e.g. advice), physical (e.g. material items such as baby clothes), and ideological (e.g. partner's support when a mother decides to return to work) (Haslam, 2006). A group of supporters is potentially more important than a single supporter in that a single support provider may not meet the all of an individual's needs and individual (Haslam, 2006).

In four studies included in this review, support was important as a variable in the development of maternal competence (Copeland & Harbaugh, 2004; McComish & Visger, 2009; Ngai, 2010, Teti, 1991). For example Teti (1991) proposed that the influences of maternal depression, social-marital support and perception of infant temperament are largely indirect and mediated by a mothers feeling of efficacy in her role as mother. Indices of social support and marital harmony were significantly related to maternal competence and self-efficacy. Maternal competence was also greater in mothers who were married or living

with a partner (p =0.58) (Teti, 1991). Maternal competence in first-time mothers of 8-month old infants was measured in relation to social support using the competence subscale of the Parenting Stress Index which measures knowledge of how to manage a child's behavior and comfort in making decisions about care and discipline. Mothers social support networks and perceptions of support were measured using Norbeck's Social Support Questionnaire. Teti (1991) also used a second instrument in this study, which she developed to measure support received from nurses at the public health clinic. Mothers social support network averaged seven persons and 94% of the participants identified the partner/child's father as the most important provider of support. Functional support from others was strongly correlated with maternal competence ($p< 0.0001$) as was as emotional support ($p<0.0001$), aid ($p<0.0001$) and affirmation or support for decision-making from support persons ($p<0.0001$). Emotional and concrete support from public health nurses was identified as significant, while affirmation ($p = 0.02$) or support for decision-making ($p = 0.09$) was not significant (Teti, 1991).

In a study of 80 first time mothers where 58 were married and 22 were single the PSOC was used to understand the difference between single and married first time mothers who gave birth to infants greater than 37 weeks gestation without maternal or neonatal complications. The total and subscale mean scores of the PSOC were lower in single mothers than married mothers, however the

differences were not statistically significant for the total scores ($p = 0.097$). A significant difference was found on the subscale for valuing/comfort in the single mother group ($p = 0.037$) (Copeland & Harbaugh, 2004).

Postpartum doula support was studied in a qualitative study of 13 mothers and their infants and 4 doulas using an ethnographic method of participant observation. Eleven domains of care emerged including emotional support, physical comfort, self-care, infant care, information, advocacy, referral partner/father support, support or mother/father with the infant, support of the mother/father with sibling care, and household organization. Of the 11 domains of care postpartum doulas provide, informational and physical support was the most influential in development of maternal competence (McComish & Visger, 2009).

Predictors and correlates of maternal role competence were examined in a convenience sample of 184 first-time pregnant women with singleton, uneventful pregnancies (Ngai, Chan, & Ip, 2010). Predictors of perceived maternal competence were prenatal perceived competence and postpartum learned resourcefulness. However this study did not find a direct association between social support and perceived maternal competence at 6 weeks postpartum (Ngai, Chan, & Ip, 2010). Common themes that emerged related to support include married or living with the father/partner were the most beneficial supporters in the development of maternal competence and that a variety of supporters is contribute to maternal competence.

Maternal Well-Being

Maternal well-being is a broad term used to describe states of depression, stress, and anxiety in this review. Women who suffer from depression are less available to their infant, may feel guilty and inadequate in the role as mother, have lower levels of self-efficacy, and may have limited ability to process and understand the cues baby uses to communicate (Paris, Bolton, & Spielman, 2011). Infants of depressed and anxious mothers display withdrawn behavior, decreased activity, are fussier, have less mutual responsiveness, fewer easy-to-read cues, and have fewer positive facial expressions and vocalizations. Depressed mothers and their infants experience less mutual responsiveness and optimal interaction, difficulties in attachment, and impaired social-relational learning, development, and self-regulatory abilities (Paris, 2011; Stiles, 2010).

The association between maternal well-being and maternal competence was the focus of four studies (Ngai, Chan, & Ip, 2010; Tarkka, 2003; Teti, 1991; Zayas, 2005). Maternal self-efficacy was found to mediate the effects of depression on the development of maternal role in a study of 48 clinically depressed and 38 non-depressed mothers (Teti, 1991). Using the state of mind subarea of the Parenting Stress Index, mother's state of mind was found to be the most important predictor of maternal competence ($p < 0.0001$) in a study of first time mothers of 8-month old infants when variables of infant temperament, breastfeeding, and social support were controlled for (Tarkka, 2003). In a report of urban minority women, levels of reported self-efficacy and satisfaction

increased when depressive symptoms decreased. Further it was found that negative life events and levels of depression had differing influences on the experience of mothering satisfaction before and after their babies were born $p<0.5$ (Zayas, 2005). Depression was also a predictor and correlate of maternal role competence in a group of 184 first time mothers $p<0.01$ (Ngai, Chan, & Ip, 2010).

In summary few studies examined only a single factor affecting the development of maternal competence, but rather, most studies included several factors that affect the development of competence. Common themes found in the review included the relationship between infant temperament and perception of maternal competence, the ways various types of support and supporters influence competence, and the role of maternal well-being, whether measured as depression, anxiety, or resourcefulness in a mother's sense of competence. Mover over the review provides data to show that difficulty achieving maternal competence and the consequences associated with lack of maternal competence continue are challenging to mothers and their infants.

Factors Not Affecting Development of Maternal Competence

Two studies identified factors that did not significantly influence the development of maternal competence. Mercer and Ferketich, 1994, studied women considered to have high-risk pregnancies compared to women categorized as low-risk. Using survey tools to measure competence, Mercer concluded there was no difference between high-risk and low-risk women on

competence, but that self-esteem and a sense of mastery were predictors of competence in both groups. Both groups demonstrated significant increases in maternal competence from birth to 4 and then 8 months even though there was only a minimal increase from birth to one month postpartum (Mercer & Ferketich, 1994). These findings did not support Rubin's theory that maternal conditions (i.e. high-risk status) may temporarily impede maternal role development. Mercer suggested that the findings were explained by preterm birth, which affected 72% of the sample and which, represented a resolution to the uncertainty of a high-risk pregnancy. The increase in maternal competence at one, four, and eight months in both the high-risk and low-risk groups suggests that high-risk conditions have no effect on long term development of maternal competence (Mercer & Ferketich, 1994).

Mercer, 1995 compared multiparous and primiparous mothers to determine if mothering experience was predictive of maternal competence. No difference in perception of maternal competence was identified (Mercer & Ferketich 1995). These findings support Rubin's thesis that maternal role competence is independent of previous maternal competence and mothers relate to each infant uniquely, demonstrating that the individual infant's characteristics are an important component of maternal competence (Rubin, 1984).

Measurement of Maternal Competence

Evidence from the reviewed studies provides contextual information that infant behavior, support from others and maternal well-being are essential to

understand maternal competence. As seen in Table 1, this is accomplished in most studies through the used multiple instruments measure competence and related factors. The most common tool to measure maternal competence cited in this review was the Parenting Sense of Competence Scale, PSOC, (Gibaud-Wallston & Wandersman, 1978). The PSOC has validated factor structures for maternal self-efficacy and maternal role satisfaction as dimensions of maternal competence (Gilmore & Cuskelly, 2009; Johnston, 1989; Ngai, Chan, & Holroyd, 2007; Ohan, 2000; Rogers & Matthews, 2004; Teti, 1991). The PSOC consists of seventeen items, divided into two subscales: skill/knowledge scale, which assesses the "parents' perception of the degree to which they have acquired the skills and understanding to be a good parent" and value/comforting scale, which assesses the "degree to which the individual values parenthood and is comfortable in the role" (Gibaud-Wallston & Wandersman, 1978, p.3). Johnston's 1989 factor analysis of the PSOC introduced the terms efficacy, referring to the skill/knowledge dimensions and satisfaction, referring to value/comforting dimensions. Further factor analysis has consistently established reliability and validity of the two factors efficacy and satisfaction (See Table 2), (Gilmore & Cuskelly, 2009; Johnston, 1989; Ngai, 2007; Ohan,2000; Rogers & Matthews, 2004). The efficacy subscale contains items that allow it to be used as a measure of maternal well-being, however, there are no items addressing support or infant behavior in this tool.

Based on the work of Bandura (1977) and Hess et al (2004) the Perceived

Maternal Parenting Self-Efficacy, (PMP S-E) tool was developed to measure a mothers' perception of her ability to understand and care for her preterm infant (Table 2). Perception of ability is central to guiding interactions and one's beliefs about ability to be successful in the role of mother (Barnes, 2007). The PMP S-E tool includes 20 items representing 4 theorized subscales including care taking procedures, evoking behaviors, reading behaviors or signaling, and situational beliefs (Barnes, 2007). The PMP S-E was validated in a convenience sample of 165 relatively healthy mother infant dyads where mothers were English speaking and where infants were 2.5 kg or less and < 37 weeks gestation at birth, were within 28 days of birth, and without congenital malformation, birth complications, or medically unstable. Internal consistency reliability was 0.91 and external/test-retest reliability was 0.96, $P < 0.01$. Although the PMP S-E tool was specifically developed for use with mothers of preterm infants the tool has the potential for application with mothers of term infants. The PMP S-E does account for infant behaviors in it's factor design, however it is important to note that not all factors important to maternal competence are addressed in this tool.

A third instrument used to measure maternal competence is the Infant Care Questionnaire (ICQ). The ICQ, a 38 item tool, was originally developed for use with mothers of premature infants and includes items that assess maternal perceptions of maternal knowledge, confidence, and ability to care for the infant and infant behavior (Secco, 2002). The ICQ is valid for use with postpartum

mothers from the first through fifth week of life. The instrument is specific to the infant care provider role rather than as a global measure of maternal role competence (See Table 2).

Two other tools with subscales for maternal competence were identified in this review: the Maternal Attitude Scale (MAS), (Cohler, Weiss, & Grunebaum, 1970), and the Parenting Stress Index (PSA) (Abidin, 1983) (See Table 2). Flagler (1988) used the 10-item subscale, Period of Initial Adaptation from the MAS to measure a mother's ability to perceive infant cues and respond appropriately. Use of this subscale was based on the assumption that mothers who achieve a good fit between mothering activities and infant behavior experience greater role competence. The MAS 14-item subscale for Maternal Anxiety was used to measure the mother's anxiety related to child rearing. Use of this scale was justified based on the assumption that higher anxiety reflected lower competence (Flagler, 1988). Tarkka, 2003, used the Competence subscale from the PSI to assesses the mothers feelings and sense of enjoyment in the role as mother and how the mother manages child behavior and makes decisions related to discipline (Tarkka, 2003). (See Table 2). The MAS and PSI individually address factors significant to maternal competence with infant behavior the focus of the MAS and maternal well-being the focus of the PSI. However, as neither tool addresses all the factors affecting the development of maternal competence they are often used in combination with other instruments.

Survey tools identified in this review often measured only one factor significant to the development of maternal competence. There is no instrument that measures all aspects of maternal competence. AS a result , many studies of maternal competence use multiple measures, creating concern about participant burden. Additionally researchers often combine multiple tools to measure the complex experience of maternal competence, creating a less than user-friendly method of measurement. Development of a brief survey tool specifically addressing infant behaviors, support from others, and maternal well-being could provide researchers a more useful tool that readily identifies mothers at-risk for issues related to maternal competence.

Rubin's Maternal Identity and Maternal Competence

Evidence from reviewed studies enhances our understanding of factors that contribute to maternal competence and remain in agreement with the work of Rubin on maternal identity. Rubin states "both mother and baby thrive in the complementarily of needs and reciprocity of actions" (Rubin, 1984, p.6). The maternal child relationship is an asymmetrical relationship with the child predominantly as a recipient of the giving and mother as the giver. Additionally, Rubin states, no act of giving is complete until it is received; the giver experiences pleasure when there is a receptive and appreciative partner in the relationship. Rubin further explains that without feedback from the child, a mother is uncertain in her role, oscillates in direction, and is subject to entropy in the dissolution of relatedness (Rubin, 1984). Infant behavior significantly influences

the mother's experience of giving. The infant who is difficult to sooth, is not adaptable to change, or is not receptive to the mothers giving, is frequently described by the mother as "difficult" leading to confusion as the mother struggles to develop in her role. The work of Flagler, 1988, Teti and Gelfand, 1991, and Tarkka, 2003, further validated that infant behavior is a significant contributor to maternal competence.

Support from others is not a matter of dependence, but necessary for the giving of self in totality required for childbearing (Rubin, 1984). The task, Acceptance by Others, in Rubin's theory, explained the value of support to the pregnant woman and new mother. A mother seek advice from others as validation that her work is good or she seeks feedback on how to be a better mother who meets her infant's or child's needs. Family provides the motivational wish to have children as well as care, protection and supportive nurturance necessary for a mother to develop maternal identity and ultimately competence (Rubin, 1984). Teti (1991), Tarkka (2003), Copeland (2004), McComish (2009), and Ngai (2010) each demonstrated in their research the value of support, whether from healthcare provider, family, society, or spouse.

Rubin identified fatigue as the single greatest contributor to the development of postpartum depression, with the original source of fatigue being the labor process followed by "the more pervasive fatigue of anemia" (Rubin, 1984, p. 113). Mothers do not generally expect to feel depressed and the feeling of depression contrast sharply with the expected feelings of joy following childbirth.

A depressed mother may find it difficult to give to her infant and may experiences apathy, lowered self-esteem, shame and disoriented. The findings in this review are in agreement with Rubin's theory, as demonstrated by the work of Teti (1991) Tarkka (2003) Zayaz (2005) and Ngai (2010).

Implications of the Review

This review further solidifies the definition of maternal competence and factors that influence competence. Based on this review maternal competence is defined as maternal intelligence influencing infant development and includes elements of sensitivity, responsiveness, and synchrony that continually changes based on feedback from the infant or child. The infant heavily influences the experience of becoming a mother, the persons who support the mother, and maternal well-being. Each of these factors influences the relationship between mother and infant, as well as the mother's ability to adapt and be innovative in her role as maternal competence evolves. Articulation of a clear understanding of the definition of maternal competence and factors influencing development supports further research, development of resources, and ultimately the mother and child.

Further research is needed in the development of instruments that can validly and reliably measure maternal competence and factors that contribute to it's development. These tools are needed for both research and practice, although different tools may be needed for practice than for research. The tools currently used in research to measure maternal competence may result in a burden of 80 questions. While this may be acceptable for research, it is not useful for clinical

practice. However, early identification of women who struggle with maternal role attainment allows for early implementation of resources to support development of maternal competence and ultimately infant and child development.

Conclusions

The majority of research about maternal competence has primarily been conducted in the behavioral science fields and has not been widely translated into the clinical setting. The work of Rubin (1984) and Mercer (1994) that has served as the foundation of our understanding of maternal competence has not been linked to behavioral science research about maternal competence. Merging the work of nursing and behavioral sciences about maternal competence has the potential to lead to an acceptable standardized definition and conceptual model of maternal competence that includes both dimensions of maternal competence and factors influencing its development. Recommendations for moving the science of maternal competence forward include:

- Adoption of a concise definition for maternal competence;
- Development of a clinically useful tool to measure maternal competence;
- Continue research to refine our knowledge of factors contributing to maternal competence
- Develop guidelines for follow up when issues of maternal competence are identified

Further research could also lead to the development of interventions to aid mothers in their achievement of maternal competence. These research efforts in

turn could lead to greater efficacy in the clinical setting in identifying mothers at risk for low competence and in providing needed assistance to them as they make the transition to the maternal role.

Table 1
Maternal Competence: Studies with Supportive Evidence
Search Terms: Maternal Competence and Maternal Role Competence

Author and Year	**Definition of Maternal Competence**	**Research Question**	**Measurement Tool**	**Sample**	**Results**
Flagler, 1988	The degree of adequacy a woman experiences in mothering.	Would provision of information about **infant behavior** increase the sense of maternal competence in the postpartum period in primiparas mothers?	Brazelton Neonatal Assessment (1975) Maternal Attitude Scale (1970) Survey of Infant Behavior	N=74, 61 completed the study; 20-30 year old mothers, who delivered term healthy infants. 30 mothers were in the control group and 31 in the experimental group.	Primipara mothers in the experimental group had scores indicating greater maternal competence, however this difference was not statistically significant. Further analysis demonstrated no difference in maternal competence based on infant gender. However, maternal competence was significantly correlated with infant behavior, i.e. mothers with

					lower maternal competence also characterized their infant as “difficult”.
Teti & Gelfand, 1991	n/a	Examine the effect of **maternal depression, infant temperament, and social-marital support** on the development of maternal competence in mothers of young infants.	Beck Depression Inventory (1961) Infant Characteristics Questionnaire Carey Survey of Temperamental Characteristics (1979) Marital Harmony scale (1959) Sense of Competence of the Parenting Stress Index (1986) Maternal Self-Efficacy Scale	N=86 mothers and their infants who were participating in a longitudinal study of infants of depressed and non-depressed mothers.	Maternal self-efficacy is a central mediator of relations between mothers’ competence with their infants and mothers perception of infant difficulty, maternal depression and social-marital support when controlling for demographic variables.
Mercer & Ferketich (1994)	A mother’s skills and interactions in the care of the infant that promotes infant development.	Identification of factors affecting maternal role competence of high-risk women compared with factors affecting maternal role in low-risk women.	Parenting Sense of Competence Scale (1978) Rosenberg Self-esteem Scale (1965) Sense of Mastery (1981) Family Functioning (1982)	N=121 high risk women and n=182 low risk women, 18 years or older, English speaking, and in a stable relationship with a male partner.	Maternal competence scores did not differ significantly between high risk and low risk mothers. Both groups showed significant increases in

			Perception of Health Status (1981) Stress Caused by Negative Events (1984) Fetal Attachment (1981) Epidemiologic Studies Depression Scale (1977) State Anxiety (1983) Inventory of Socially Supportive Behaviors (1981)		maternal competence between 4 and 8 months after minimal increases from birth to 1 month (p=0.0001). Predictors of maternal competence included: self-esteem, mastery or sense of control, and attachment.
Mercer & Ferketich, 1995	Ability to provide skillful, sensitive care that fosters infant development	Determine if there is a difference in self-reported maternal role competence between experience and inexperienced mothers and variables predicting competence postpartum.	Parenting Sense of Competence (1978) Rosenberg's Self-esteem scale (1965) Sense of Mastery (1981) Epidemiologic Studies Depression Scale (1977) State Anxiety (1983) Socially Supportive Behaviors (1981)	N=302 recruited Experienced Mothers N=108 postpartum, N=102 at 1 month, N=84 at 4 months, N=78 at 8 months Inexperienced N=135 postpartum N=118 at 1 month N=116 at 4 months N=103 at 8 months	No significant difference was found between experienced and inexperienced mothers at any of the test periods. This indicates that previous experience in mothering did not affect perception of competence when demographic

			Marital Adjustment Test, (1959) Feetham Family Functioning instrument (1982) General Health Index (1981) Norbeck's adaptation of Life Experiences Survey (1984) Fetal Attachment Scale (1981)		variables were controlled. These findings support Rubin's (1984) and Pridham and Chang's findings that maternal role transition with each new infant is independent of previous maternal identity.
Tarkka (2003)	Heavily cognitive in nature with an affective component that is expressed in empathy with and commitment to the child. The affective component is based on Mercer (1986) work that states maternal role attainment is an interactional and developmental process occurring over a period of time in which the mother becomes attached	Identify factors that contribute to maternal competence of first-time mothers when the child was 8 months old.	Social Support Questionnaire Parenting Stress Index (1983) Norbeck's Social Support Questionnaire (1981)	N=326 first time mothers with a singleton pregnancy.	Predictors of maternal competence included: **mother's state of mind, infant temperament, support from her support network,** continued breastfeeding at 8 months, younger age, health status, and acceptance of the child. Isolation from society had a negative influence on competence.

	to her infant and acquires competence in her role as mother.				
Copeland & Harbaugh (2004)	From a theoretical perspective, maternal competence is a component of the maternal role and is embedded within the micro-system of the mother. Further explained as successfully obtaining infant care-taking skills and being able to read infant cues.	Compare maternal competence among primigravida married and single mother in early parenthood.	Parenting Sense of Competence (1977)	N=80 first time mothers, 58 were married and 22 were single.	Total and subscale mean scores on the PSOC were lower in single mothers than married mothers. No statistical differences were found on the total score between the two groups (p=0.04) On the Knowledge subscale no statistical difference was found between the two groups (p=0.4) However on the Valuing/Comfort subscale, single mothers scored lower than married mothers (p=0.03).
Zayas, Jankowski, & McKee, 2005		Explore the sense of competency among low-	Parenting Sense of Competence (1989)	N=189 women during the third trimester of	Across time levels of reported parental efficacy

		income, minority women residing in an inner-city environment during pregnancy and early post-partum.	Beck Depression Inventory (1996) Norbeck Social Support Questionnaire, (1983) Life Events Questionnaire (1984)	pregnancy, n=110 completed the study.	and satisfaction increased while **depressive symptoms** decreased. Negative life events and levels of depressive symptoms influenced a woman's experience of parenting satisfaction and efficacy before and after birth.
McComish & Visger, 2009	A mother's self-assessment of her ability to care for her infant effectively and with sensitivity. A sense of competence contributes to positive feelings regarding the mothering role and women who perceive themselves as competent feel more comfortable	To describe domains of postpartum doula care and illustrate how doulas facilitate development of maternal responsiveness and competence.	Qualitative study using ethnographic method of participant observation.	N=13 women and their infants.	Eleven domains emerged that support development of maternal competence and responsiveness including: **emotional support, physical support**, self-care, infant care, information, advocacy, referral, partner/father

	with infant care.				support, support of mother/father with infant, support with siblings, and household organization.
Ngai, Chan, & Ip, 2010	Maternal role competence is the belief in one's ability to perform the maternal role effectively. While perceived maternal role competence is a reflection of the woman's perception of her abilities to manage the demands of parenting and the parenting skills she possesses.	Determine the predictive and concurrent associations of prenatal perceived maternal role competence prenatally and at 6 weeks postpartum.	Parenting Sense of Competence (1978) Self-control Schedule (1980) Edinburgh Postnatal Depression Scale (1987) Medical Outcomes Study Social Support Survey (1991) Social Readjustment Rating Scale (1967)	N=184 first time pregnant women in childbirth education classes, greater than 18 years of age, married, singleton, uneventful pregnancy, with no past or family psychiatric history, and able to read Chinese.	Prenatal perceived maternal role competence was predictive of maternal role competence and satisfaction at 6 weeks postpartum. **Social support and stress were not statistically significant** in perceived maternal role competence and satisfaction at 6 weeks postpartum.

Table 2
Measurement of Maternal Competence

Source	Validation	Sample	Results
Parenting Sense of Competence (PSOC) - Self report, 16 item, measure of maternal self-efficacy and role satisfaction			
Gibaud-Wallston & Wandersman, 1978	Analysis produced alpha coefficient of 0.82 for skill/knowledge and 0.70 for valuing/comfort, and 0.83 for total scores. All inter-scale correlations were significant at $p<0.05$.	Primiparous, middle class, white, educated men and women recruited from prepared childbirth classes, N = 132, half men, half women	Results provide evidence for initial confidence in the internal consistency, reliability, convergent and discriminate validity, and utility. Results also support the belief that skill/knowledge and valuing/comfort subscales measure different components. Further validation was recommended with diverse populations
Johnston & Mash, 1989	Principal analysis indicated two factors: Satisfaction and Efficacy.	Data for this analysis was collected as part of a larger survey in a large Canadian city with varying socioeconomic backgrounds, N = 512, mother and fathers of 4 to 9 year old boys.	Significant inverse relationships were found between perceptions of child behavior problems and parenting. For mothers, child behavior problems related to parenting satisfaction. For fathers, child behavior problems related to both satisfaction and efficacy as a parent.
Ohan, Leung, & Johnston, 2000	Replicated the factor structure of those produced by Johnston & Mash,	Parents of at least three year olds who also had a child that	Consistent with the work of Johnston and Mash, 1989 this

	1989 and provided evidence that the Satisfaction and Efficacy scales are distinct aspects of parenting self-esteem. Internal consistency for mothers for both Efficacy and Satisfaction was 0.80 and for fathers internal consistency for the Efficacy was 0.77; for the Satisfaction scale was 0.80.	was 5 to 12 years old, from a large urban area. Mothers and fathers were asked to complete the surveys separately.	analysis indicated good internal consistency. New Findings: -Child behavior problems were negatively related to parents' satisfaction. -Perceived competence in the parenting role, was not related to child behavior for mothers and significantly related to internalizing child problems for fathers. -Results also indicate more easy-going low-conflict parenting style were more satisfied in parenting.
Ngai, Wai-Chi Chan, & Holroyd, 2007	Internal consistency, Cronbach's alpha 0.85 and test-retest reliability 0.87; Factor analysis supported the two-factor structure of efficacy and satisfaction. Significant correlations with Rosenberg's Self-Esteem Scale (r = .60, p < 0.01) te Edinburgh Postnatal Depression Scale (r = -.48, p , 0.01) demonstrating good construct validity.	Cross sectional convenience sample of 170 Chinese mothers recruited from a postnatal unit. A randomly selected subsample of 57 mothers participated in the 4-week retest.	A Chinese translated version of the PSOC demonstrated satisfactory psychometric properties and has clinical and research application in the Chinese population.
Gilmore and Cuskelly, 2008	Factor analysis identified three acceptable factors, Satisfaction, Efficacy, and Interest. Mothers reported higher efficacy than fathers,	A non-clinical sample of 586 mothers and 615 fathers	The PSOC contains three useful factors that reflect satisfaction with the parental role, parenting efficacy, and interest in

	and fathers reported greater satisfaction with the parenting role than did mothers.		parenting.
Rogers & Matthews, 2004	Two factors were identified that were largely consistent with previous research of Johnston and Mash, 1999 and Ohan et al. 2000. In addition a third factor, Interest in Parenting was identified.	Australian sample of 849 mothers and 329 fathers.	Satisfaction was strongly correlated with measures of child behavior, parent well-being, and parenting style. Efficacy and Interest showed few correlations with these variables. Parent and child gender were not related to factor scores and child age showed a small relationship.
Perceived Maternal Parenting Self-Efficacy (PMP S-E) - self report, 20 item measure of a mother's perception of her ability to understand and care for her hospitalized preterm neonate as well as sensitivity to the various levels and tasks in parenting.			
Barns & Adamson-Macedo, 2007	Internal consistency reliability was 0.91, external/test-retest reliability was 0.96, $p < 0.01$.	N= 165 relatively healthy and hospitalized mother-preterm infant dyads, within the first 28 days after giving birth;	Psychometrically robust, reliable and valid measure of self-efficacy in mothers of preterm infants.
Infant Care Questionnaire (ICQ) – Self report, 22 item measure of a mother's perception of her abilities and competence as an infant care provider.			
Secco, 2002		Healthy low risk primiparous and multiparous mothers of term infants, N = 164.	The ICQ demonstrated adequate reliability and validity, establishment of clinical relevance and appropriateness with other groups is required.

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Chapter 2

The Science of Late Preterm Infants and Mothers

Late preterm infants account for 70% of the preterm population and 9% of all births. Born between 34 and 37 weeks gestation late preterm infants are cared for as either small full term infants or in the fringes of the preterm population with little regard for their unique needs. In the past, these infants were believed to have no higher risks for medical and developmental delays than full term infants (Engle, Tomashek, & Wallman, 2007). This assumption is due in part to the term-like appearance of the late preterm infant at birth. Yet, these infants quickly deplete compensatory resources and often experience neonatal problems including hypoglycemia, hyperbilirubinemia, temperature instability, erratic sleep-wake states, poor interactional skills, and feeding difficulties resulting in poor weight gain (Engle, et al., 2007). Although their medical issues resolve in the early neonatal period, late preterm birth is associated with longer lengths of stay and increased hospital readmissions as well as long lasting developmental affects (Engle, et al., 2007).

Recently long term outcomes of late preterm infants have been identified as lagging behind those of term infants, leading clinicians and researchers to question the developmental trajectories of these infants. In a longitudinal study that included 767 late preterm infants, delays in reading and math were significant through the 5th grade (Chyi, Lee, Hintz, Gould, & Sutcliffe, 2008) Based on these trends regulatory agencies and payers of health care have

recently initiated efforts to collect more detailed data related to late preterm births. These efforts are primarily focused on better understanding the increasing number of elective births prior to 38 weeks gestation. Moreover, little is known about mothers of late preterm infants. The closest comparison is to mothers of preterm infants who generally experience more stress and depression, difficulties with sleep, decreased sense of competence and well-being, leading to difficulty interacting with their infants all antecedents crucial to long term infant growth and development (Holditch-Davis, Schwartz, Black, & Scher, 2007; Younger, Kendell, & Pickler, 1997).

The relationship between infant development and maternal competence are well documented. Mothers typically are an infant's primary caregiver and form a dynamic relationship with their infant that facilitates growth and development. Maternal competence is based on a mother's perception of her infant, and her perception of responsiveness to her infant's needs and interactional behaviors (Mantymaa, Puura, Luoma, Salmelin, & Tamminen, 2006; Pauli-Pott, 2003). Infants respond to their mothers with verbal cues and behaviors that indicate their needs for nutrition, stimulation, and safety are met. Infant cues and behavior as well as weight gain and achievement of developmental milestones are positive reinforcements to a mother that she knows her infant and is meeting their needs. Thus, the mother gains competence in her role (Mercer & Ferketich, 1995).

An infant contributes to the development of maternal competence through behavior and the mother's perception of that behavior. Early infant behavior is an

expression of brain function and the infant's ability to self-regulate and interact with the environment, also described as temperament (Medoff-Cooper, 1995; Saudino, 2005). An infant is born with a unique temperament that is demonstrated in the early hours of life, and is influenced by genetics and the environment. Genetics account for 20-60% of personality, with environment accounting for the remaining 40-80% of personality (Saudino, 2005).

Perceptions of infant temperament affect the developing relationship between the infant and mother. When there is synchrony between mother and infant there is said to be "goodness of fit". Without synchrony the infant may be perceived as difficult by the mother, predisposing the infant to long-term negative outcomes (McGrath, Records, & Rice, 2008). Perception of temperament by the primary caregiver influences how the infant is cared for and the relationship that will influence the child's cognitive development (McGrath, et al., 2008; Medoff-Cooper, 1995). Another facet of the maternal/child relationship is that of perceived vulnerability. Vulnerability, or the mother's perception that her child is at greater risk for illness can lead to disturbances in the mother-child relationship, contributing to separation anxiety, sleep disorders, behavior problems, and under achievement in school (Kerruish, Settle, Campbell-Stokes, & Taylor, 2005).

The specific aim of this study is to examine maternal competence and responsiveness to the infant in mothers of late preterm infants compared to mothers of full term infants. Antecedents to maternal competence including social support, self-esteem, wellbeing, stress and mood will be examined. In addition, maternal perception of the infant that may contribute to sense of competence,

including infant temperament and perception of vulnerability will be examined.

The National Institute of Child Health and Human Development, the Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN), and the March of Dimes have all launched efforts to increase the awareness of the unique needs of the late preterm infant and improve clinical care. Understanding the late preterm mother-infant relationship adds significant knowledge that will allow healthcare providers to better support families, provide early intervention to prevent delays and improve long-term outcomes.

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Chapter 3

Understanding Mothers of Late Preterm Infants

The following manuscript was prepared to describe the findings on this study. The format used is consistent with requirements for a manuscript-format dissertation. The manuscript is prepared in the style of a select journal that publishes research about maternal and infant relationships.

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Abstract

Objective: To examine maternal competence and responsiveness in mothers of late preterm infants and mothers of full term infants. Antecedents to maternal competence and responsiveness included in this study were social support, self-esteem, well-being, stress and mood. In addition, maternal perceptions that potentially contribute to a sense of competence, including infant temperament and perception of infant vulnerability were measured.

Design: A non-experimental repeated measures design to compare maternal competence in two groups of postpartum mothers.

Settings: A southeastern urban academic medical center.

Methods: Subjects were mothers of late preterm infants (34-36, 6/7 weeks gestation, n = 32) and mothers of term infants (>/=37 weeks gestation, n= 77). Both primiparas and multiparas were included. Data were collected during the postpartum hospital stay and again at 6-weeks postpartum; 19 mothers of late preterm and 52 mothers of term infants completed questionnaires at both time points.

Findings: There were no statistically significant differences in maternal competence or responsiveness in mothers of late preterm or term infants. Factors predictive of maternal competence include support in mothers of late preterm infants and satisfaction with life, self-esteem, and stress in mothers of term infants. Factors predictive of maternal responsiveness include infant temperament, maternal self-esteem and stress in mothers of late preterm and self-esteem in mothers of term infants.

Conclusions: Maternal competence and responsiveness are not significantly different at postpartum and six-weeks postpartum in mothers of late preterm and term infants. However factors predictive of maternal competence and responsiveness were different with the exception of self-esteem indicating different needs, aspirations, or demands for these two groups of mothers.

Key Words: Late Preterm Infant, Maternal Competence, Maternal Responsiveness

Late preterm infants (LPI) are a unique group of infants identified within the preterm population, accounting for 70% of preterm births and 9% of all births (Engle, Tomaschek, & Wallman, 2007). Born between 34 and 36 6/7 weeks gestation, LPIs experience a number of physiologic challenges in the early days of life related to limited compensatory resources including hypoglycemia, hyperbilirubinemia, temperature instability, erratic sleep-wake states, poor interactional skills, and feeding difficulties resulting in poor weight gain (Engle et al., 2007). Early physiologic challenges generally resolve within the first three to five days of life, and the LPI is discharged home with his or her mother and scheduled for early follow up with the primary care provider. Although medical issues resolve in the early neonatal period, late preterm birth is associated with longer lengths of stay and increased hospital readmissions as well as long lasting developmental effects (Chyi, Lee, Hintz, Gould, & Sutcliffe, 2008; Engle et al., 2007; Kinney, 2006; Samra, McGrath, & Wehbe, 2011).

Increased awareness of the needs of the LPI has improved caregiving practices related to thermoregulation, glucose monitoring and management, and feeding difficulties in the early neonatal period, however neurological immaturity persists. During the last weeks of gestation, critical periods of growth and development occur in the human brain. At 34 weeks gestation the human brain has achieved only 65% of its term weight and myelination of white matter will continue to increase five-fold by term gestation (Kinney, 2006; Samra et al., 2011). The immature brain of the LPI affects the infant's ability to organize behavioral responses to stimuli in the environment and interact with caregivers

(Voegtline & Stifter, 2010). Longitudinal studies of LPIs suggest that instability of the autonomic motor and state system increases the LPIs risk for behavioral disorganization that is manifested as a lower threshold for stimulation, increased perception of negativity by mothers, less rhythmic and adaptable behavior, and a more "difficult" temperament (Voegtline & Stifter, 2010; Hughes, Shults, McGrath, & Medoff-Cooper, 2002). Further it is known that mothers of preterm infants experience more stress and depression, difficulties with sleep, decreased sense of competence and well-being, all leading to difficulty interacting with their infant, thereby influencing long term infant growth and development (Holditch-Davis, Schwarts, Black, & Scher, 2007; Younger, Kendell, & Pickler, 1997) little is known about the experience of mothers of LPIs and their adjustment to the mothering role.

Infants who are described as "easy" provide clear positive signals to the mother that their needs are met thereby validating the mothers' actions as mother (Flagler, 1988; Trakka, 2003; Teti, 1991). Mothers, who described their infant as difficult demonstrated significantly, lower scores for maternal competence, and higher scores for maternal anxiety and depression (Flagler, 1988; Voegtline & Stifter, 2010). Infant behavior influences the development of a synchronous relationship between mother and infant and thereby influences the development of maternal competence.

The relationship between infant development and maternal competence is well documented. A mother is typically her infant's primary caregiver; she forms a dynamic relationship with her infant that influences growth and development.

Maternal competence is defined as maternal "intelligence" that influences infant development and includes elements of sensitivity, responsiveness, and synchrony. Maternal competence continually changes as the infant grows and is based on verbal and non-verbal feedback from the infant (Mercer & Ferketich, 1995; Rubin, 1984). Factors that influence development of maternal competence are thought to include infant behavior, support from others and maternal well-being (Copeland & Harbaugh, 2004; Flagler, 1988; McComish & Visger, 2009; Ngai, Wai-Chi Chan, & Ip, 2010; Tarkka, 2003).

A mother's perception of her infant is dependent on the infant's interactional behaviors (Mantymaa, Puura, Luoma, Salmelin, & Tamminen, 2006; Pauli-Pott, 2003). In a study of mothers of LPIs, factors including maternal depression, anxiety and maternal perception of infant negativity were measured. When demographic factors and corrected and age were controlled, LPIs were rated as more negative by their mothers ($p < 0.001$) and late preterm birth was significantly related to a higher incidence of maternal depression and anxiety. Neither global observation nor micro-analytic coding in this study identified LPIs as more difficult (Voegtline & Stifter, 2010). The investigators suggested that the rating of negativity might have been related to the mother's perception of infant vulnerability, although not measured in this study.

Maternal well-being has also been examined as a factor effecting competence. Maternal well-being includes states of depression, stress, and anxiety. Mothers who experience depression have been noted to be less interactive with their infants and demonstrated limited ability to read and interpret

infant cues (Paris, Bolton, & Spielman, 2011). Infants of depressed and anxious mothers also demonstrate fewer facial expressions and vocalizations, were fussier and had fewer easy-to-read cues (Paris et al. 2010; Stiles, 2010). In addition a study of first time mothers at 8-months postpartum, mother's stress index was the most significant factor for predicting maternal competence ($p < 0.0001$) when controlling for other demographic factors (Tarkka, 2003).

Additionally support from others is important to managing life stress and adaptation to new situations (Logsdon, Ziegler, Hertweck & Pinto-Foltz, 2008). Types of support important to development of maternal competence include relational (e.g. comfort), informational (e.g. advice), physical (e.g. maternal), and ideological (Haslam, 2006). Support from others mediates the stress of a difficult infant, provides positive feedback when a mother is learning to care for the infant, and guides decision-making (McComish & Visger, 2009; Ngai et al. 2010, Teti, 1991).

Objectives:

While numerous studies have examined the development of maternal competence in mothers of term and preterm infants, development of competence in mothers of late preterm infants has yet to be examined. The specific aim of this study was to examine perception of maternal competence and responsiveness to the infant in mothers of late preterm infants compared to mothers of full term infants. Factors including social support, maternal well-being, and infant behavior were also measured to examine their contribution to the development of maternal competence and responsiveness.

Methods:

Design: This study used a non-experimental repeated measures design to compare maternal competence and responsiveness in two groups of postpartum mothers at postpartum and six-weeks postpartum conducted at a southeastern United States urban academic medical center. Following institutional board review approval mothers were recruited from the postpartum unit over a 6-month period.

Participants: Participants were recruited following initial recovery from childbirth. One group consisted of mothers of full term infants greater than 37 weeks gestation and the second group was mothers of late preterm infants 34-36 6/7 weeks gestation as documented in the maternal medical record. Both primiparas and multiparas were recruited. Eligibility to participate in the study included English speaking, singleton birth of an infant with no known congenital anomalies, and appropriate weight for gestational age. Mothers were 18 years of age or older and without postpartum complications including eclampsia, postpartum hemorrhage or other conditions that interfered with postpartum transition. Data was collected during the postpartum hospital stay and again at 6 weeks postpartum. At 5 weeks postpartum participants were contacted by phone and offered the opportunity to meet at the postpartum visit to complete the survey or to receive the survey by mail. Mothers who chose to complete the survey by mail were mailed a packet including the questionnaires and a self-addressed, postage paid envelope to facilitate return of surveys.

Measures

Demographic and descriptive data of the participants were collected from the medical record during the postpartum hospital stay. Data included maternal age, ethnicity, race, marital status, gravida/para history, history of depression, treatment for depression, infant gestational age, infant Ballard score, birth weight, APGARS, method of feeding, discharge weight, newborn complications, and length of stay. Multiple instruments were used to examine factors associated with maternal competence during the postpartum hospital stay and at 6-weeks postpartum.

The **Satisfaction with Life Scale (SWL)** (Pavot, 1993) is a 5 -item scale designed to measure an individual's global judgment of life satisfaction. The SWLS uses a 7-point Likert-type scale with responses ranging from 1 = strongly disagree to 7 = strongly agree. The range of scores is 5-35 with a reported alpha range from 0.79 to 0.89, indicating a high internal consistency (Pavot, 1993).

The **Postpartum Support Questionnaire (PSQP)** a 34-item Likert-type questionnaire measures the importance of specific types of support and perception of support received. Responses range from not important to very important and from no support to a lot of support. Nine items measure material support, 10 items measure emotional support, 10 items measure informational support and 5 items measure comparison support. Scores can range from 0-238, with higher scores indicating greater perceived support and greater support received (Logsdon, Usui, Birkimer & McBride, 1996). Internal consistency demonstrated alpha = 0.90 to 0.94 for total scores and test-retest reliability

ranged from 0.69 to 0.79 for total scores and 0.30 to 0.79 for categories of support (Logsdon et al., 1996).

The **Everyday Stressor Index** (ESI) is a 10-item Likert-type scale that assess everyday stressors including financial concerns, employment interpersonal relationships, living arrangements, and personal safety. A 4-point scale ranging from 1 = not bothered at all to 4= bothered a great deal is used. Scores range from 0-60 with higher scores indicating more stress. Internal consistency coefficients using Cronbach's alpha have been reported to range from 0.80 to 0.85 (Peden, Rayens, Hall, & Grant, 2004).

The **Edinburgh Postnatal Depression Scale**, (EPDS) is a 10 item Likert-type screening tool for postpartum depression. The EPDS has a sensitivity of 85%, specificity of 77%, and a positive predictive value of 83% with a cut off score of 9-10. Scores higher than 10 indicate possible depression and scores of 13 or greater indicate a depressive illness. The standardized alpha-coefficient is 0.87 (Cox, 1987).

The **Rosenberg Self-Esteem scale** (RSE) is a 10-item Likert-type scale measuring self-esteem as a one-dimensional concept that is reflective of a positive or negative orientation toward self. Each item has four response choices ranging from 4= strongly agree to 1=strongly disagree. Internal consistency of the scale is reported with a coefficient reproducibility of 92% and test-retest reliability of 0.88 (Hatcher, 2009). Higher scores indicate higher self-esteem.

The **Maternal Attitude Questionnaire** (MAQ) is a 14-item Likert-type questionnaire measuring cognitions relating to role change, expectations of

motherhood, and expectations of self as mother. MAQ responses ranges from 1-strongly agree to 4-strongly disagree. Total scores range from 0-56. Internal reliability of the questionnaire is reported at 0.84 (Warner, Appleby, Whitton, & Faragher, 1997).

The **Maternal Infant Responsiveness Instrument** (MIRI) **is** a 22-item Likert-type scale measuring maternal responsiveness to infant behavior cues. Items measure mother's recognition of her own responsiveness, of infant responsiveness to mother, and difficulties in responsiveness. Responses range from 1-strongly agrees to 5-strongly disagree. Total scores range from 22-110. Alpha reliability has been reported at 0.87 (Amankwaa, Pickler, & Boonmee, 2007).

The **Infant Care Questionnaire** (ICQ), a measure of the mother's perception of her ability and competence in providing care to her infant. Three factors are included in the scale, Mom & Baby, Emotionality, and Responsiveness. The ICQ is a 22-item Likert-type scale with responses ranging from 1-strongly agrees to 5-strongly disagree. Total subscale scores range from 1-5, where scores of 1-3.99 indicating a state of acquiring competence and scores greater than 3.99 indicating a state of competence. Cronbach alpha coefficients of 0.86, 0.79, and 0.58 respectively have been reported (Secco, 2002).

The **Parenting Sense of Competence** (PSOC) measures the mother's perception of competence and satisfaction in the role as mother. The PSOC is a 17-item Likert-type scale with two subscales, efficacy and satisfaction. Response items range from 1-strongly disagree to 7-strongly agree with higher scores

indicating increased perception of competence in the role as mother. Test-retest correlations have been reported to range from 0.46 to 0.82 and alpha coefficients reported as 0.70 for efficacy and 0.82 for satisfaction (Gibaud-Wallston, 1978: Ohan, 2000).

The **Pictorial Assessment of Infant Temperament** (PAT) is a measure of infant temperament. Participants rate a series of ten vignettes demonstrating infant responses to everyday care and events as easy, average, or difficult. The four dimensions of infant temperament are measured and include mood, approach of strangers, adaptability, and intensity of emotion. Internal consistency has been reported at 0.76 (Clark-Stewart, Fitzpatrick, Allhussen, & Goldbert, 2000).

The **Vulnerability Baby Scale** (VBS) was used to assess a mother's perception of her infant's vulnerability. The VBS is a 10-item Likert-type scale with responses ranging from 1-5. Higher scores reflect increased perception of vulnerability. Cronbach's alpha has been reported at 0.7 (Kerruish, Settle, Campbell-Stokes, & Taylor, 2005).

Data Analysis

Statistical analysis was performed using SPSS software, version 19. Descriptive statistics were calculated to describe the sample including mean, median and standard deviation for continuous variables and frequency distribution for categorical and nominal variables. Proportional differences between the two groups on maternal attitude, responsiveness, infant care, and sense of competence were examined using paired t-tests from data collected at

two time points. Inferential statistics were used to examine the effect of demographic characteristics on maternal competence and responsiveness. Repeated measures ANOVA across the two time points were used to identify significant differences in the two groups and at the two measurement times. General linear regression models were used to determine the contribution of stress, depression, self-esteem, support, and infant temperament to maternal competence and responsiveness. Initial analysis indicated no violation of the assumptions of normality, linearity, or multicollinearity.

Results:

The sample included 109 mother/infant dyads, 77 term and 32 LPI mothers who met criteria for the study. Characteristics of the sample and corresponding characteristics of the accessible population during the same time period are show in Table 1. At six-weeks postpartum 71 mothers, 52 term and 19 LPI, completed the second data collection questionnaires. No statistically significant differences between the term and LPI groups were identified when comparing marital status, multigravida or primagravida, history of depression or history of treatment for depression. The mean gestation of infants in the LPI group was 34.4 weeks/days (SD = 6.3 days) and their mean Ballard score was 35.8 weeks/days (SD = 1.5 days). The mean gestation of the term infants was 39.4 weeks/days (SD = 1.03 days) and their mean Ballard score was 39.6 weeks/days (SD = 1.00 days). The mean LPI birth weight was 2405 grams (SD = 553 grams) and mean discharge weight was 2528 grams (SD = 507 grams). The mean term birth weight was 3334 grams (SD = 475 grams) and mean discharge weight was

3232 grams (SD = 430 grams). With the exception of 1 outlier in the LPI group who developed more severe neonatal complications after enrollment in the study and was hospitalized for 58 days, the mean LPI length of stay was 5.69 days (SD = 6.07 days) compared to the term infant mean length of stay of 2.32 days (SD = 0.71), (p = 0.02). The most frequent minor complication in the LPI group was hypothermia (n= 7) followed by respiratory instability (n=6) hyperbilirubinemia (n=5) and hypoglycemia (n=2). Seven infants underwent sepsis evaluations and of that group three were treated with antibiotics.

Table 2 presents means and standard deviations of variables identified a priori as important to the development of maternal competence and responsiveness measured at both postpartum and 6-weeks postpartum. The measures had reliability coefficients greater than 0.7 with the exception of infant vulnerability (0.26) and maternal attitude (0.52). Because of the low internal reliability, the VBS was not included further in the analysis. Scores for mothers of both term infants and LPIs on satisfaction with life, self-esteem, and support increased from the postpartum measure to the six-week measure. Scores for stress also increased for both groups of mothers from postpartum to 6-weeks postpartum, as did scores for infant temperament and perception of vulnerability. Scores for depression increased from postpartum to six-weeks postpartum for mothers of term infants but decreased for mothers of LPIs.

Parenting sense of competence scores (PSOC) as well as scores on infant care (both subscales) and maternal-infant responsiveness instrument (MIRI) scores increased in both groups of mothers from postpartum to 6-weeks

postpartum. Maternal attitude scores increased for mothers of LPIs but decreased for mothers of term infants from postpartum to 6-weeks postpartum. Although there were changes in scores from postpartum to 6-weeks postpartum the changes were not statistically significant for any scores, nor were the differences between term and LPI scores statistically significant.

Separate linear regression models were used to explore the relationship between factors identified a priori as contributing to development of maternal competence (see Table 3) and responsiveness (see Table 4) at the postpartum and 6-week postpartum measurements times in both LPI and term mothers. No statistically significant regression equation was found for competence in mothers of LPIs at postpartum ($F = 1.84$, $\underline{p}$ 0.15), with R^2 of 0.38 or 38% explained variance or at six-weeks postpartum ($F = 1.68$, $\underline{p}$ 0.24), with R^2 of 0.56 or 56% explained variance in maternal competence. No statistically significant regression equation was found in mothers of term infants at postpartum ($F = 2.12$, $\underline{p}$ 0.07) with R^2 of 0.18 or 18% or at six-weeks postpartum ($F = 1.88$, $\underline{p} = 0.11$) with R^2 0.20 or 20% explained variance. Individual beta values (β) were also compared. In this model for mothers of LPIs at postpartum, support ($\beta = 0.64$, $p < 0.005$) was most predictive of maternal competence and for mothers of term infants satisfaction with life ($\beta = 0.31$, $p < 0.05$) and stress ($\beta = -0.36$, p, 0.02) were most predictive of competence. At the six-week measure self-esteem was the only significant predictor of maternal competence in term mothers ($\beta = 0.41$, $p < 0.01$).

The same model was used to explore maternal responsiveness where a statistically significant relationship was found at the postpartum measure for

mothers of LPIs ($F = 5.99$, $p < 0.001$; $R^2 = 0.67$) but not at the 6-week measure ($F = 0.89$, p 0.54; $R^2 = 0.40$). No statistically significant relationship was found in mothers of term infants at either data collection time point, postpartum ($F = 1.75$, p 0.12; $R^2 = 0.15$) and six-weeks postpartum ($F = 1.23$, p 0.31; $R^2 = 0.14$). Factors predictive of maternal responsiveness at the postpartum measure in mothers of LPIs included perception of infant temperament ($\beta = 0.44$, $p < 0.005$), self-esteem ($\beta = -0.41$, $p < 0.01$), and stress ($\beta = 0.43$, $p < 0.04$). In mothers of term infants self-esteem was the only significant predictor of maternal responsiveness ($\beta = 0.27$, $p < 0.03$) at the postpartum measure. No factors were predictive of maternal responsiveness in either mothers of LPIs or mothers of term infants at six-weeks postpartum. Colinearity diagnostics and correlation between variables were reviewed to exclude multicolinearity.

This analysis demonstrated the relationship between postpartum support and development of maternal competence in mothers of LPIs while higher stress and lower satisfaction with life were most influential to maternal competence in mothers of term infants. At postpartum both LPI and term mothers who reported lower self-esteem also reported feeling less responsive to their infants. In mothers of LPIs who perceived their infant as more difficult by their mother reported feeling less responsive to their infant. Interestingly in mothers of LPIs lower stress was most predictive of maternal responsiveness at the postpartum measure point.

Discussion

The study results demonstrated no significant difference in maternal competence or responsivity at postpartum or at 6-weeks postpartum. Moreover, there were no significant differences in the same measures between mothers of term or LPI infants at either measurement time. Mothers who participated in this study were representative of the accessible population of mothers who gave birth during the 6-month data collection of this study in terms of age race, ethnicity, marital status, and obstetric history. Mothers who completed both sets of questionnaires were not significantly different from mothers who completed only the first set of questionnaires.

Mothers in this study reported relatively high levels of life satisfaction, self-esteem, support and low levels of depression and stress. These finding correlate with findings of other studies that similar components of maternal competence. For example, Haslam (2006) reported an association between higher support and self-efficacy and lower levels of depression postpartum; Porter (2003) demonstrated the relationship between maternal well-being, support, and infant temperament in the development of maternal competence; Tarkka (2003) found factors significant to the development of maternal competence in first time mothers including infant temperament, breastfeeding, and social support; and Zayas (2005) reported self-efficacy and satisfaction increased while depression decreased in a sample of urban minority mothers (Haslam, 2006; Porter & Hsu, 2003; Trakka, 2003; Zayaz, 2005). The findings of this study further validate the importance of maternal well-being in the development of maternal competence.

The findings of this study differ from other studies where mother of LPI's reported higher levels of depression, distress, and anxiety and LPIs' had longer lengths of stay (Brandon, Tully, Silva, Malcolm, Murtha, Holditch-Davis, 2001; Ngai et al., 2010; Voegtline & Stifter, 2010). Brandon et al. (2011) reported longer length of stay for the LPI (9.0, S.D. = 14.4) without mention of the model of care provided during hospitalization and more maternal distress at one month postpartum. Voegtline and Stifter, (2010) measured depression and anxiety in mothers of LPIs at 2 and 6 months adjusted age for the LPI. Adjusted age could significantly contribute to findings, as some LPIs are only 40 weeks developmentally at 6-weeks chronologic age. In the current study the model of family centered single-room care in the NICU and postpartum unit may have influenced the LPIs length of stay and the mother's perception of support as well as mediating mother's stress and anxiety as she learned to care for her LPI. Family centered single-room care in both the NICU and postpartum affords the mother unlimited time to get to know and care for her infant in a supportive environment.

No significant difference in maternal responsiveness was found between the two groups of mothers or measurement times. The findings of this study are similar to a study of maternal responsiveness in mothers of preterm infants conducted by Amankwaa, et al. (2007), where no significant differences were seen over a three-month period postpartum in measures of maternal responsiveness (Amankwaa, et al. 2007). In a study by Drake (2007), predictors of maternal responsiveness included satisfaction with life, self-esteem, and

number of children. (Drake, Humenick, Amankwaa, Younger, & Roux, 2007). Perception of infant temperament and report of less stress significantly influenced maternal responsiveness in this study further suggesting that the unique synchrony that occurs between infant and mother may be influenced by maternal well-being. Mothers who perceived their infants as more difficult with higher temperament scores had lower scores for maternal responsiveness.

Limitations

The study design and methods were limitations of this study. Limitations include self-report, repeated measures survey design, attrition of participants, the possibility of socially desirable answers versus true feelings, issues surrounding reading level and English language only survey tools (Waltz, Strickland, & Lenz, 2005). At 6-weeks postpartum many mothers are adjusting to the demands of returning to work, daycare, and separation from their infant; the time to participate in research at 6-weeks is therefore limited for many women. Criteria to participate in the study limited the available LPI sample, as one-fifth of the accessible population were non-English speaking. Late preterm infants were developmentally younger than term infants in this study at the six-week measurement. Many LPIs in this study were developmentally only 40 weeks gestation at the six-week follow-up data point and may have lagged behind in development of temperament and behavior (Voegtline & Stiftler, 2010).

The hospital environment where this study was conducted may have significantly influenced the outcomes. The proportion of LPI births in this sample population was approximately 5%, less than the national rate of 8.8% in 2009

(Hamilton, Martin, & Ventura, 2010). This finding may be reflective of the focused attention of care providers at this hospital to change practices related to elective births prior to 39 weeks gestation. Care of late preterm infants became a priority for both obstetric and neonatal services approximately a year prior to data collection for this study. The obstetric providers focused on prolonging pregnancy and avoiding elective deliveries prior to 39 weeks gestation. This effort significantly decreased the rate of LPIs from approximately 20 per month to an approximately 10 LPIs per month.

During data collection a second initiative related to LPI care focusing on transition care was initiated. It became the routine for 34 and 35-week gestation infants to be routinely admitted to the neonatal intensive care unit with the goal of preventing depletion of limited reserves and development of hypothermia, hypoglycemia, and respiratory instability. As soon as the infants demonstrate ability to maintain temperatures, respiratory status and feeding patterns they are transferred to the postpartum unit where mother-baby care is the routine. The NICU at this hospital provides family centered, single-room care that allowed mothers to remain with their LPI as much as possible participating in infant care and receive breastfeeding support. Family centered, single-room NICU care and mother-infant care supports the transition to motherhood, allows the mother time to get to know her infant and gain confidence in her ability to care for her infant.

Implications for Practice

Identification of late preterm infants as a unique group has increased the focus on care to prevent preterm birth, avoid iatrogenic preterm birth and the resulting complications among infants who previously were considered "just a little premature" (Engle, et al., 2007). Proactive transition care for LPIs where delivery is unavoidable promotes transition to extra-uterine life without depletion of resources that lead to hypothermia, hypoglycemia, respiratory instability, and increased length of stay and possibly interfering in early development of maternal-LPI interaction. Allowing and encouraging mothers of LPIs to learn to care for their infant during hospitalization provides time for a mother to get to know her infant and learn to care for her infant in a supportive environment that fosters the instincts of a mother.

Conclusions

The purpose of this study was to better understand the experience of mothers of late preterm infants and factors that influenced development of competence and responsiveness. Support emerged as the most significant influence in the development of maternal competence and infant temperament as most predictive of maternal responsiveness. Further research is needed to continue to explore the concept of maternal competence and responsiveness in mothers of late preterm infants further exploring types of support provided postpartum, i.e. family, friends, healthcare providers and infant characteristics that may influence the maternal experience.

Table 1: Demographic Characteristics of Term and Late Preterm Infants for 6-Month Time Period

Characteristic	Category	n	%	Term (n = 77)	LPI (n = 32)	Total Births (n=1516)
Maternal Age	Mean = 27.39 Median = 27.30 Mode = 22 SD = 6.13 Min = 18 Max = 46	109	n/a	Mean = 27.52 Median = 27.8 Mode = 22 SD = 5.9 Min = 18 Max = 45	Mean = 27.07 Median = 25.70 Mode = 20 SD = 6.8 Min = 19 Max = 46	Mean = 26.9 Min = 14 Max = 46
Race	Black White Asian American Indian/ Alaska Native	53 46 7 3	44.6 42.2 6.4 2.8	37 (48.1) 33 (42.9) 5 (6.5) 2 (2.6)	16 (51.6) 12(38.7) 2 (6.5) 1 (3.2)	552 (36%) 442 (27%) 44 (2%) 3 (<1%)
Ethnicity	Non-Hispanic or Latino Hispanic	106 3	97.2 2.8	75 (97.4) 2(2.6)	30(96.8) 1(3.2)	1045 (68%) 460 (30%)
Marital Status	Married Single	41 68	37.6 62.4	32 (41.6) 45 (58.4)	9 (29) 22 (71)	554 (36%) 962 (63%)
Obstetric History	Primigravida Multigravida	42 67	38.9 61.1	32 (41.6) 45 (58.4)	10 (32.3) 21 (67.7)	
Method of Delivery	Vaginal Delivery Cesarean Section	84 25	75.9 23.1	62 (80.5) 15 (19.5)	21 (67.7) 10 (32.3)	
Average Length of Stay - infant	n/a	n/a	2.59	2.32 days SD = 0.71	2.84 days SD = 1.28	
History of Depression	Yes No	11 98	10.2 89.8	9 (11.7) 68 (88.3)	2 (6.5) 29 (93.5)	
History of Treatment for Depression	Yes No	9 100	8.3 91.7	7 (9.1) 77 (90.9)	2 (65) 29 (93.5)	

SD = Standard Deviation n/a = Not Applicable

Table 2. Factors Contributing to Maternal Competence and Responsiveness

Variable	Postpartum		6-Weeks	
	Term (n = 77)	LPI (n = 32)	Term (n = 52)	LPI (n = 19)
Maternal Well-being				
Satisfaction with Life (SWL)	13-35	10-35	9-35	13-35
$\alpha = 0.85$	28.47 (4.77)	26.44 (6.16)	28.52 (4.71)	28.73 (5.63)
Stress (ESI)	18-51	20-62	20-58	26-58
$\alpha = 0.91$	30.97 (7.59)	34.94(9.94)	33.0 (8.68)	38.8 (9.25)
Depression (EPDS)	0-17	0-14	0-16	1-14
$\alpha = 0.79$	5.30 (3.64)	6.03 (3.65)	5.85 (3.61)	5.67 (3.49)
Self-esteem (RSES)	5-35	21-36	14-40	15-40
$\alpha = 0.81$	29.04 (4.56)	29.5 (2.99)	31.42 (5.35)	30.80 (8.36)
Support from Others				
Support (PSQ)	19-82	21-82	43-81	49-94
$\alpha = 0.86$	64.94 (12.35)	68.25 (11.78)	67.0 (8.89)	71.87 (11.83)
Infant Factors				
Temperament (PAT)	1-24	9-25	11-24	14-25
$\alpha = 0.75$	15.86 (5.12)	18.16 (4.51)	17.75 (2.83)	19.07 (3.24)
Vulnerability (VBS)	6-39	9-38	21-38	24-33
$\alpha = 0.26$	27.20 (5.33)	27.04 (6.61)	28.19 (3.96)	28.60 (2.19)

Maternal Competence				
Competence (PSOC)	4-82	47-71	51-74	57-73
α = 0.78	63.19 (10.77)	61.43 (7.73)	64.5 (4.28)	66.0 (4.86)
Maternal Attitude (MAQ)	21-45	13-43	30-44	33-42
α = 0.52	38.0 (3.9)	36.25 (5.37)	37.92 (3.25)	37.53 (2.61)
Infant Care Questionnaire (ICQ)	7.1-4.5	2.3 – 4.8	.86-4.7	2.9-4.7
Mom & Baby Subscale	3.6 (0.69)	3.8 (0.65)	3.9 (0.59)	4.0 (0.50)
α = 0.76				
Maternal Responsiveness				
Maternal Infant Responsiveness (MIRI)	17-67	22-64	23-70	26-63
α = 0.89	37.9 (9.9)	39.8 (11.43)	42.4 (9.3)	47.47 (9.56)
Infant Care Questionnaire (ICQ)	0.5-4	1.5 - 5	2-4	3-3.75
Responsiveness subscale	2.7 (0.68)	3.09 (0.56)	3.22 (0.43)	3.3 (0.33)
α = 0.76				

Reported as minimum-maximum score, mean (SD)
α = Calculated values in this study

Table 3. Multiple Regression Analysis for Maternal Competence

	Postpartum				Six-Weeks Postpartum			
	Term		LPI		Term		LPI	
Variable	β	95% CI	β	95% CI	β	95% CI	β	95% CI
	(*n*=77)		(*n*=32)		(*n*=52)		(*n*=15)**	
Support (PSQ)	0.15	(-0.11, 0.38)	0.64*	(0.14, 0.70)	-0.02	(-0.16, 0.14)	-0.46	(-0.28, 0.24)
Stress (ESI)	-0.36*	(-0.91, -0.09)	-0.19	(-0.57, 0.28)	0.08	(-0.25, 0.17)	0.76	(-0.09, 0.89)
Satisfaction (SWL)	0.31*	(-0.02, 1.40)	0.21	(-0.35, 0.87)	-0.06	(-0.40, 0.29)	0.36	(-0.26, 0.89)
Self-Esteem (RSE)	0.046	(-0.45, 0.68)	-0.05	(-1.26, 1.03)	0.41*	(0.08, 0.57)	-0.35	(-0.58, 0.17)
Depression (EPDS)	0.23	(-0.23, 1.60)	0.27	(-0.38, 1.55)	0.29	(-0.06, 0.74)	-0.86	(-2.47, 0.66)
Temperament (PAT)	-0.13	(-0.84, 0.30)	0.25	(-0.26, 1.11)	-0.19	(-0.72, 0.16)	0.46	(-0.37, 1.74)
R		0.18		0.38		0.20		0.56
F		2.12		1.84		1.88		1.68

* $p < 0.05$

** Four participants had missing data and excluded from analysis

(VBS) removed from model due to Cronbach's $\alpha = 0.26$

Table 4. Multiple Regression Analysis for Maternal Responsiveness

	Postpartum				Six-Weeks Postpartum			
	Term		LPI		Term		LPI	
Variable	β	95% CI	β	95% CI	β	95% CI	β	95% CI
	(*n*=77)		(*n*=28)		(*n*=52)		(*n*=15)**	
Temperament (PAT)	-0.59	(-0.65, 0.42)	0.44*	(0.38, 1.88)	0.05	(-0.83, 1.14)	0.18	(-1.87, 2.96)
Self-Esteem (RSE)	-0.27*	(-1.12, -0.06)	-0.41*	(-2.83, -0.34)	-0.17	(-0.83, 0.26)	0.19	(-1.64, 1.07)
Stress (ESI)	-0.14	(-0.57, 0.19)	0.43*	(0.32, 0.96)	0.23	(-0.22, 0.71)	0.45	(-0.65, 1.59)
Depression (EPDS)	-0.41	(-0.96, 0.74)	-0.09	(-1.35, 0.75)	0.15	(-0.49, 1.30)	-0.12	(-3.25, 2.55)
Support (PSQ)	0.16	(-0.09, 0.36)	0.15	(-0.15, 0.45)	0.02	(-0.31, 0.37)	-0.48	(-0.64, 0.56)
Satisfaction (SWL)	-0.30	(-1.28, 0.05)	0.22	(-0.26, 1.07)	0.09	(-0.60, 0.96)	-0.39	(-1.98, 0.66)
R	0.15		0.67		0.14		0.40	
F	1.75		5.99		1.23		0.89	

* $p < 0.05$

** Four participants had missing data and excluded from analysis

(VBS) removed due to Cronbach's $\alpha = 0.26$

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Appendix: A

The following published research plan was submitted to and approved by the Virginia Commonwealth University Institutional Review Board.

VCU IRB
FULL and EXPEDITED STUDY INITIAL REVIEW SUBMISSION FORM

IRB NUMBER: _____

DO NOT DELETE SECTIONS OF THIS FORM

SECTION 1: PRINCIPAL INVESTIGATOR AND OTHER VCU LEAD PROJECT PERSONNEL

1. PRINCIPAL INVESTIGATOR: LIST NAME AS IT EXISTS IN THE HUMAN RESOURCE SYSTEM (HRS)
NOTE: See guidance on who can serve as PI at HTTP://WWW.RESEARCH.VCU.EDU/IRB/WPP/FLASH/IX-1.HTM) (effective date 4-15-06)

Name (Last, First, MI):	McGrath, Jacqueline, M.
PI Title and Degrees:	PhD. RN, FNAP, FAAN
VCU Department:	Nursing
VCU Box # (must provide 6-digit #):	980567
Phone/Pager/Fax #'s:	**828-1930 / 828-7743**
VCUEmail:	**JMMCGRATH@VCU.EDU**

2. VCU LEAD PROJECT PERSONNEL: LIST NAMES AS THEY EXIST IN THE HUMAN RESOURCE SYSTEM (HRS)

If the PI cannot be contacted, these persons may be contacted by the IRB. Within the Research Synopsis, you will have the opportunity to list all key project personnel.

SUB/CO-INVESTIGATOR:

Name (Last, First, MI), Degrees:	
Department:	
Phone/Pager/Fax #'s:	
Email:	

MEDICALLY RESPONSIBLE INVESTIGATOR (if applicable):

Name (Last, First, MI), Degrees:	
Department:	
Phone/Pager/Fax #'s:	
Email:	

RESEARCH COORDINATOR (if applicable):

Name (Last, First, MI), Degrees:	
Department:	
Phone/Pager/Fax #'s:	
Email:	

TRAINEE (Postdoctoral Scholar, Fellow or Resident) (if applicable):

Name (Last, First, MI), Degrees:	
Department:	
Phone/Pager/Fax #'s:	
Email:	

STUDENT (if applicable):

Name (Last, First, MI), Degrees:	Baker, Brenda J. MN, RNc
Department:	Nursing
Phone/Pager/Fax #'s:	**628-03275**

Email: BAKERBJ@MYMAIL.VCU.EDU

SECTION 2: TYPE OF SUBMISSION

Please check all categories that apply to the study being submitted for IRB review.

X **RESEARCH PROJECT**

☐ **FDA REGULATED RESEARCH***

* FDA regulated research includes:
a) any research involving a drug or biologic intended for human use (other than the use of an approved drug in the course of medical practice);
b) any research designed to test the safety and effectiveness of a device; or
c) research involving ANY FDA regulated product where the intent is to submit data to the FDA in support of a research or marketing application. Regulated products include foods & dietary supplements, infant formulas, food & color additives, and electronic products.

☐ **CLINICAL TRIAL**

See definition of clinical trial at http://www.clinicaltrials.vcu.edu/glossary.html#C.

☐ **HUMANITARIAN USE DEVICE**

See guidance at http://www.research.vcu.edu/irb/wpp/flash/XVI-2.htm

☐ **TREATMENT USE OF INVESTIGATIONAL DRUG/DEVICE**

See guidance at http://www.research.vcu.edu/irb/wpp/flash/XVI-5.htm

SECTION 3: TYPE OF REVIEW

REVIEW TYPE REQUESTED (check one):

☐ **FULL BOARD REVIEW** — NOTE: Industry-sponsored research **MUST** be submitted to Western IRB (WIRB) for review. See instructions available at http://www.research.vcu.edu/forms/wirb.htm

X **EXPEDITED REVIEW** — * **EXPEDITED CATEGORIES:** Study does not involve more than minimal risk

* Identify the expedited category or categories in which your research falls (See Expedited Review Guidance at http://www.research.vcu.edu/irb/reviewtypes.htm)

NOTE: For projects requesting exempt review determination, use the exempt review submission form, available at http://www.research.vcu.edu/forms/vcuirb.htm.

SECTION 4: PROJECT INFORMATION

1. PROJECT TYPE (check one):

☐ **BIOMEDICAL** — Research involving medical interventions and/or FDA-regulated products

SOCIAL-BEHAVIORAL (check one): — Social or behavioral research that does **NOT** involve medical interventions or FDA-regulated products

☐ **SOCIAL-BEHAVIORAL QUALITATIVE**
X **SOCIAL-BEHAVIORAL QUANTITATIVE**
☐ **SOCIAL-BEHAVIORAL QUALITATIVE & QUANTITATIVE**

2. TITLE OF PROTOCOL SUBMISSION:
Understand Late Preterm Mothers and Infants

3. Are there any **IRB-APPROVED PROTOCOLS ASSOCIATED** with this submission? ☐ YES **X** NO
If YES, please list the associated VCU IRB Protocol #'s:
Note: If this submission is associated with other new projects submitted to the IRB but not yet approved), please attach a cover memo to your submission noting related projects.

4. Is this a **TRAINEE OR STUDENT PROJECT** in which activities will be carried out by that individual under your supervision? **X** YES ☐ NO

SECTION 5: SPONSOR DATA

1. Does the research project involve a **DIRECT FEDERAL AWARD** made to VCU (or a research funding proposal for such)? **X** YES ☐ NO

2. Have you submitted a related research funding proposal(s) to the VCU Office of Sponsored Programs (OSP)? ☐ YES **X** NO
If YES**,** you must provide the **PT/PD #** for each related proposal **(regardless of the funding source)**:
(1) **(2)** **(3)**

NOTE: Federal regulations require IRB approval of **NEW**, **RESUBMISSION**, or **COMPETING CONTINUATION** FEDERAL RESEARCH FUNDING PROPOSALS. If there is a new, resubmission, or competing continuation VCU federal research funding proposal associated with this research project, you must include a copy of your ENTIRE proposal (exclusive of appendices) and OSP Internal Approval Form with this submission. Failure to do so may delay your research award start date. Other sponsors also may require IRB approval of research proposals. It is the investigator's responsibility to determine whether this review is needed. If the sponsor does not require IRB approval of research proposals, DO NOT submit them to the IRB for review. If you have questions about whether your sponsor requires IRB approval of your research funding proposal, please contact OSP.

SECTION 6: STATEMENTS OF COMPLIANCE

PRINCIPAL INVESTIGATOR STATEMENT OF COMPLIANCE:

I understand and accept responsibility for ensuring the safety and welfare of all human subjects who participate in the proposed research project. I certify that all key project personnel, including myself, sub/co-investigators, research coordinators, trainees, and students have completed the VCU required training on human subjects protection. I agree to a continuing exchange of information with the VCU IRB including the requirements to (i) obtain IRB approval before making non-emergency changes/revisions to the project, except where necessary to eliminate apparent immediate hazards to subjects or others, (ii) provide progress reports to the VCU IRB at their request (and at least annually), and (iii) report promptly to the IRB all unanticipated problems and serious adverse events involving risk to human subjects (in accordance with required reporting timelines by the IRB).

SIGNATURE OF INVESTIGATOR: _____ **DATE OF SIGNATURE:** _____

TRAINEE OR STUDENT INVESTIGATOR STATEMENT OF COMPLIANCE (IF APPLICABLE):

This is a student or trainee project, which will potentially be presented outside the classroom and/or published. I understand that I may not proceed with the research without first receiving a formal written letter of approval from the VCU IRB. I certify that I have completed the VCU required training on human subjects protection.

SIGNATURE OF TRAINEE OR STUDENT: **DATE OF SIGNATURE:**

DEPARTMENT/DIVISION CHAIRPERSON OR DEAN STATEMENT OF COMPLIANCE*see NOTE:

☐ I certify that the research project referenced in this document (check one of the following):

X Has been subjected to scrutiny within a VCU Committee (i.e., Massey Cancer Center Protocol Review, Clinical Research Center [CRC]) or sponsor study group (i.e., NIH or other agency with appropriate scientific expertise) and found to be scientifically acceptable.

Has been subjected to scrutiny by my designee or me according to criteria that include the following, as applicable: appropriate power and sample size, currency of literature review, and relevance of hypothesis or research question and found to be scientifically acceptable.

PRINT NAME, DEGREES, TITLE OF DEPARTMENT/DIVISION CHAIRPERSON OR DEAN: Debra Lyon, PhD, RN, FNP-BC

SIGNATURE OF DEPARTMENT/ DIVISION CHAIRPERSON OR DEAN: **DATE OF SIGNATURE:**

*NOTE: Department/Division Chairperson cannot sign if he/she is a co-investigator on the project. In these instances, a Dean's signature is required. If a designee is signing the Statement of Compliance, his/her name, degrees, and title should be listed.

SECTION 7: PROJECT DETAIL

ANSWER ALL OF THE FOLLOWING QUESTIONS (by marking the appropriate box to the right):

1. Will DRUG(S), BIOLOGIC(S), OR DEVICE(S) be utilized for this project? ☐ YES X NO*
If NO, skip to Question 6.

2. Will DRUG(S) be administered in this project? If YES, supply the following information (attach a separate sheet if necessary): ☐ YES ☐ NO

DRUG NAME(S):

2-A. If drug is INVESTIGATIONAL or involves an IND, please complete the following:
IND #: _____ **HELD BY** (check one): ☐ SPONSOR ☐ INVESTIGATOR ☐ N/A
If IND is held by the SPONSOR, provide copy of the INVESTIGATOR'S BROCHURE and the SPONSOR'S PROTOCOL
If IND is held by the INVESTIGATOR, provide copy of the IND APPLICATION submitted to the FDA and safety information
Attach copy of FDA FORM 1572

3. Will BIOLOGIC AGENTS be used in this project? If YES, supply the following information: ☐ YES ☐ NO

BIOLOGIC NAME(S):

4. Will the VCU/VCUHS INVESTIGATIONAL DRUG SERVICE PHARMACY (IDS) be utilized (required for all inpatient projects)? ☐ YES ☐ NO* ☐ N/A**

*If NO, you must submit a descriptive plan regarding appropriate drug storage and dispensing for an investigational drugs or biologic agents/drugs used in the research to the Investigational Drug Service (IDS) Pharmacy. Guidance and the form for describing the management plan is located at http://www.investigationaldrugs.vcu.edu. Submit the form to the IDS. Upon IDS's receipt of the plan, an email response containing the plan is generated. Include the IDS confirmation or receipt with this submission. For assistance, please call the Investigational Drug Pharmacy at 828-7901.

**Submitting a plan to the IDS is not required if: 1) no drugs are used in the study, 2) the drug used in the study is FDA-

approved, considered standard of care and is a patient-charge item, 3) off-label use of such a drug is not being studied and 4) there is no protocol requirement for specific management of the drug.

5. Are you evaluating MARKETED MEDICAL DEVICE(S) (including 510k devices) in this project? If YES, supply the following information: ☐ YES ☐ NO

DEVICE NAME(S): _____

NAME OF MANUFACTURER: _____

NOTE: In addition, provide any supporting documentation regarding LEVEL OF RISK (SIGNIFICANT vs. NON-SIGNIFICANT RISK)

6. Are you evaluating INVESTIGATIONAL MEDICAL DEVICE(S) or a NEW USE FOR MARKETED MEDICAL DEVICE(S) in this project? If YES, supply the following information: ☐ YES X NO

DEVICE NAME(S): _____

NAME OF MANUFACTURER: _____

IDE #: _____ **HELD BY** (check one): ☐ SPONSOR ☐ INVESTIGATOR ☐ N/A

If IDE is held by the SPONSOR, provide a copy of the INVESTIGATOR'S BROCHURE and the SPONSOR'S PROTOCOL
If IDE is held by the INVESTIGATOR, provide a copy of the IDE APPLICATION submitted to the FDA

NOTE: In addition, provide any supporting documentation regarding LEVEL OF RISK (SIGNIFICANT vs. NON-SIGNIFICANT risk)

7-A. Does this project involve the use of any procedure(s) that will expose the research subject to IONIZING RADIATION?
☐ YES (Proceed to 7-B) X NO (Proceed to Question 8)

7-B. If all of these procedures are for the direct clinical benefit of the research subject/patient, check YES. If any of these procedures are of research interest only and will not affect the clinical management of the research subject, check NO.
☐ YES (no further information required) ☐ NO (Proceed to 7-C)

7-C. RADIATION SAFETY COMMITTEE (RSC) approval is required if you answered NO to item 7-B. Do you have RSC approval for this project?
☐ YES (Attach copy of RSC Approval Letter) ☐ NO (Contact the Radiation Safety Section at 828-9131 for approval information)

NOTE: See also http://www.vcu.edu/oehs/radiation/humanuseguide.pdf

8-A. Does this project involve the use of RECOMBINANT DNA, BIO-HAZARDOUS SUBSTANCES including pathogenic or potentially pathogenic viruses and bacteria (e.g., Adenovirus, HIV, Hepatitis B), CARCINOGENS OR ACUTE CARCINOGENS, MUTAGENS, TERATOGENS, ACUTE TOXINS, OR SELECT AGENT MATERIALS?
☐ YES (Proceed to 8-B) X NO (Proceed to Question 9)

8-B. INSTITUTIONAL BIOSAFETY COMMITTEE (IBC) approval is required if you answered YES to this question. Do you have IBC approval for this project?
☐ YES (Attach copy of IBC Approval Letter) ☐ NO (Contact CHEMICAL AND BIOLOGICAL SAFETY OFFICE at 828-4866 for approval information)

NOTE: See also http://www.vcu.edu/oehs/chemical/

9. Does this project involve GENE THERAPY? ☐ YES X NO

10-A. Does this study involve cancer patients, their families, or their health care providers? ☐ YES * X NO

10-B. Is this a Cancer Prevention Study? ☐ YES * X NO

* If YES TO 10-A OR 10-B, the research project must be reviewed and approved by the MASSEY CANCER CENTER PROTOCOL REVIEW AND MONITORING SYSTEM before IRB Review, and a copy of the approval letter provided. For information, see http://www.massey.vcu.edu/research/?pid=2013 or call the PRMS Coordinator at 628-1924.

11. Will this project be conducted in the CLINICAL RESEARCH CENTER (CRC)? ☐ YES * X NO

* If YES, please review information for investigators available at http://www.vcuhealth.org/crc/

12. Is your project: (1) involving human subject activities conducted by Navy and Marine Corps personnel; (2) involving naval military personnel and Department of Navy (DoN) employees as research subjects; (3) supported by naval activities through any agreement (e.g., contract, grant cooperative agreement, development agreement [CRADSs], or other arrangement), regardless of the source of funding, funding appropriation, nature of support, performance site, or security classification; or (4) using DoN property, facilities or assets? ☐ YES * X NO

* If YES, you must ensure that your project meets the additional Department of Defense (DoD)-Department of the Navy (DoN) requirements for human subject protection. Guidance on additional requirements can be found at [http://www.research.vcu.edu/irb/wpp/flash/XVII-12.htm]

13. Will this project be conducted in a VCUHS patient care area or involve VCUHS patients? X YES ☐ NO

If yes, review the CONDUCT OF CLINICAL RESEARCH IN VCU HEALTH SYSTEM PATIENT CARE AREAS policy on this page: http://www.research.vcu.edu/irb/guidance.htm.

14. HIPAA Regulatory Compliance

14-A. Check all that apply to the data you plan to collect or store. Data will be:

☐ Used to make health care decisions
☐ Added to a data set under the VCU ACE
☐ Created and stored in a data set under the VCU ACE
☐ Collected from a data set that is under the VCU ACE
X Derived or extracted from the medical record

Note: VCU ACE is the VCU Affiliated Covered Entity. Review the entities included in the VCU ACE here: http://www.vcu.edu/hipaa/VCU_ACE.html.

14-B. Please check if you will collect any of these identifiers about past or current patients of the VCUHS:

X Names	☐ SSNs	X Dates	☐ Device identifiers	X Phone numbers
☐ MRN	☐ Web URLs	☐ Email addresses	☐ IP addresses	☐ Account numbers
☐ Health plan numbers	☐ Photos or comparable images	☐ Biometric identifiers	☐ License/ Certificate numbers	☐ Vehicle ID numbers

☐ Other unique identifier

If you checked any of the items in **BOTH** 14-A AND 14-B, this study is using Protected Health Information (PHI) and HIPAA regulations apply. **You are required to submit a "HIPAA Research Compliance Form" to the Department of Compliance Services.** (Form does not need to be included in IRB packet) Access the form here: http://www.vcu.edu/hipaa/Document_Links/ResearchComplianceFormIRBSupplement.doc.

15. Does this project involve the creation of or contribution to a Research Registry? ☐ YES* X NO**

(Registries are sometimes called repositories, data sets, data banks, tissue or specimen banks)

* If YES, you must follow guidance at http://www.research.vcu.edu/irb/wpp/flash/XVII-4.htm and answer 15-A and 15-B.

**If NO, skip to Question 16

15-A. Will the registry be maintained at VCU? ☐ YES ☐ NO

15-B. Does the registry include one of the HIPAA elements listed in 14-B? ☐ YES ☐ NO

16. Do you plan to involve NON-VCU INSTITUTIONS (i.e., institutions [or employees or agents of the institutions] that are not under the authority of VCU or VCU Health Systems and are located within the United States or a United States territory) in your research project? * If YES, you must follow guidance at http://www.research.vcu.edu/irb/wpp/flash/XVII-6.htm	☐ YES * X NO
17. Do you plan to involve FOREIGN RESEARCH SITES (i.e., institution or non-institutional setting)? * If YES, you must follow guidance at http://www.research.vcu.edu/irb/wpp/flash/XVII-11.htm	☐ YES * X NO
18. Do you plan to involve INDEPENDENT INVESTIGATORS (i.e., individuals who are not representatives of VCU or any other institution or facility) in your research project? * If YES, you must follow guidance at http://www.research.vcu.edu/irb/wpp/flash/XVII-15.htm	☐ YES * X NO
19. Does this project involve GENETIC TESTING, that is, testing human tissue samples for heritable characteristics or storing human tissue samples for possible future such testing? * If YES, you must follow guidance at http://www.research.vcu.edu/irb/wpp/flash/XVII-5.htm	☐ YES * X NO

SECTION 8: RESEARCH SUBJECT INFORMATION

VULNERABLE SUBJECTS:
Consider your criteria for inclusion or exclusion of any subpopulation, review the following information, and identify research categories (as appropriate).

BOX 1: CHILDREN: If you plan to allow for the inclusion of data on subjects who are children, you must indicate the inclusion of their data and identify a research category or categories below.
NOTE: In Virginia, children are those under the age of 18 and not emancipated.

Do you plan to allow for the inclusion of data on subjects who are children? X YES * ☐ NO
* If YES, identify the research category or categories below.

X Research not involving greater than minimal risk (45 CFR 46.404) – [NOTE: see definition of minimal risk below]

☐ Research involving greater than minimal risk but presenting the prospect of direct benefit to individual subjects (45.CFR 46.405)

☐ Research involving greater than minimal risk and no prospect of direct benefit to individual subjects, but likely to yield generalizable knowledge about the subject's disorder or condition. (45.CFR 46.406)[1]

☐ Research not otherwise approvable which presents an opportunity to understand, prevent, or alleviate a serious problem affecting the health or welfare of children. (45.CFR 46.407)[1]

MINIMAL RISK means that the probability and magnitude of harm or discomfort anticipated in the research are not greater in and of themselves than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests.

[1] Categories 406 and 407 REQUIRE BOTH parents to provide permission for the child's participation unless one is deceased, unknown, incompetent, or only one parent has legal responsibility for care and custody. The IRB may determine that permission of both parents is required for categories 404 or 405.

NOTE: **If you plan to allow for the inclusion of data on subjects who are children, you must include the VCU IRB CHILDREN-SUBJECT FORM with your submission. The form is available at** http://www.research.vcu.edu/forms/vcuirb.htm

BOX 2: PREGNANT WOMEN, HUMAN FETUSES, AND NEONATES: If you plan to allow for the inclusion of data on subjects who are pregnant women, human fetuses, or neonates as subjects, you must indicate inclusion of their data and identify a research category or categories below.

Do you plan to allow for the inclusion of data on subjects who are PREGNANT WOMEN, HUMAN FETUSES, or NEONATES as subjects? X YES * ☐ NO
* If YES, identify the research category or categories below.

X Research involving pregnant women or fetuses [PW-HF-N (45.CFR46.204)]

☐ Research involving neonates of uncertain viability and nonviable neonates [PW-HF-N (45.CFR46.205(a)(b)(c))]

X Research involving neonates of certain viability [PW-HF-N (45.CFR46.205(d))]

☐ Research involving after delivery, the placenta, the dead fetus or fetal material[PW-HF-N (45.CFR46.206)]

☐ Research not otherwise approvable, which presents an opportunity to understand, prevent, or alleviate a serious problem affecting the health or welfare of pregnant women, fetuses, or neonates [PW-HF-N (45.CFR.46.207)]

NOTE: **If you plan to allow for the inclusion of data on subjects who are pregnant women, fetuses, or neonates you must include the VCU IRB PREGNANT WOMEN, FETUSES, NEONATES-SUBJECT FORM with your submission. The form is available at** http://www.research.vcu.edu/forms/vcuirb.htm

BOX 3: PRISONERS: If you plan to allow for the inclusion of data on subjects who are, or may become, a prisoner, you must indicate that you plan to allow for inclusion of their data and identify a research category below. **NOTE: If an enrolled research subject becomes incarcerated (or otherwise meets the definition of prisoner) during the course of an IRB approved project, the PI must immediately notify the IRB and amend the protocol to allow for the inclusion of prisoners and the continuation of that subject.** If this should occur, **you must follow the VCU IRB PRISONER-SUBJECT GUIDANCE and include the VCU IRB PRISONER-SUBJECT FORM with your submission to the IRB. The guidance and form are available at** http://www.research.vcu.edu/forms/vcuirb.htm

Do you plan to allow for the inclusion of data on subjects who are, or may become a PRISONER? ☐ YES * X NO

* If YES, identify the research category below.

☐ Research involving study of the possible causes, effects, and processes of incarceration, and of criminal behavior, provided that the project presents no more than minimal risk and no more than inconvenience to the subjects (45.CFR 46.306(a)(2)(i)) – [NOTE: see definition of minimal risk below]

☐ Research involving study of prisons as institutional structures or of prisoners as incarcerated persons, provided that the project presents no more than minimal risk and no more than inconvenience to the subjects (45.CFR 46.306(a)(2)(ii)) – [NOTE: see definition of minimal risk below]

☐ Research on conditions particularly affecting prisoners as a class (for example, vaccine trials and other research on hepatitis which is much more prevalent in prisons than elsewhere; and research on social and psychological problems such as alcoholism, drug addiction, and sexual assaults) provided that the project may proceed only after the Secretary (through OHRP) has consulted with appropriate experts including experts in penology, medicine, and ethics, and published notice, in the Federal Register, of his intent to approve such research (45.CFR 46.306(a)(2)(iii))

☐ Research on practices, both innovative and accepted, which have the intent and reasonable probability of improving the health or well-being of the subject. In cases in which those studies require the assignment of prisoners in a manner consistent with projects approved by the IRB to control groups which may not benefit from the research, the project may proceed only after the Secretary (through OHRP) has consulted with appropriate experts including experts in penology, medicine, and ethics, and published notice, in the Federal Register, of his intent to approve such research (45.CFR 46.306(a)(2)(iv))

☐ Research defined as public health research that focuses on a particular condition or disease in order to (i) describe its prevalence or incidence by identifying all cases, including prisoner cases, or (ii) study potential risk factor associations, where the human subjects may include prisoners in the project population but not exclusively as a target group, provided that the project presents no more than minimal risk and no more than inconvenience to the subjects (Epidemiological Waiver Request)

MINIMAL RISK AS IT PERTAINS TO THE PRISONER POPULATION means that the probability and magnitude of physical or psychological harm that is normally encountered in the daily lives or in the routine medical, dental, or psychological examination of healthy, non-incarcerated persons.

NOTE: **If you plan to allow for the inclusion of data on subjects who are, or may become, prisoners, you must follow the VCU IRB PRISONER-SUBJECT GUIDANCE and include the VCU IRB PRISONER-SUBJECT FORM with your submission. The guidance and form are available at** http://www.research.vcu.edu/forms/vcuirb.htm

SUBJECT ENROLLMENT PLAN:

Anticipated # OF SUBJECTS (if this is a multi-center project, list only subjects under this IRB approval): 320
Is this a **MULTI-CENTER PROJECT**? ☐ YES X NO
If YES, please provide:
(1) # OF SITES: **(2)** # OF SUBJECTS ACROSS ALL SITES:

CONSENT DOCUMENTATION: (Mark the type of consent process/documentation planned):

X **STANDARD CONSENT FORM:** A copy of the proposed consent form(s) is attached to this submission.

☐ **CONSENT FORM FOR PRISONER SUBJECTS:** A copy of the proposed consent form for prisoners is attached to this submission.

☐ **WAIVER OF SOME OR ALL ELEMENTS OF CONSENT OR PARENTAL PERMISSION:** NOTE: Waiver is not allowed for FDA-regulated research unless it meets FDA requirements for Waiver of Consent for Emergency Research (see below). A request is being made to waive the requirement to obtain prospective informed consent from subjects or permission from parents. Your research synopsis should explain why: (1) the research involves no more than minimal risk to the subjects, (2) the waiver or alteration will not adversely affect the rights and welfare of the subjects, (3) the research could not practicably be carried out without the waiver or alteration; **AND** (4) whether or not subjects will be debriefed after their participation. Guidance is available at http://www.research.vcu.edu/irb/wpp/flash/XI-1.htm.

☐ **WAIVER OF DOCUMENTATION OF CONSENT, PARENTAL PERMISSION:**
A request is being made to waive documentation of consent. The IRB may waive this requirement if it finds either: (1) that the only record linking the subject and the research would be the consent document and the principal risk would be potential harm resulting from a breach of confidentiality. Subjects will be asked whether they want documentation linking them with the research, and each subject's wishes will govern; or (2) that the research presents no more than minimal risk of harm to subjects and involves no procedures for which written consent is normally required outside of the research context. Your research synopsis should include a justification for waiver based on one of these two elements and include a description of the information that will be provided to participants. If you are proposing to use a verbal consent statement, the proposed consent script should be attached to this submission. Guidance is available at http://www.research.vcu.edu/irb/wpp/flash/XI-2.htm

☐ **ASSENT FORM:** A copy of the assent form for children or decisionally-impaired persons is attached to this submission. Guidance is available at http://www.research.vcu.edu/irb/wpp/flash/XV-2.htm. and http://www.research.vcu.edu/irb/wpp/flash/XVII-7.htm.

☐ **WAIVER OF ASSENT:** A request is being made to waive the requirement to obtain prospective assent from children age 7 or higher, or decisionally-impaired persons. Your research synopsis should explain (1) why some or all of the individuals age 7 or higher, or decisionally-impaired will not be capable of providing assent based on their developmental status or impact of illness; (2) the research holds out a prospect of direct benefit not available outside of the research; **AND/OR** (3) [a] the research involves no more than minimal risk to the subjects, [b] the waiver or alteration will not adversely affect the rights and welfare of the subjects, [c] the research could not practicably be carried out without the waiver or alteration; **AND** [d] whether or not subjects will be debriefed after their participation. Guidance is available at http://www.research.vcu.edu/irb/wpp/flash/XV-2.htm.

☐ Waiver of Consent for Emergency Research: Guidance is available at http://www.research.vcu.edu/irb/wpp/flash/XVII-16.htm.

SECTION 9: VCU RESEARCH PLAN

You must use the VCU Research Plan Template that can be found at http://www.research.vcu.edu/forms/vcuirb.htm, Use of this template is required to provide your VCU Research Plan to the IRB. Your responses should be written in terms for the non-scientist to understand. If a detailed research protocol (e.g., sponsor's protocol) exists, you may reference that protocol. NOTE: **If that protocol does not address all of the issues outlined in each Section Heading, you must address the remaining issues in this Plan. It is NOT acceptable to reference a research funding proposal.**

SECTION 10: SUBMISSION CHECKLIST

The following elements are reminders of steps and documentation that must be included with your submission packet. NOTE: If required documents are missing and multi-page documents are not individually stapled or clipped, your review may be delayed.

This checklist must be included as the last page of the IRB INITIAL REVIEW SUBMISSION FORM
If not applicable, indicate "N/A."

☐ **1. VCU IRB INITIAL REVIEW SUBMISSION FORM**

☐ **2. VCU RESEARCH PLAN**
Required with ALL submissions and **MUST follow the template and include version number or date, and page numbers** [see SECTION 9 of this form]. Review of your protocol will be delayed if the template is not followed.
NOTE: **A research funding proposal cannot substitute for the VCU Research Plan**

☐ ___ **3. MEASURES (e.g., surveys, questionnaires, instruments, appendices)**
Measures **MUST include title, version number or date, and page numbers**

☐ ___ **4. SPONSOR'S PROTOCOL**
If a sponsor's protocol exists, it must be submitted with the VCU Research Synopsis.
NOTE: **A research funding proposal is not considered a Sponsor's protocol**

☐ ___ **5. ADVERTISEMENTS/SUBJECT RECRUITMENT MATERIALS**
If approval is sought for advertisement/subject recruitment materials at this time. Materials **MUST include version number or date**

☐ ___ **6. INFORMED CONSENT/ASSENT DOCUMENT(S)**
Informed consent document(s) should follow a version of the VCU IRB CONSENT TEMPLATE and **MUST include version number or date, and page numbers**

☐ ___ **7. VCU IRB CHILDREN-SUBJECT FORM**

☐ ___ **8. VCU IRB PREGNANT WOMEN, FETUSES, AND NEONATES-SUBJECT FORM**

☐ N/A **9. VCU IRB PRISONER-SUBJECT FORM**

☐ N/A **10. FDA FORM 1572**
If investigational drugs are involved in the research

☐ N/A **11. INVESTIGATIONAL DRUG PHARMACY PLAN**
If a drug or biologic agent/drug will be used in the research and IDS will not be used, confirmation from IDS that a plan has been received is required with this submission [see SECTION 7(4) of this form]

☐ N/A **12. IND OR IDE APPLICATION**
If a drug or device is used in the project and IND or IDE is held by the investigator [see SECTION 7(2) or 7(5) of this form]

☐ N/A **13. INVESTIGATOR'S BROCHURE**
If a drug or device is used in the project and the IND or IDE is held by the sponsor [see SECTION 7(2) or 7(5) of this form]

☐ N/A **14. DOCUMENTATION REGARDING LEVEL OF RISK (when evaluating a device)**
If an investigational medical device or a new use for marketed medical device is being evaluated [see SECTION 7(5) or 7(6) of this form]

☐ N/A **15. RADIATION SAFETY COMMITTEE APPROVAL** If required [see SECTION 7(7) of this form]

☐ N/A **16. INSTITUTIONAL BIOSAFETY COMMITTEE REVIEW** If required [see SECTION 7(8) of this form]

☐ N/A **17. MASSEY CANCER CENTER PROTOCOL REVIEW AND MONITORING SYSTEM APPROVAL**
If required, [see SECTION 7(10) of this form]

☐ N/A **18. CONFLICT OF INTEREST DISCLOSURE STATEMENT**
This form and explanatory supplement (if applicable) is required for the PI and all others who have responsibility for the design, conduct, or reporting of the research.

☐ ___ **19. RESEARCH FUNDING PROPOSAL**
If required [see SECTION 5 of this form] The enter proposal (exclusive of appendices) and VCU Office of Sponsored Programs (OSP) Internal Approval Form must be included.

☐ **20. PRINCIPAL INVESTIGATOR CV (not to exceed 5-6 pages) or a BIOSKETCH (2-3 pages)**
If submitting a biosketch, the NIH biosketch form (398) must be used. The biosketch form is available at http://grants.nih.gov/grants/funding/phs398/biosketch.pdf. Additional instructions are available at http://grants1.nih.gov/grants/funding/phs398/phs398.html.

☐ ___ **21. CV OF DOCTORAL STUDENT, POSTDOCTORAL SCHOLAR, FELLOW, OR RESIDENT (not to exceed 5-6 pages) or a BIOSKETCH (2-3 pages)**
If submitting a biosketch, the NIH biosketch form (398) must be used. The biosketch form is available at http://grants.nih.gov/grants/funding/phs398/biosketch.pdf. Additional instructions are available at http://grants1.nih.gov/grants/funding/phs398/phs398.html.

☐ N/A **22. MEDICALLY RESPONSIBLE INVESTIGATOR CV (not to exceed 5-6 pages) or a BIOSKETCH (2-3 pages)**
If submitting a biosketch, the NIH biosketch form (398) must be used. The biosketch form is available at http://grants.nih.gov/grants/funding/phs398/biosketch.pdf. Additional instructions are available at http://grants1.nih.gov/grants/funding/phs398/phs398.html.

23. OTHER: _____

In addition, please ensure the following:

- All key project personnel, including the principal investigator, sub/co-investigators, project coordinators, and students have completed **VCU REQUIRED TRAINING ON HUMAN SUBJECTS PROTECTION**. The exam can be accessed from the following website http://www.research.vcu.edu/irb/education.htm
- Principal Investigator, Trainee or Student (if applicable) and Department/Division Chairperson or Dean have **SIGNED THE APPROPRIATE STATEMENTS OF COMPLIANCE** [see SECTION 6 of this form]
- The **REVIEW TYPE REQUESTED** [see SECTION 3 of this form] has been checked

NUMBER OF COPIES REQUIRED

NOTE: **If required documents are missing, multi-page documents are not individually stapled or clipped, or the documents are not provided in the order noted below, your review may be delayed.**

I. If review type requested is **EXPEDITED**, submit **(4) COLLATED SETS** containing the following documents in the order noted.

1) VCU IRB Initial Review Submission Form
2) VCU Research Plan
3) Sponsor's Protocol (if applicable)
4) Advertisements/Subject Recruitment Materials (if applicable)
5) Informed Consent/Assent Documents(s) (if applicable) (NOTE: If this is a DHHS protocol, you **MUST** include the DHHS-approved consent/assent documents)
6) VCU IRB Children-Subject Form (if applicable)
7) VCU IRB Pregnant Women, Fetuses, Neonates-Subject Form (if applicable)
8) VCU IRB Prisoner-Subject Form (if applicable)
9) Confirmation of receipt of management plan from Investigational Drug Pharmacy (if applicable)
10) FDA Form 1572 (if applicable)
11) IND or IDE Application (if applicable)
12) Investigator's Brochure (if applicable)
13) Radiation Safety Committee Approval Letter (if applicable)
14) Massey Cancer Center Protocol Review and Monitoring System Approval Letter (if applicable)
15) Conflict of Interest Disclosure Statement (s) and supplement(s) if applicable
16) Research Funding Proposal (if applicable)
17) Principal Investigator CV or Biosketch
18) CV of Doctoral Student, Postdoctoral Scholar, Fellow, or Resident (if applicable)

II. If review type requested is **FULL BOARD**, submit **(25) SETS IN TOTAL** as follows.

A) Submit **(25) COLLATED SETS** containing the following documents in the order noted:

1) VCU IRB Initial Review Submission Form
2) VCU Research Plan
3) Sponsor's Protocol (if applicable)
4) Advertisements/Subject Recruitment Materials (if applicable)
5) Informed Consent/Assent Document(s) (if applicable) (NOTE: If this is a DHHS protocol, you **MUST** include the DHHS-approved consent/assent documents)
6) VCU IRB Children-Subject Form (if applicable)
7) VCU IRB Pregnant Women, Fetuses, Neonates-Subject Form (if applicable)
8) VCU IRB Prisoner-Subject Form (if applicable)
9) Conflict of Interest Disclosure Statement. Submit 20 COPIES of the Conflict of Interest Disclosure Statement AND Disclosure Supplement Form(s) IF any of the investigators answered YES to one of the questions. Otherwise, submit only 4 COPIES.

AND

B) In addition, **(4) OF THE 25 COLLATED SETS** must containing the following documents:

1) Principal Investigator CV or Biosketch
2) FDA Form 1572 (if applicable)
3) IND or IDE Application (if applicable)
4) Investigator's Brochure (if applicable)
5) Documentation of Level of Risk (if applicable)
6) Radiation Safety Committee Approval Letter (if applicable)
7) Massey Cancer Center Protocol Review and Monitoring System Approval Letter (if applicable)
8) Confirmation of receipt of management plan from Investigational Drug Pharmacy (if applicable)
9) Research Funding Proposal (if applicable)
10) Medically Responsible Investigator CV or Biosketch (if applicable)
11) CV of Doctoral Student, Postdoctoral Scholar, Fellow, or Resident (if applicable)

Appendix B

Understanding Mothers of Late Preterm Infants
Survey Instrument

Thank you for agreeing to be a part of this study by answering questions about becoming a mother. Please take your time answering questions. If you have any questions about this study please ask.

Instructions: Please answer the following statements as honestly as you can. Circle the answer that best fits your level of agreement.

This first set of statements is about your sense of well-being or how you are feeling.

1. **In most ways my life is close to my ideal.**

STRONGLY AGREE AGREE SLIGHTLY AGREE NEITHER AGREE OR DISAGREE SLIGHTLY DISAGREE DISAGREE STRONGLY DISAGREE

2. **The conditions of my life are excellent.**

STRONGLY AGREE AGREE SLIGHTLY AGREE NEITHER AGREE OR DISAGREE SLIGHTLY DISAGREE DISAGREE STRONGLY DISAGREE

3. **I am satisfied with my life.**

STRONGLY AGREE AGREE SLIGHTLY AGREE NEITHER AGREE OR DISAGREE SLIGHTLY DISAGREE DISAGREE STRONGLY DISAGREE

4. **So far I have gotten the important things I want in life.**

STRONGLY AGREE AGREE SLIGHTLY AGREE NEITHER AGREE OR DISAGREE SLIGHTLY DISAGREE DISAGREE STRONGLY DISAGREE

5. **If I could live my life over, I would change almost nothing.**

STRONGLY AGREE AGREE SLIGHTLY AGREE NEITHER AGREE OR DISAGREE SLIGHTLY DISAGREE DISAGREE STRONGLY DISAGREE

This set of questions is about the support you receive from others.

6. **I am getting all the help I need in cooking meals for the family (after the baby was born).**

Strongly agree Agree Disagree Strongly disagree

7. **I need to be reassured that I am more than just someone's mother**.

Strongly agree Agree Disagree Strongly disagree

8. **I am getting all the help I need on taking care of my own body as it heals following the birth of my baby.**

Strongly agree Agree Disagree Strongly disagree

9. **I am getting all the help I need about my baby's behavior with someone in the same situation.**

Strongly agree Agree Disagree Strongly disagree

10. **I am getting all the help I need in doing laundry (after the baby was born).**

Strongly agree Agree Disagree Strongly disagree

11. **I am getting all the help I need on which skin rashes were normal for the baby to have.**

Strongly agree Agree Disagree Strongly disagree

12. **I am getting all the help I need on my baby's sleeping patterns and if they were normal.**

Strongly agree Agree Disagree Strongly disagree

13. **I am getting all the help I need so that I could take a shower, eat, or have some time to myself.**

Strongly agree Agree Disagree Strongly disagree

14. **I am getting all the help I need to maintain relationships with friends, interests, and/or responsibilities outside the home (after the baby was born).**

Strongly agree Agree Disagree Strongly disagree

15. **I am getting all the help I need to act as if I am special (after the baby was born).**

Strongly agree Agree Disagree Strongly disagree

16. **I am getting all the help I need in cleaning the house/apartment (after the baby was born).**

Strongly agree Agree Disagree Strongly disagree

17. **I need others to appreciate my care of the baby.**

Strongly agree Agree Disagree Strongly disagree

18. **I need to have others act as if my ideas, decisions, and ways of doing things were right or acceptable (after the baby was born).**

Strongly agree Agree Disagree Strongly disagree

19. **I am getting all the help I need on what my baby's bowel movements should look like.**

Strongly agree Agree Disagree Strongly disagree

20. **I need for others to indicate that it is okay for me to need help (after the baby was born).**

Strongly agree Agree Disagree Strongly disagree

21. **I need to compare notes with someone in the same situation about how to do baby care tasks (after the baby was born).**

Strongly agree Agree Disagree Strongly disagree

22. **I am getting all the help I need to have information on resuming sexual intercourse and/or contraception (after the baby was born).**

Strongly agree Agree Disagree Strongly disagree

23. **I am getting all the help I need in adjusting to the new role of mother.**

Strongly agree Agree Disagree Strongly disagree

24. **I am getting all the help I need in obtaining uninterrupted periods of rest for me (after the baby was born).**

Strongly agree Agree Disagree Strongly disagree

25. **I need for someone to talk with me and listen to me about what is interesting and important to me (after the baby was born).**

Strongly agree Agree Disagree Strongly disagree

26. **I am getting all the help I need on bottle-feeding (after the baby was born).**

Strongly agree Agree Disagree Strongly disagree

27. **I am getting all the help I need in going to the grocery or drugstore (after the baby was born).**

Strongly agree Agree Disagree Strongly disagree

28. **I am getting all the help I need in watching my baby so that I could have time alone with my husband/partner.**

Strongly agree Agree Disagree Strongly disagree

29. **I am getting all the help I need when my baby cries (why the baby cries and how to comfort them).**

Strongly agree Agree Disagree Strongly disagree

30. **I am getting all the help I need about my personal worries and concerns (after the baby was born).**

Strongly agree Agree Disagree Strongly disagree

31. **I am getting all the help I need on handling stress and/or discomfort (after the baby was born).**

Strongly agree Agree Disagree Strongly disagree

32. **I need to be reassured that I was not alone in being responsible for my baby.**

Strongly agree Agree Disagree Strongly disagree

33. **I am getting all the help I need to care for my baby's umbilical cord.**

Strongly agree Agree Disagree Strongly disagree

34. **I am getting all the help I need from someone in the same situation about the best places to get baby care supplies, clothing, etc. (after the baby was born).**

Strongly agree Agree Disagree Strongly disagree

35. **I am getting all the help I need with money for baby equipment, supplies, or bills that go along with having my baby.**

Strongly agree Agree Disagree Strongly disagree

36. **I am getting all the help I need on my baby's hiccups.**

Strongly agree Agree Disagree Strongly disagree

37. **I need to compare notes about my labor and delivery experience with someone in the same situation.**

Strongly agree Agree Disagree Strongly disagree

38. **I need affection and concern (for example, touching, kissing, hugging) after the baby was born.**

Strongly agree Agree Disagree Strongly disagree

39. **I need to have others treat me as if I am responsible and competent (after the baby was born).**

Strongly agree Agree Disagree Strongly disagree

Feel free to take a short break if needed.

This set of questions is about stressors you may have.

40. **Having too many responsibilities**

Not at all Rarely Often A great deal

41. **Taking care of family members other than your child**

Not at all Rarely Often A great deal

42. **Owing money or getting credit**

Not at all Rarely Often A great deal

43. **Problems with your newborn behavior**

Not at all Rarely Often A great deal

44. **Not enough money for basic necessities, such as clothing, housing, food, health care**

Not at all Rarely Often A great deal

45. Not enough time to do the things you want to do

Not at all Rarely Often A great deal

46. **Problems with transportation**

Not at all Rarely Often A great deal

47. **Problems with your job or with not having a job**

Not at all Rarely Often A great deal

48. **Disagreements with others over care of your newborn**

Not at all Rarely Often A great deal

49. **Problems with housing**

Not at all Rarely Often A great deal

50. **Concerns about the health of a family member (not including your child)**

Not at all Rarely Often A great deal

51. **Concerns about how your newborn is doing (health)**

Not at all Rarely Often A great deal

52. **Problems with friends and neighbors**

Not at all Rarely Often A great deal

53. **Concerns about your child's health**

Not at all Rarely Often A great deal

54. **Problems getting along with your family**

Not at all Rarely Often A great deal

55. **Problems with being married/single**

Not at all Rarely Often A great deal

56. **Feeling safe in your neighborhood**

Not at all Rarely Often A great deal

57. **Difficulties with your child's father**

Not at all Rarely Often A great deal

58. **Problems holding a job**

Not at all Rarely Often A great deal

59. **Trouble finding employment**

Not at all Rarely Often A great deal

If you need to take a break, this might be a good time.

<u>This set of questions is about you and what you think about yourself</u>.

60. **On the whole, I am satisfied with myself.**

Strongly agree Agree Disagree Strongly disagree

61. **At times I think I am no good at all.**

Strongly agree Agree Disagree Strongly disagree

62. **I feel that I have a number of good qualities.**

Strongly agree Agree Disagree Strongly disagree

63. **I am able to do things as well as most other people.**

Strongly agree Agree Disagree Strongly disagree

64. **I feel I do not have much to be proud of.**

Strongly agree Agree Disagree Strongly disagree

65. **I certainly feel useless at times.**

Strongly agree Agree Disagree Strongly disagree

66. **I feel that I'm a person of worth, at least on an equal plane with others.**

Strongly agree Agree Disagree Strongly disagree

67. **I wish I could have more respect for myself.**

Strongly agree Agree Disagree Strongly disagree

68. **All in all, I am inclined to feel that I am a failure.**

Strongly agree Agree Disagree Strongly disagree

69. **I take a positive attitude toward myself.**

Strongly agree Agree Disagree Strongly disagree

This set of questions is about how you are feeling now that you have had a baby.

70. **I have been able to laugh and see the funny side of things.**
As much as I always could
Not quite so much now
Definitely not so much now
Not at all

71. **I have looked forward with enjoyment to things.**
As much as I ever did
Rather less than I used to
Definitely less than I used to
Hardly at all

72. **I have blamed myself unnecessarily when things went wrong.**
No, not at all
Hardly ever
Yes, sometimes
Yes, very often

73. **I have been anxious or worried for no good reason.**
Yes, quite a lot
Yes, sometimes
No, not much
No, not at all

74. **I have felt scared or panicky for no very good reason.**
Yes, quite a lot
Yes, sometimes
No, not much
No, not at all

75. **Things have been difficult for me.**
Yes, most of the time I haven't been able to cope at all
Yes, sometimes I haven't been coping as well as usual
No, most of the time I have coped quite well
No, I have been coping as well as ever

76. **I have been so unhappy that I have had difficulty sleeping.**
Yes, most of the time
Yes, sometimes
Not very often
No, not at all

77. **I have felt sad or miserable.**
    Yes, most of the time
    Yes, quite often
    Not very often
    No, not at all

78. **I have been so unhappy that I have been crying.**
    Yes, most of the time
    Yes, quite often
    Only occasionally
    No, never

79. **The thought of harming myself has occurred to me.**
    Yes, quite often
    Sometimes
    Hardly ever
    Never

Thank you for completing this section of the questions. Feel free to take a break then continue with the second section.

This set of questions is about being a mother.

1. **I think my baby is very demanding.**

Strongly agree Agree Disagree Strongly disagree

2. **I feel proud of being a mother.**

Strongly agree Agree Disagree Strongly disagree

3. **I am disappointed by motherhood.**

Strongly agree Agree Disagree Strongly disagree

4. **Having a baby has made me as happy as I expected.**

Strongly agree Agree Disagree Strongly disagree

5. **I sometimes regret having my baby.**

Strongly agree Agree Disagree Strongly disagree

6. **I am the only person who can look after my baby properly.**

Strongly agree Agree Disagree Strongly disagree

7. **To be a good mother, I should be able to cope well all the time.**

Strongly agree Agree Disagree Strongly disagree

8. **If my baby is unwell or unhappy it is not my fault.**

Strongly agree Agree Disagree Strongly disagree

9. **I have resented not having enough time to myself since having my baby.**

Strongly agree Agree Disagree Strongly disagree

10. **My daily life has been no more difficult since my baby was born.**

Strongly agree Agree Disagree Strongly disagree

11. **If I find being a mother difficult, I feel a failure.**

Strongly agree Agree Disagree Strongly disagree

12. **If I love my baby I should want to be with him/her all the time.**

Strongly agree Agree Disagree Strongly disagree

13. **If other people help me look after my baby, I feel a failure.**

Strongly agree Agree Disagree Strongly disagree

14. **I resent the way my life has been restricted since having my baby.**

Strongly agree Agree Disagree Strongly disagree

<u>This set of statements is about responding to your baby.</u>

15. **I have made faces and smiled at my baby and watched for my baby's response to me.**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

17. **I believe my baby wants me to touch her/him too often.**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

18. **I have seen my baby respond to my playing with him/her.**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

19. **I believe that I can comfort my baby when she/he cries.**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

20. **I have seen my baby respond to my talking to him/her.**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

21. **I believe I know when my baby wants to play.**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

22. **I have seen my baby respond to my comforting him/her.**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

23. **I believe I know when my baby wants me to feed him/her**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

24. **I have watched my baby respond to my to feeding him/her.**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

25. **I think I sometimes respond slowly to my baby.**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

26. **I believe my baby responds well to my holding him/her.**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

27. **I have watched my baby respond to my touching him/her.**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

28. **I believe my baby wants me to play with her/him.**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

29. **I am afraid of my baby's appearance.**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

30. **I believe my baby wants me to comfort her/him too often.**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

31. **I believe my baby wants me to talk to her/him.**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

32. **I feel good about how I respond to my baby.**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

33. **I feel good about how my baby responds to me.**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

34. **I believe I know when my baby needs me to feed him/her.**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

35. **I feel afraid to care for my baby.**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

36. **I like the way my baby responds to me when I play with him/her.**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

37. **I believe my baby wants me to hold her/him too often.**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

<u>This set of questions will ask about caring for your baby</u>

38. **I am confident feeding my baby**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

39. **I understand my baby's needs for food and safety**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

40. **I know about my baby's needs**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

41. **My baby responds to my care as I imagined**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

42. **My baby takes the desired amount of feeding**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

43. **I can tell when my baby is finished feeding**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

44. **My baby sleeps the amount of time I expected**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

45. **I know what my baby needs when he/she cries or fusses**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

46. **I can tell what my baby needs by the sound of his/her cry**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

47. **My baby lets me know when he/she is hungry**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

48. **I m confident in my ability to bath my baby**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

49. **I worry about my baby's growth**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

50. **My baby's facial expression shows when he/she is upset**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

51. **My baby sends a clear signal when his/her diaper is wet**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

52. **I get frustrated when my baby cries**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

53. **My baby relaxes when I talk soothingly to him/her**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

54. **I get frustrated when my baby fusses**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

55. **I don't know how to satisfy my baby**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

56. **I am satisfied with the number of times my baby smiles**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

57. **My baby watches and follows with his/her eyes**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

58. **My baby stops sucking while feeding if I talk with him/her**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

59. **My baby is unresponsive when I talk to him/her**

Strongly agree Agree Somewhat agree Disagree Strongly disagree

This may be a good place to take a break before continuing.

<u>The next set of questions is about how being a mom makes you feel.</u>

60. **Considering how long I have been a mother, I feel thoroughly familiar with the role.**

Strongly agree Agree Slightly agree Neither agree or disagree Slightly disagree Disagree Strongly disagree

61. **I honestly believe I have the skills necessary to be a good mother to my child**

Strongly agree Agree Slightly agree Neither agree or disagree Slightly disagree Disagree Strongly disagree

62. **I meet my own personal expectations for expertise in caring for my child**

Strongly agree Agree Slightly agree Neither agree or disagree Slightly disagree Disagree Strongly disagree

63. **I would make a fine model for a new mother to follow in order to learn what she would need to know in order to be a good parent**

Strongly agree Agree Slightly agree Neither agree or disagree Slightly disagree Disagree Strongly disagree

64. **If anyone can find the answer to what is troubling my child, I am the one**

Strongly agree Agree Slightly agree Neither agree or disagree Slightly disagree Disagree Strongly disagree

65. **The problems of taking care of a child are easy to solve once you know how your actions affect your child, and understanding I have acquired**

Strongly agree Agree Slightly agree Neither agree or disagree Slightly disagree Disagree Strongly disagree

66. **Being a parent is manageable, and any problems are easily solved**

Strongly agree Agree Slightly agree Neither agree or disagree Slightly disagree Disagree Strongly disagree

67. **I go to bed the same way I wake up in the morning - Feeling I have not accomplished a whole lot**

Strongly agree Agree Slightly agree Neither agree or disagree Slightly disagree Disagree Strongly disagree

68. **I do not know what it is, but sometime when I'm suppose to be in control I feel more like the one being manipulated**

Strongly agree Agree Slightly agree Neither agree or disagree Slightly disagree Disagree Strongly disagree

69. **Even though being a parent is rewarding, I am frustrated now while my child is at his/her present age.**

Strongly agree Agree Slightly agree Neither agree or disagree Slightly disagree Disagree Strongly disagree

70. **Sometimes I feel I m not getting anything done.**

Strongly agree Agree Slightly agree Neither agree or disagree Slightly disagree Disagree Strongly disagree

71. **Being a parent makes me tense and anxious**

Strongly agree Agree Slightly agree Neither agree or disagree Slightly disagree Disagree Strongly disagree

72. **A difficult job in being a parent is not knowing whether you are doing a good job or a bad one.**

Strongly agree Agree Slightly agree Neither agree or disagree Slightly disagree Disagree Strongly disagree

73. **My talents and interests are in other areas, not in being a parent.**

Strongly agree Agree Slightly agree Neither agree or disagree Slightly disagree Disagree Strongly disagree

74. **If being a mother of a child were only more interesting, I would be motivated to do a better job as a parent**

Strongly agree Agree Slightly agree Neither agree or disagree Slightly disagree Disagree Strongly disagree

75. **My mother was better prepared to be a good mother than I am.**

Strongly agree Agree Slightly agree Neither agree or disagree Slightly disagree Disagree Strongly disagree

76. **Being a good mother is a reward in itself.**

Strongly agree Agree Slightly agree Neither agree or disagree Slightly disagree Disagree Strongly disagree

<u>This section of questions will ask about your baby</u>

77. **I generally check on baby while he/she is asleep at night:**

1	2	3	4	5
Not at all	1-2 Times each night			Frequently (at least every 30 min)

78. **If baby was awake and playing I would leave them unattended and out of earshot for:**

1	2	3	4	5
Not at all	About 15 minutes		More than an hour	

79. **If a friend came to visit and they had a cold I would:**

1	2	3	4	5
Not allow them In the house		Allow them in but not to hold baby		Ask them in and not restrict contact with baby

80. **My baby seems to get stomach (puke) pains or other pains:**

1	2	3	4	5
All the time				Never at all

81. **I am concerned that my baby is not as healthy as he/she should be:**

1	2	3	4	5
Always				Not concerned

82. **In general when I compare my baby's health to that of other children the same age I think he/she is:**

1	2	3	4	5
Less Healthy				More healthy

83. **I find myself worrying that my baby may become seriously ill:**

1	2	3	4	5
All the time				Not at all

84. **I worry about SID's:**

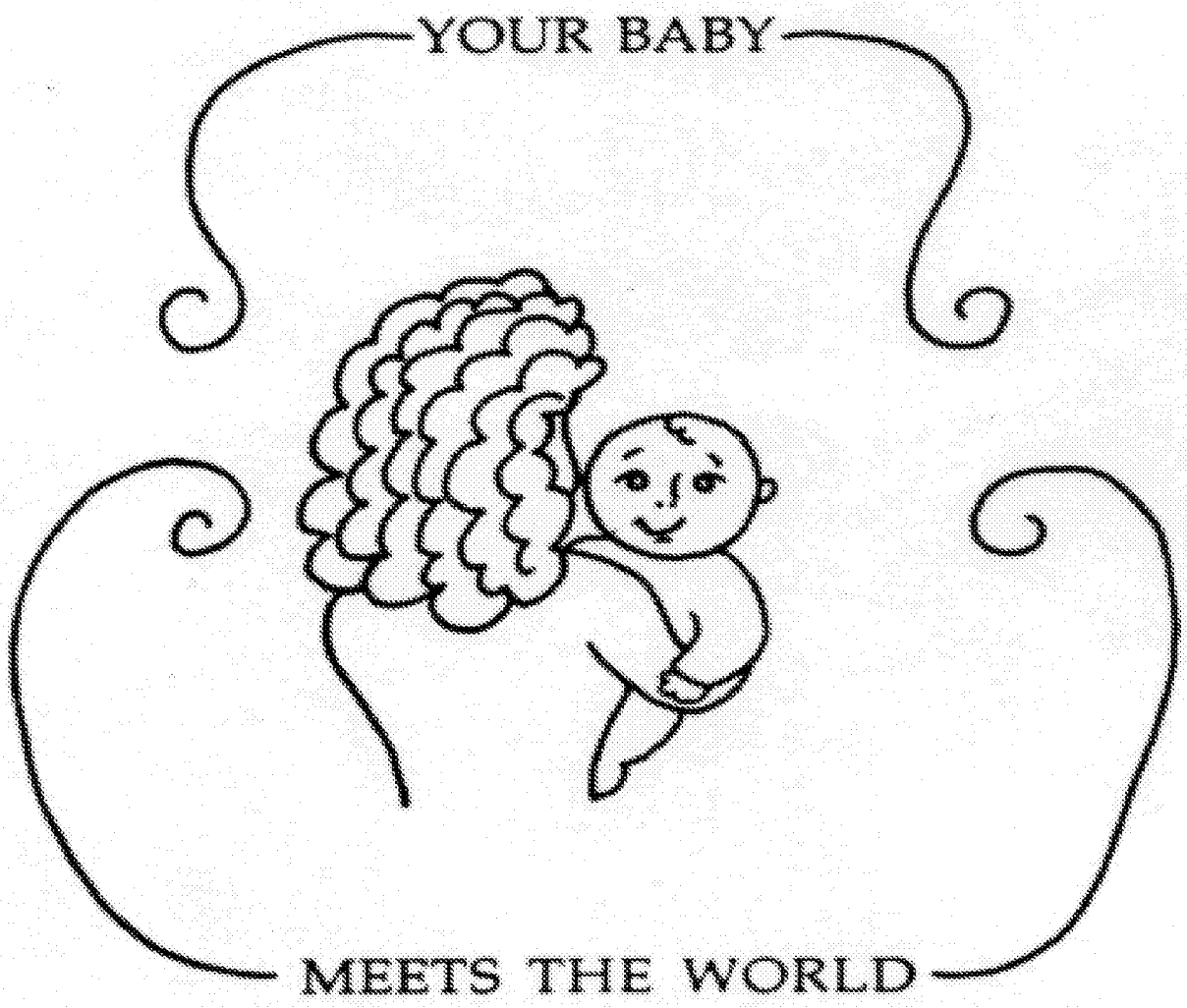
1	2	3	4	5
All the time				Not at all

85. **If you left baby with someone else would you make contact with them while you were away?**

1	2	3	4	5
Yes, definitely				No, not at all

86. **In the last 2 weeks I have contacted a health professional after hours or emergency doctors about the baby:**

1	2	3	4	5
Not at all		about once a week		Daily, or more



In this booklet are a number of situations that babies often go through.

Different babies react differently to these situations.

Here we show cartoon pictures of three different reactions to each situation.

Please think about how *YOUR BABY* usually reacts to each of these situations.

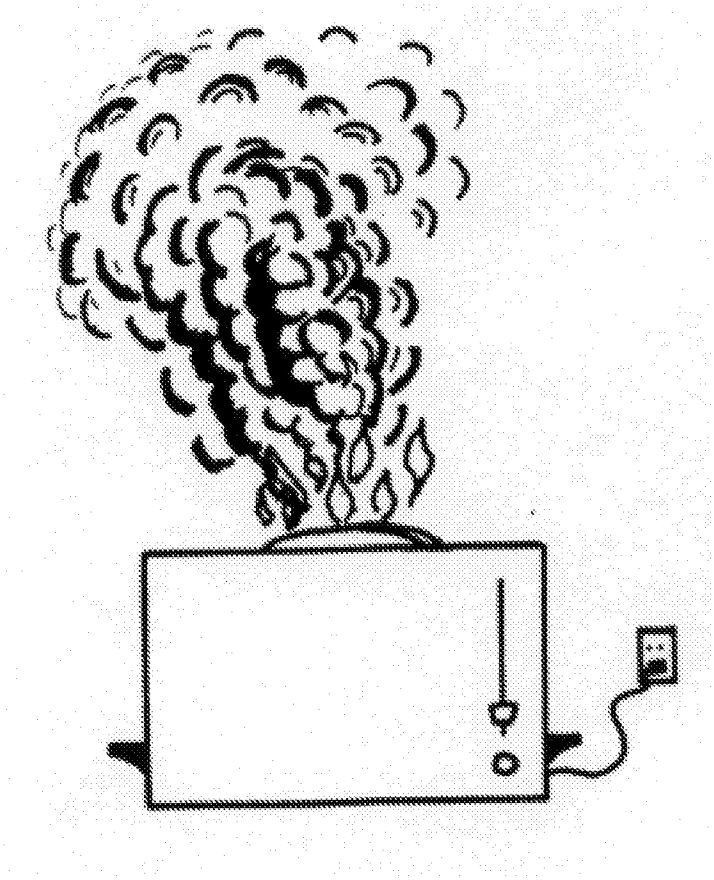
Then pick which of the three cartoon examples is *most like* how he or she behaves.

Is your baby like:

"Baby X" or
"Baby Y" or
"Baby Z" ?
Circle your answer on each page.

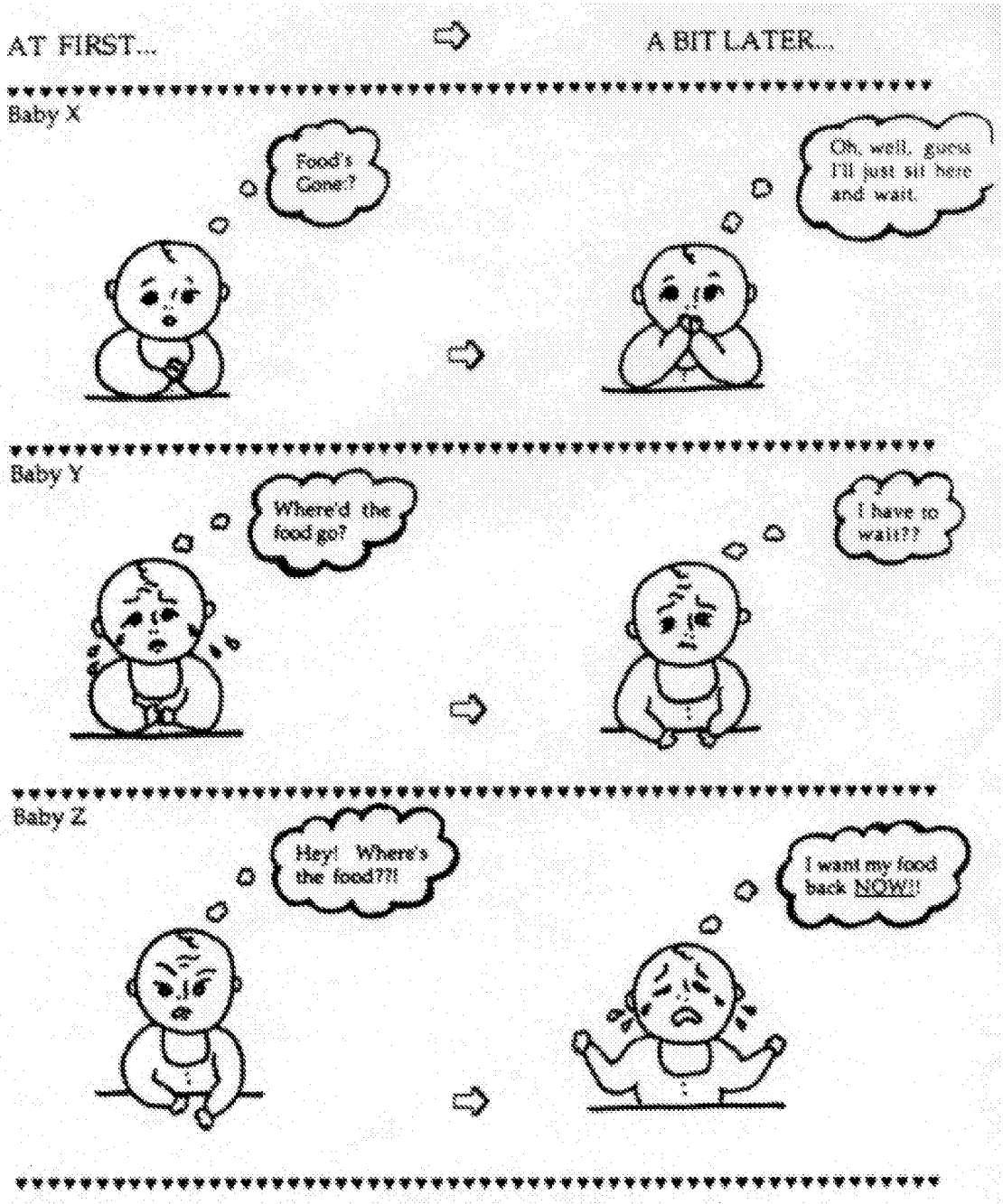
SITUATION 1:

The Burning Toast



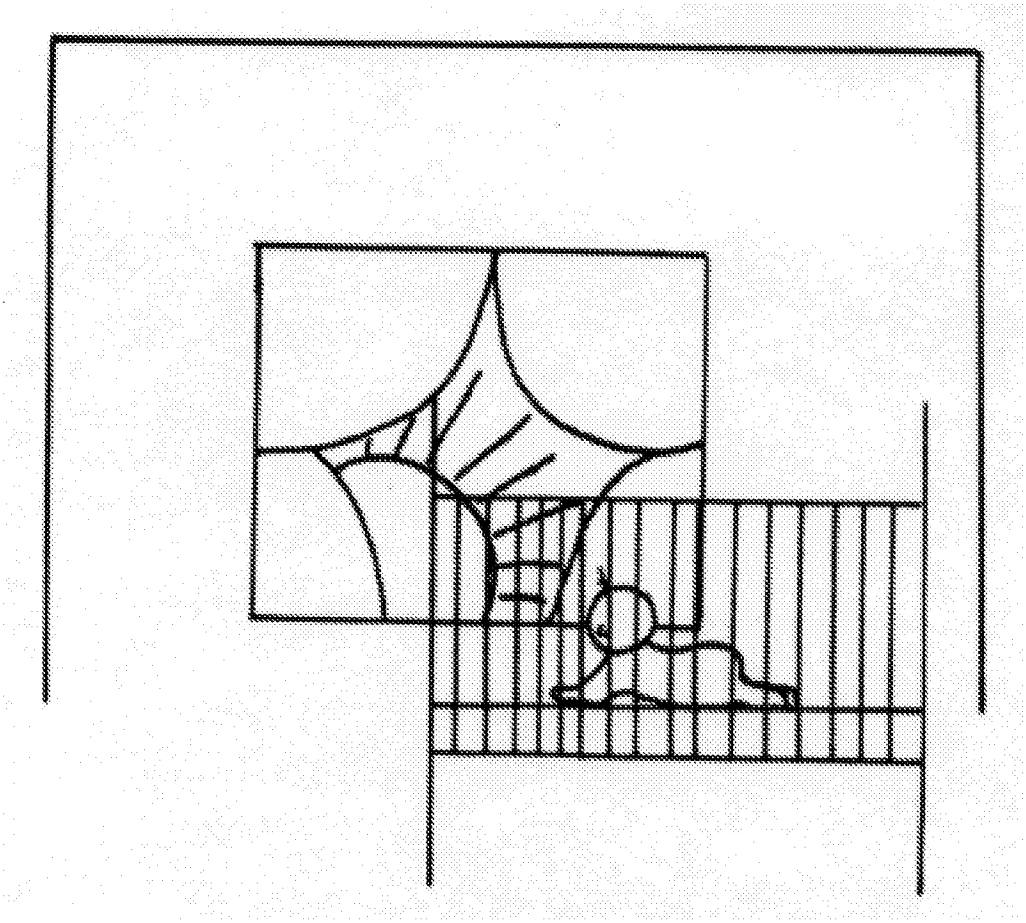
You are feeding baby, and after a few minutes, an emergency suddenly arises! The toast is burning! You have to interrupt baby's feeding.

How does baby react?


AT FIRST...
A BIT LATER...
Baby X
Food's Gone?
Oh, well, guess I'll just sit here and wait.
Baby Y
Where'd the food go?
I have to wait??
Baby Z
Hey! Where's the food??!
I want my food back NOW!!!

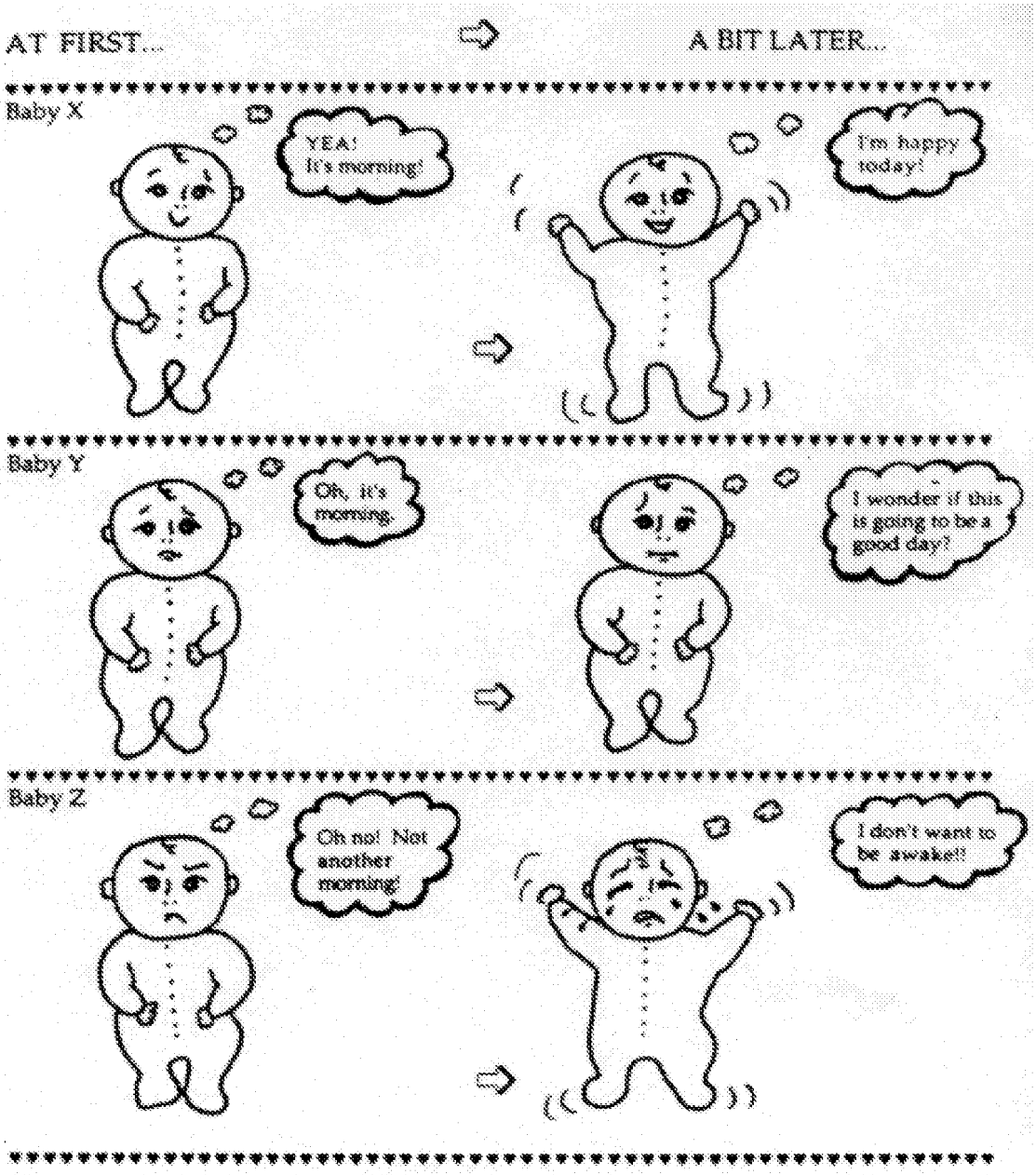
SITUATION 2:

Waking Up



When baby first wakes up in the morning…

How does baby react?

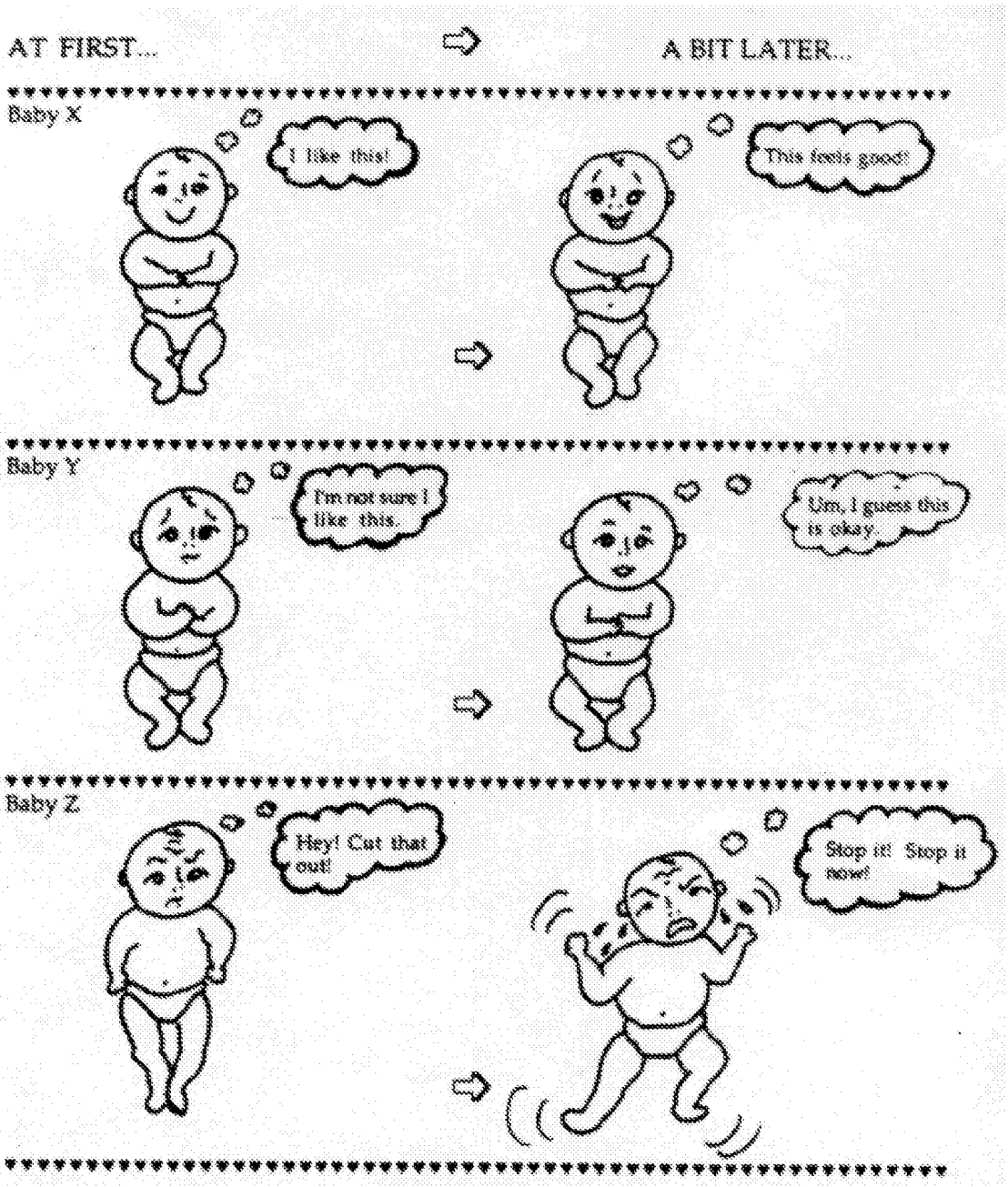

AT FIRST...
A BIT LATER...
Baby X
YEA! It's morning!
I'm happy today!
Baby Y
Oh, it's morning.
I wonder if this is going to be a good day?
Baby Z
Oh no! Not another morning!
I don't want to be awake!!

SITUATION 3:

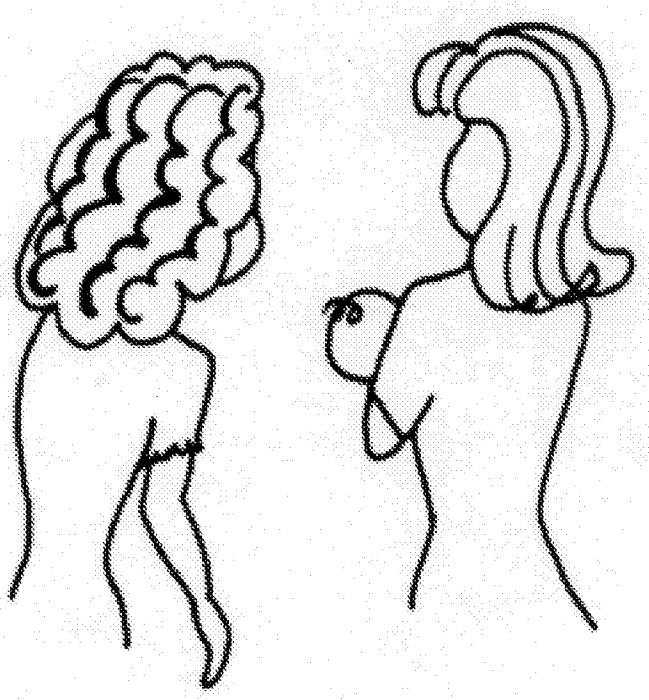
The Face Washing

When you wash baby's face with a wet washcloth…

How does baby react?

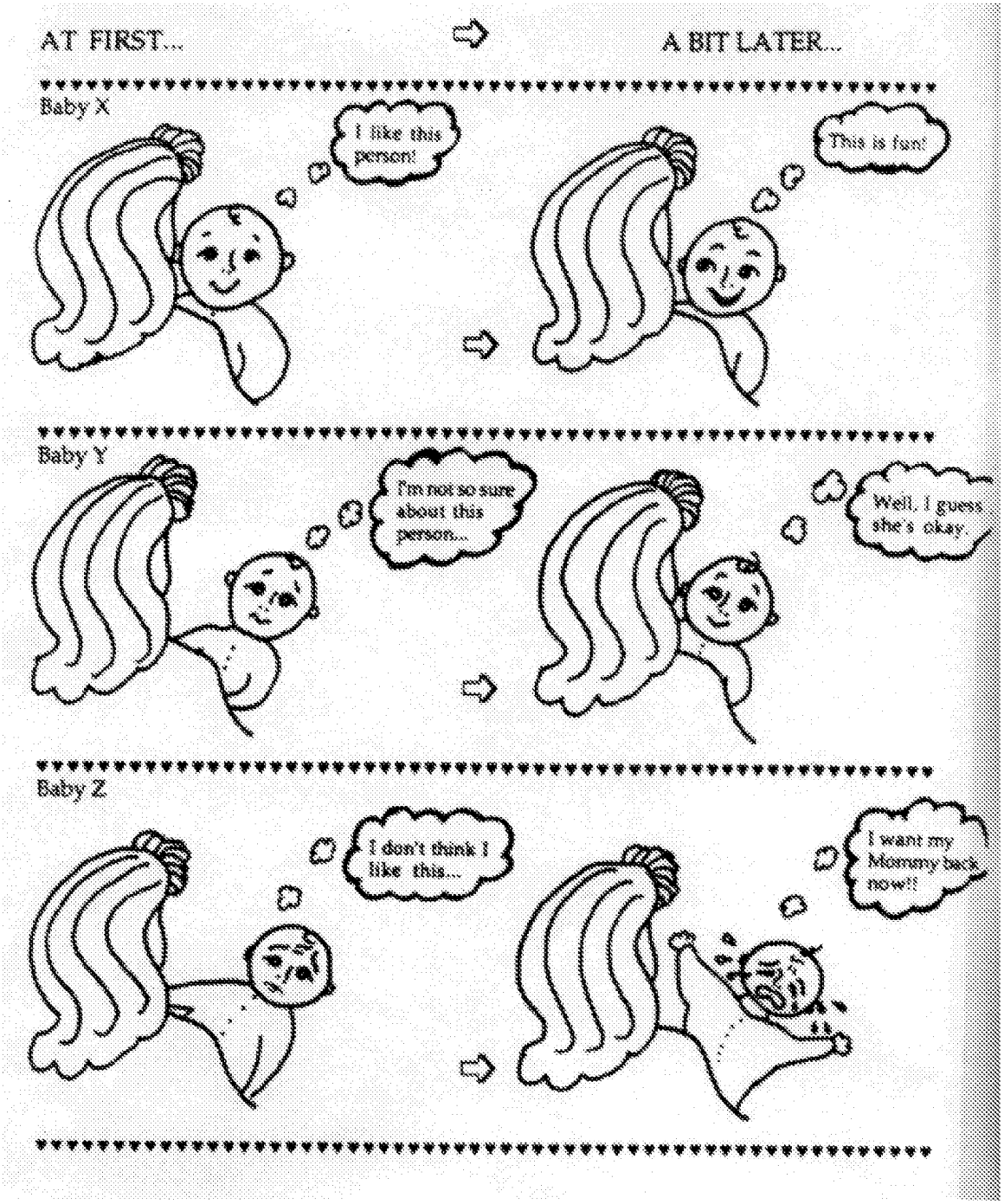

AT FIRST...
A BIT LATER...
Baby X
I like this!
This feels good!
Baby Y
I'm not sure I like this.
Um, I guess this is okay.
Baby Z
Hey! Cut that out!
Stop it! Stop it now!

Meeting New People



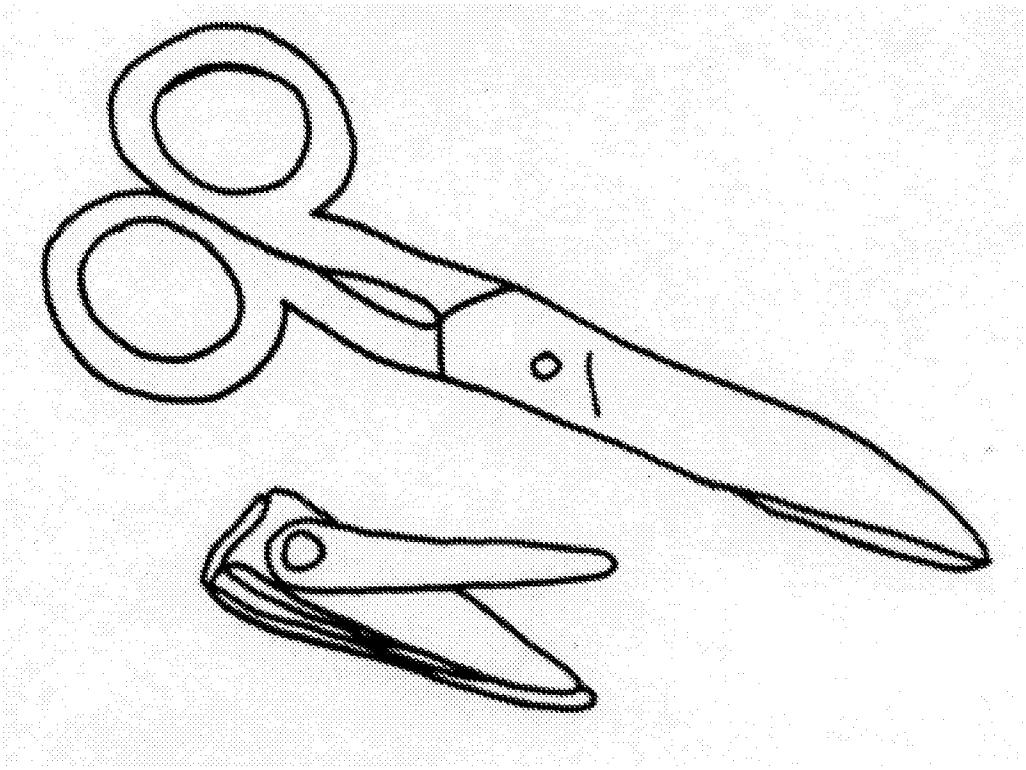
You give baby to a friend or family member to hold while you are busy.

How does baby react?


AT FIRST...
A BIT LATER...
Baby X
I like this person!
This is fun!
Baby Y
I'm not so sure about this person...
Well, I guess she's okay.
Baby Z
I don't think I like this...
I want my Mommy back, now!!

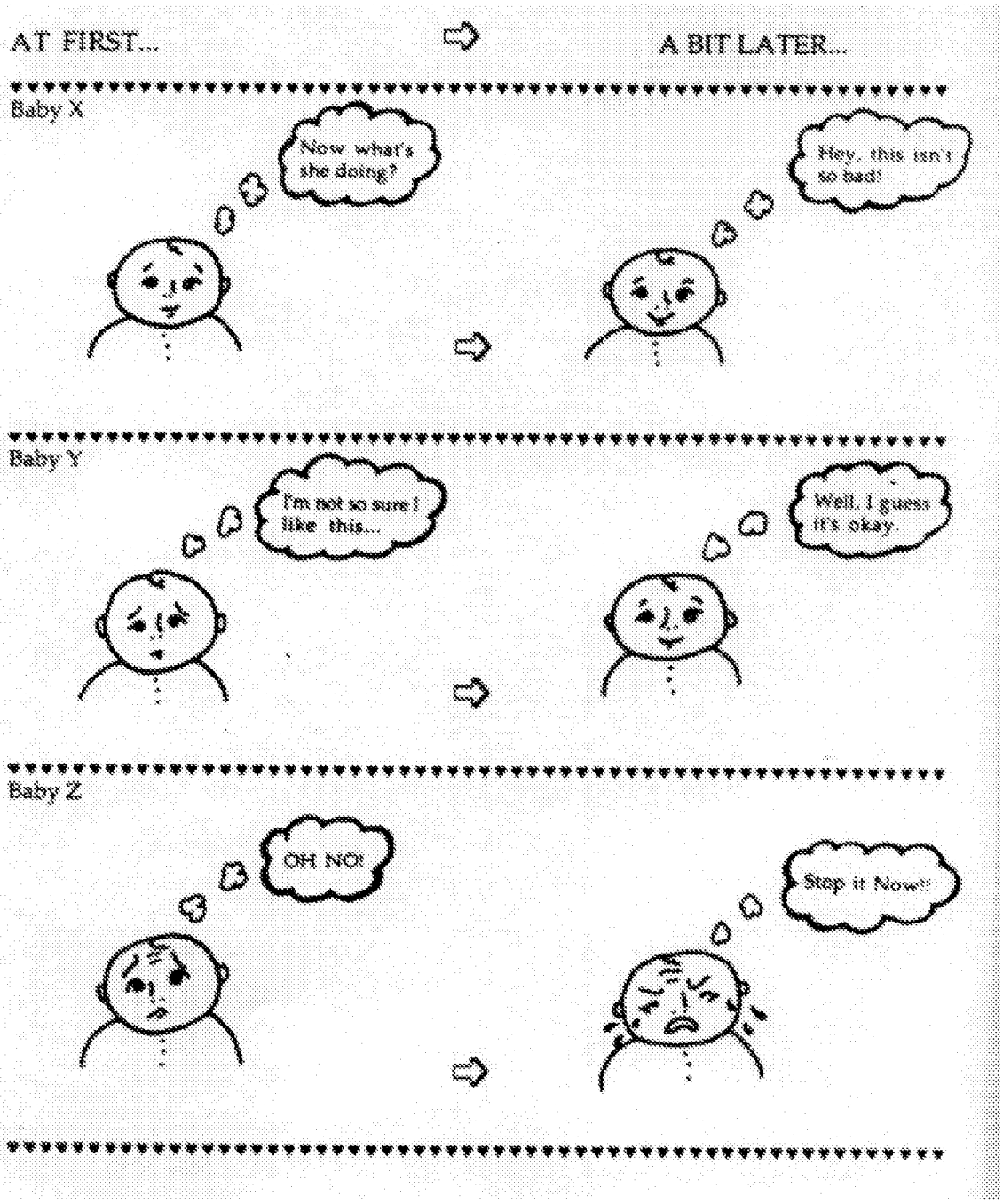
SITUATION 5:

The Manicure



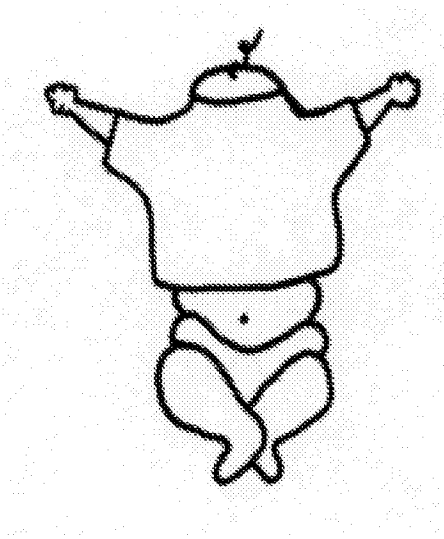
When you cut baby's nails…

How does baby react?


AT FIRST...
A BIT LATER...
Baby X
Now what's she doing?
Hey, this isn't so bad!
Baby Y
I'm not so sure I like this...
Well, I guess it's okay.
Baby Z
OH NO!
Stop it Now!!

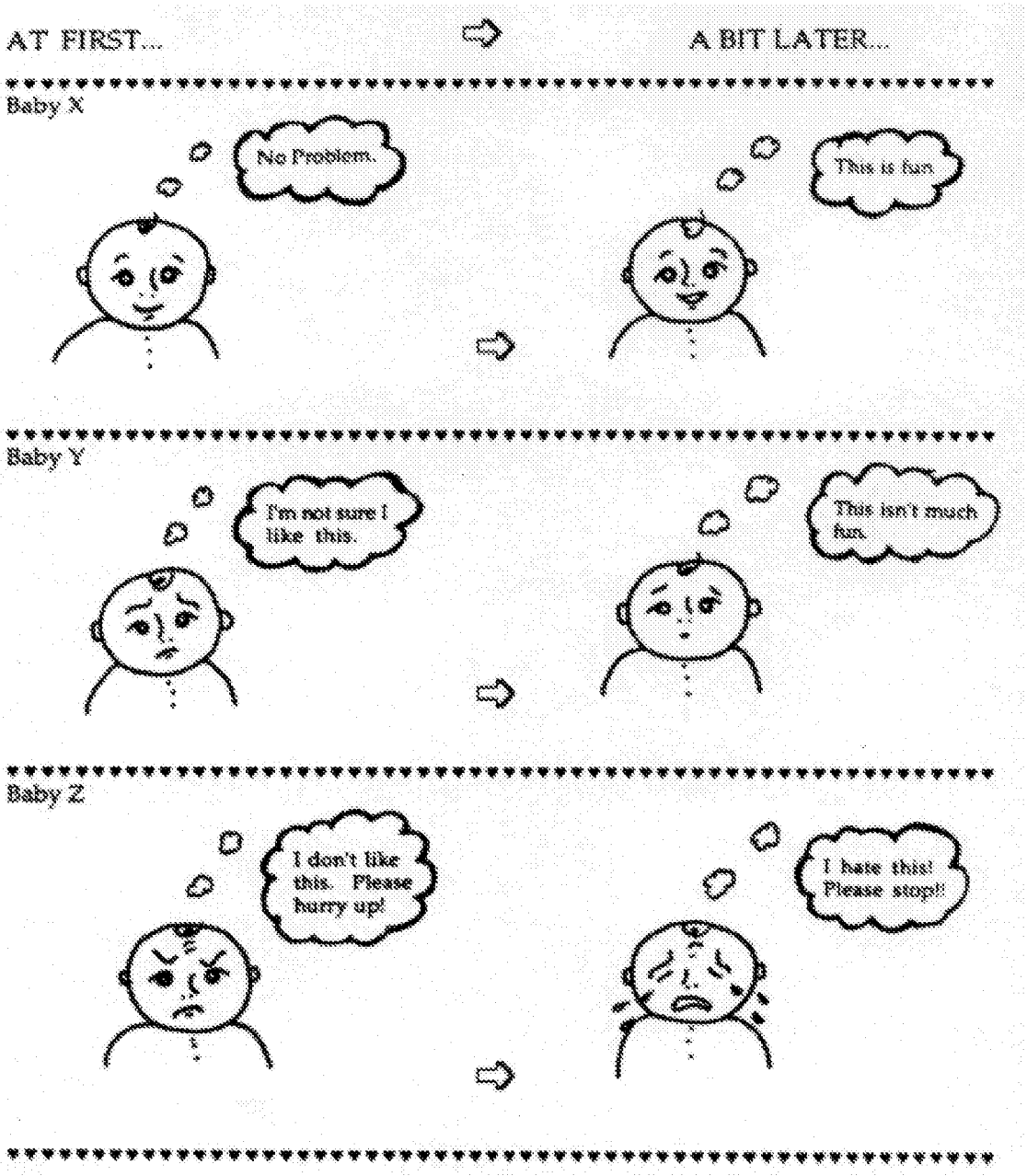
SITUATION 6:

Getting Dressed



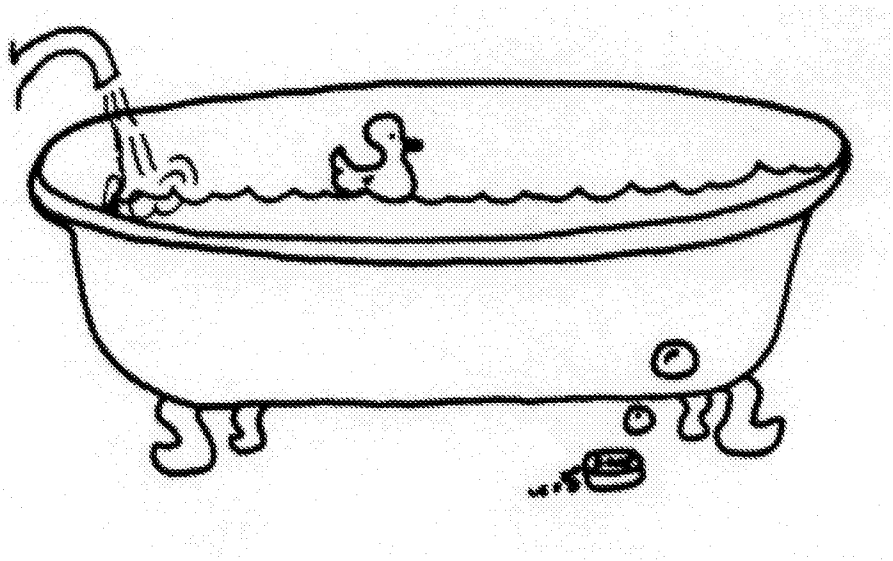
When you put a shirt on over baby's head…

How does baby react?


AT FIRST...
A BIT LATER...
Baby X
No Problem.
This is fun.
Baby Y
I'm not sure I like this.
This isn't much fun.
Baby Z
I don't like this. Please hurry up!
I hate this! Please stop!!

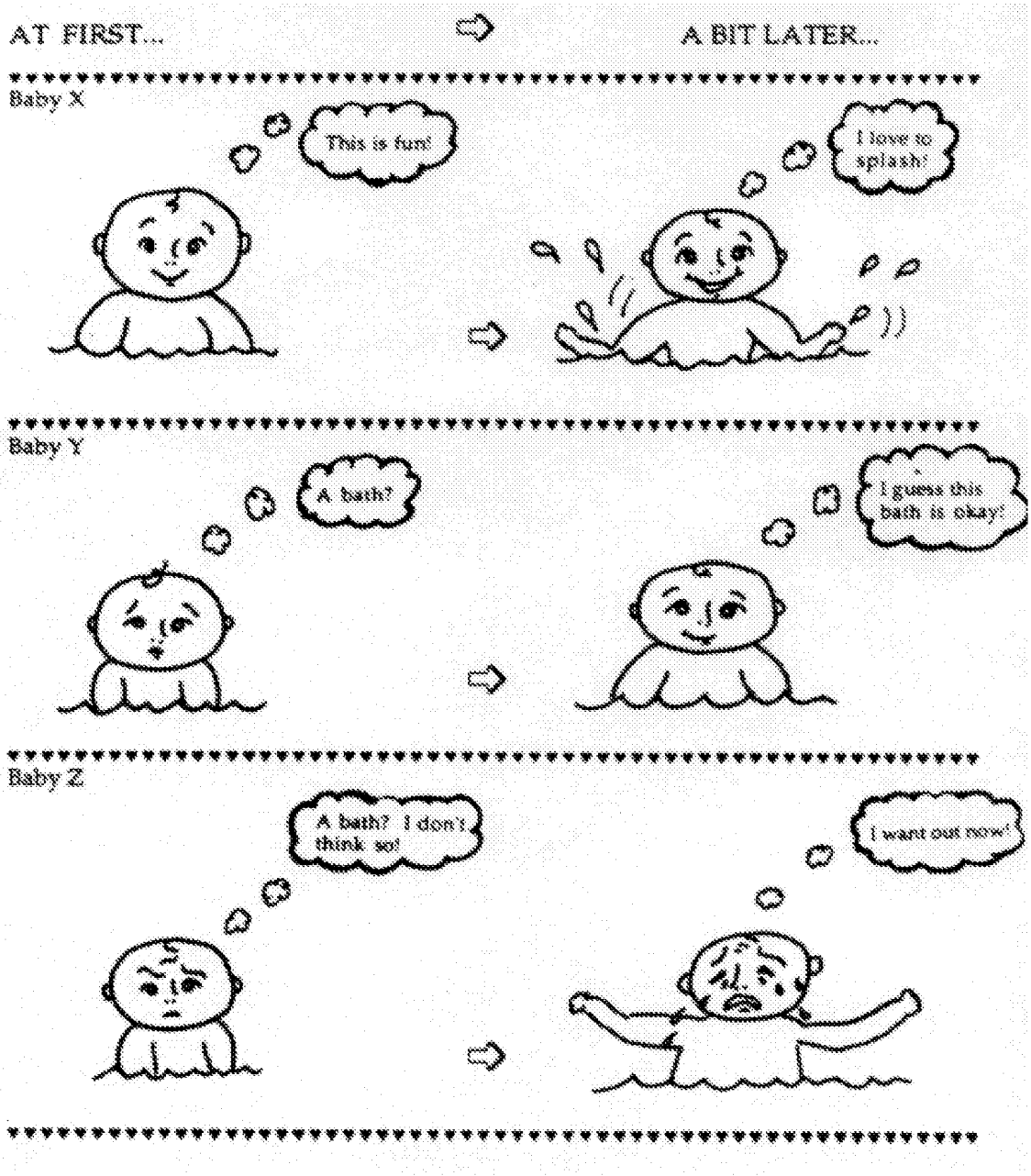
SITUATION 7:

The Bath



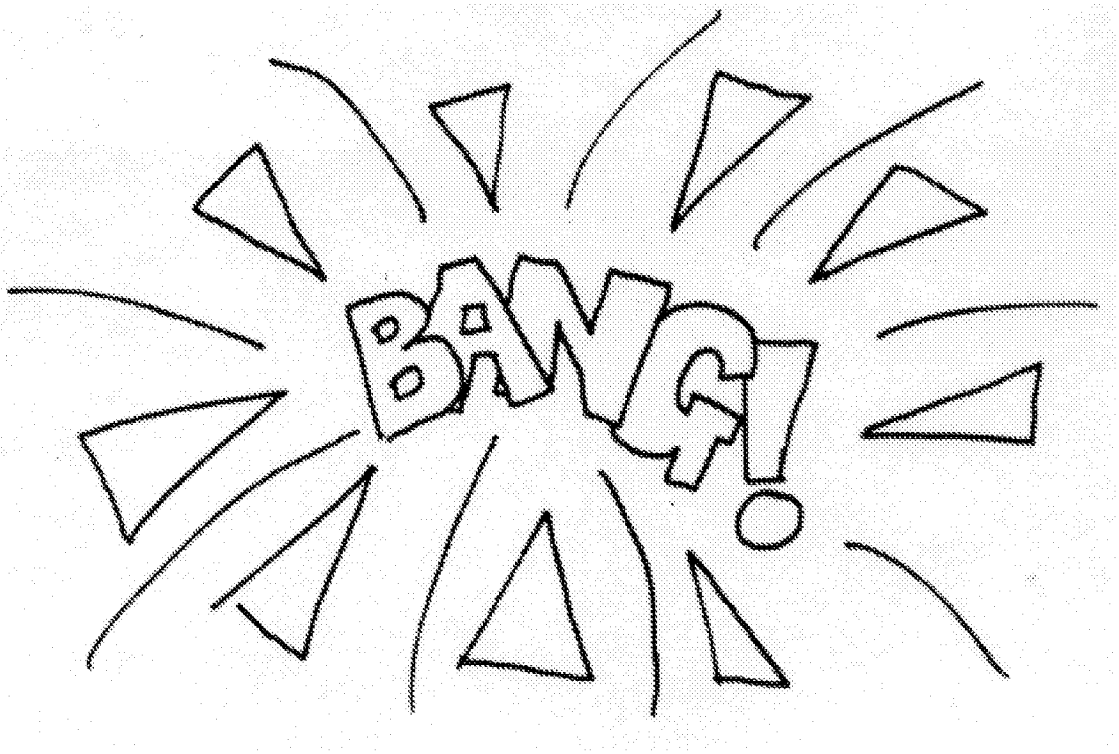
When you give baby a bath, in warm water…

How does baby react?


AT FIRST...
A BIT LATER...
Baby X
This is fun!
I love to splash!
Baby Y
A bath?
I guess this bath is okay!
Baby Z
A bath? I don't think so!
I want out now!

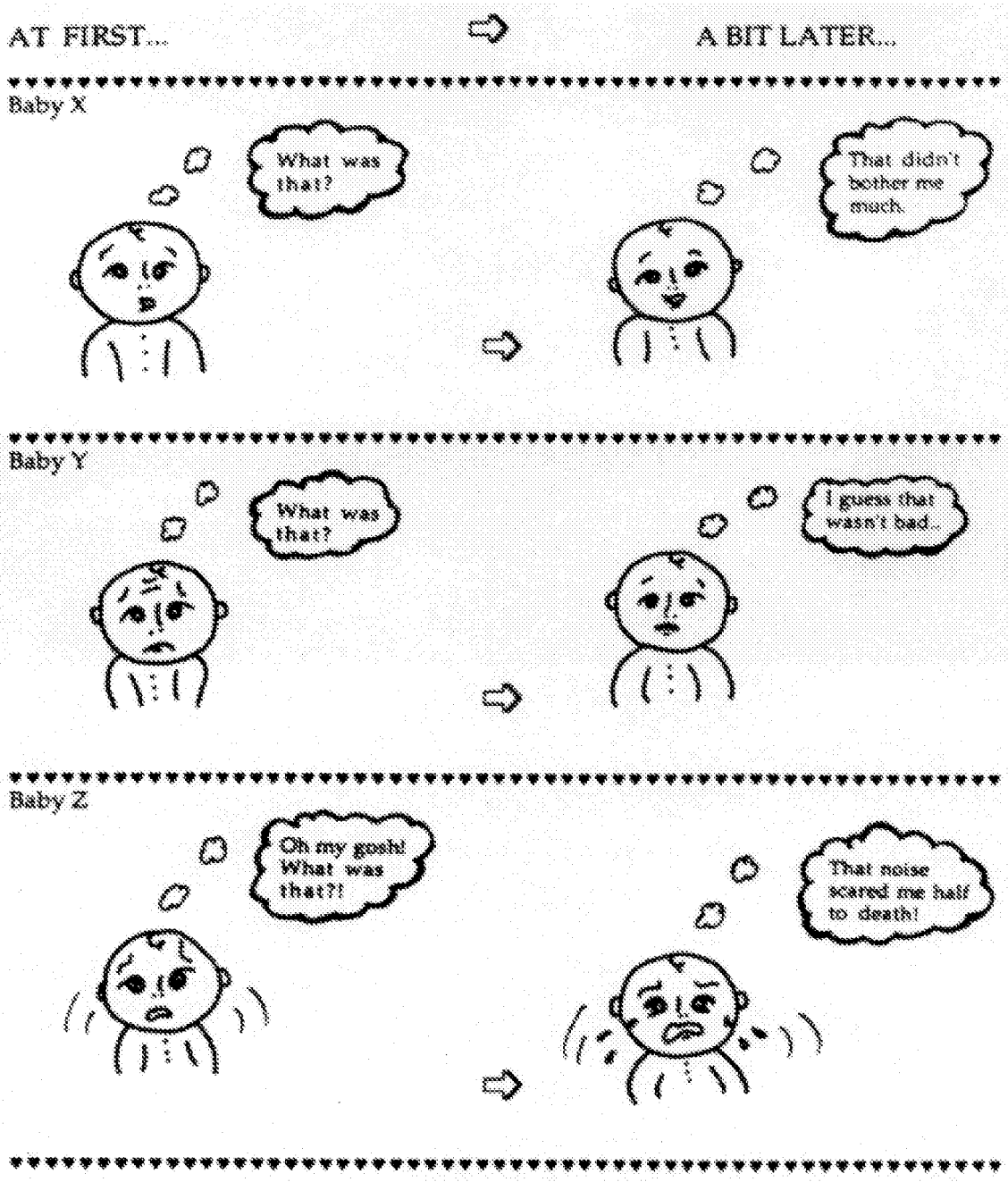
SITUATION 8:

The Big Bang



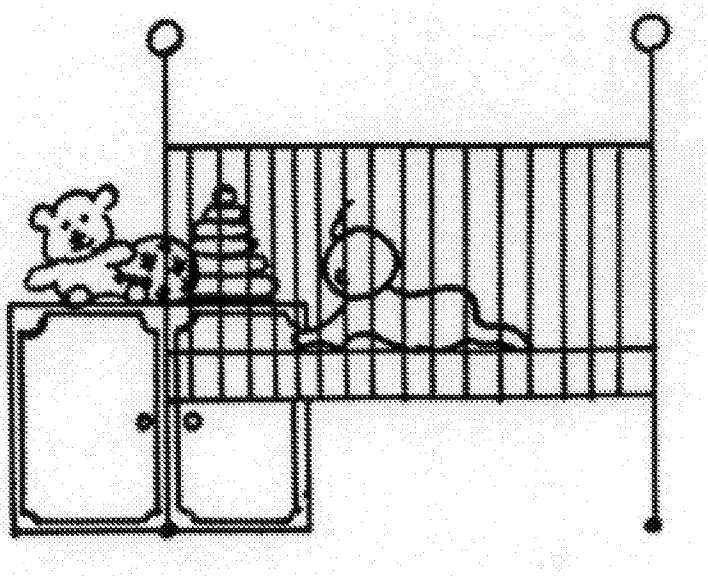
Baby hears a sudden loud noise!

How does baby react?


AT FIRST...
A BIT LATER...
Baby X
What was that?
That didn't bother me much.
Baby Y
What was that?
I guess that wasn't bad..
Baby Z
Oh my gosh! What was that?!
That noise scared me half to death!

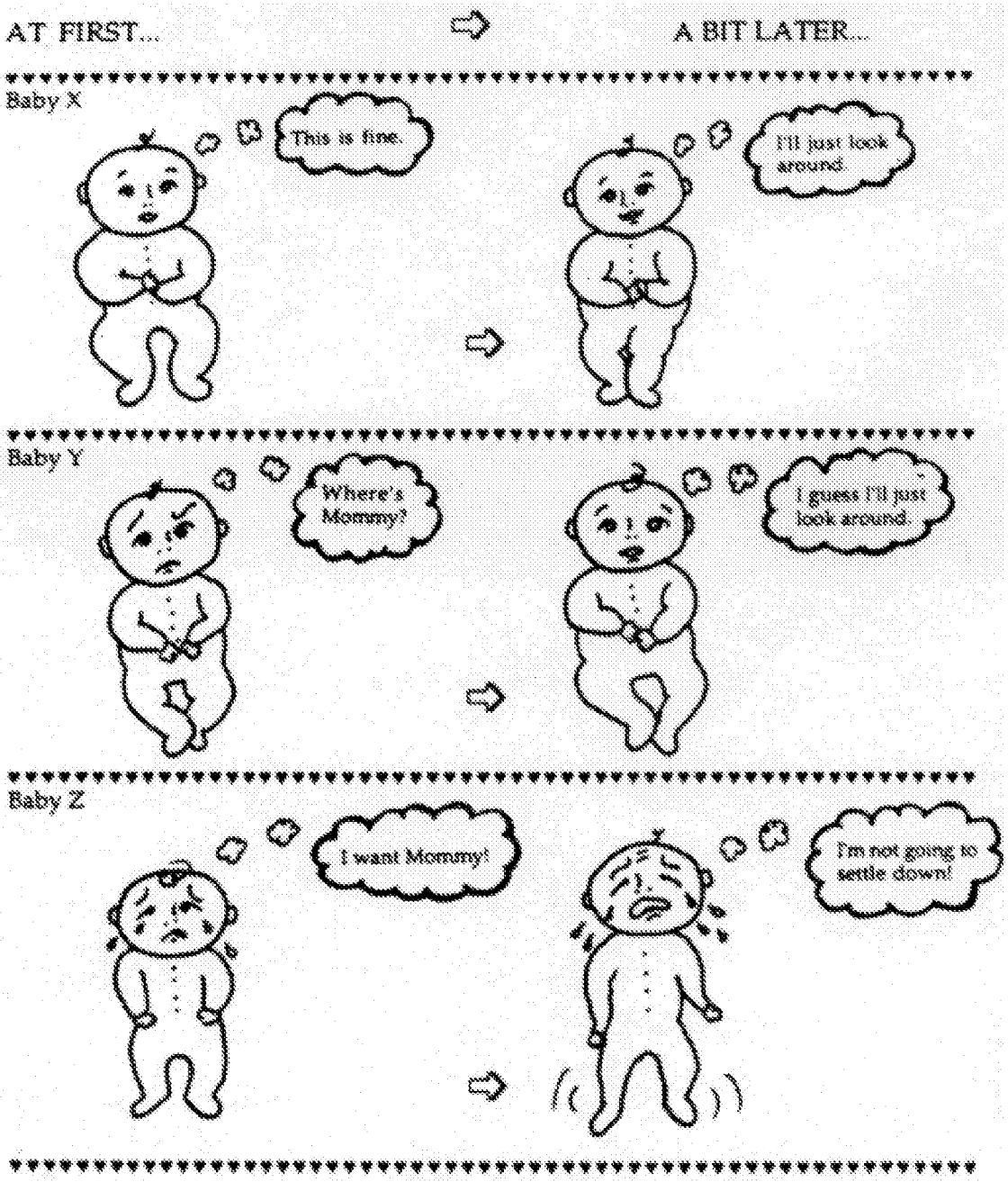
SITUATION 9:

Alone at Last



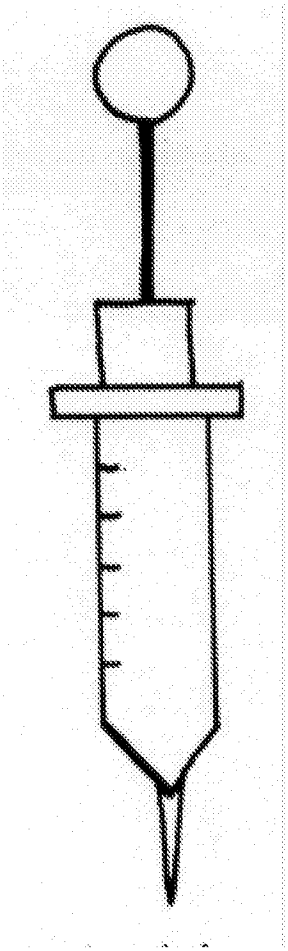
When you put baby down for a nap while
he
or she is still awake and you leave baby
alone
in the crib…

How does baby react?


AT FIRST...
A BIT LATER...
Baby X
This is fine.
I'll just look around.
Baby Y
Where's Mommy?
I guess I'll just look around.
Baby Z
I want Mommy!
I'm not going to settle down!

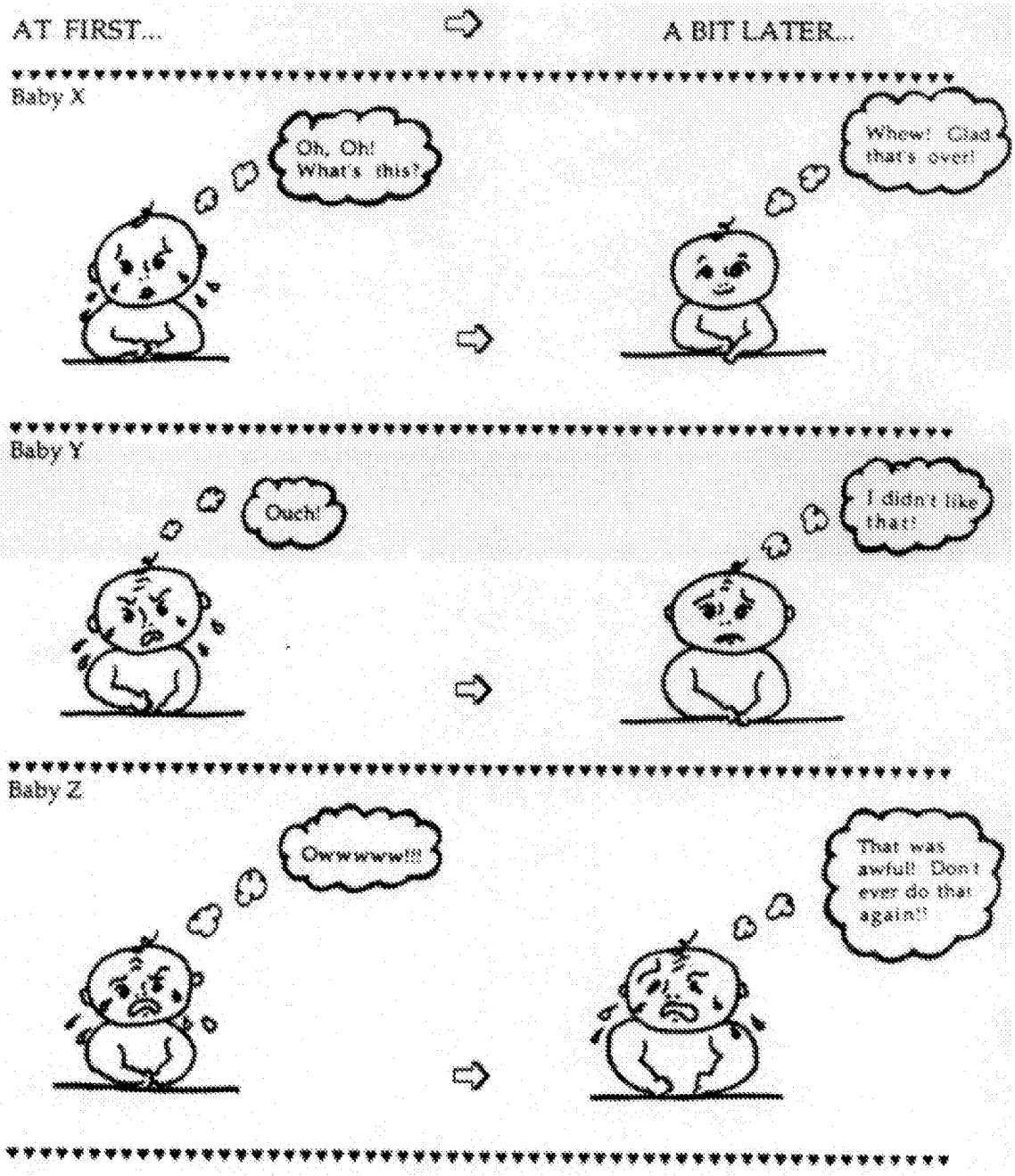
SITUATION 10:

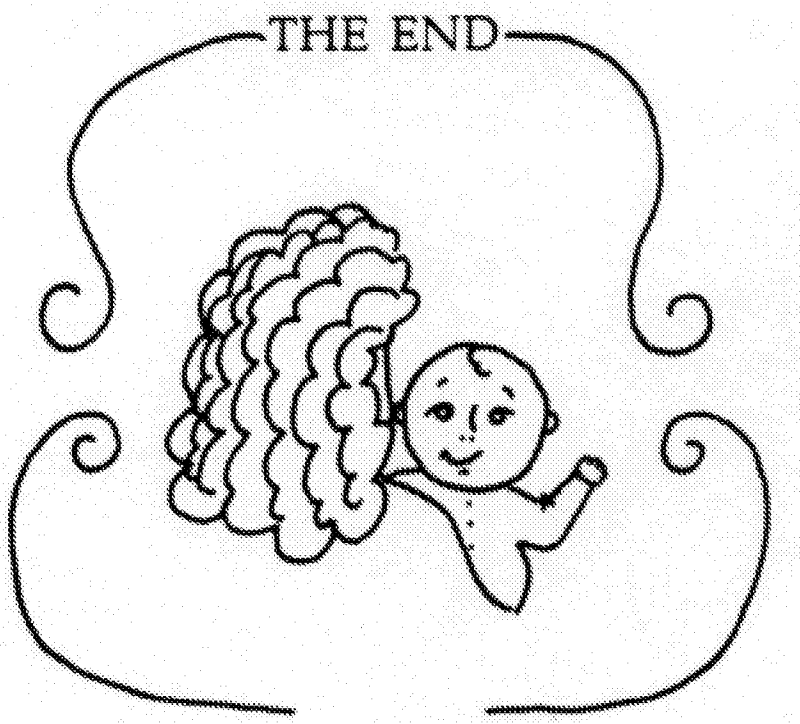
Baby has a check-up



The doctor or nurse gives baby an injection….

How does baby react?


AT FIRST...
A BIT LATER...
Baby X
Oh, Oh! What's this?
Whew! Glad that's over!
Baby Y
Ouch!
I didn't like that!
Baby Z
Owwwww!!!
That was awful! Don't ever do that again!!



Thank you for participating

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Brenda J. Baker was born on October 2, 1960, in Roanoke, Virginia, and is an American citizen.

Education:
Doctoral Candidate, Nursing, 2007-present
Virginia Commonwealth University, Richmond VA

Masters in Nursing
Emory University, Atlanta, GA, 1994

B.A., Health Care Administration
Mary Baldwin College, Staunton, VA 1988

Diploma in Nursing,
Roanoke Memorial Hospital School of Professional Nursing, Roanoke, VA 1982

Experience:
Virginia Commonwealth University Health System, Richmond VA
Nurse Clinician, Labor & Delivery, 2010- present

Virginia Commonwealth University Health System, Richmond VA
Performance Improvement Coordinator, 8/07 – 5/2010

Carilion Health System, Roanoke, VA
Nursing Practice Specialist, 1/01 – 7/07

Mission St. Joseph's Hospital, Asheville NC
Perinatal Clinical Nurse Specialist, 1/95 – 12/00

Crawford Long Hospital, Atlanta, GA
Perinatal Education Coordinator, 2/93 – 12/94

Gwinnett Women's Pavilion, Lawrenceville, GA
Staff Nurse, NICU, 10/92-2/93

Egleston Children's Hospital, Atlanta, GA
Staff Nurse, Cardiothoracic ICU, 6/92 – 2/93

Roanoke Memorial Hospital, Roanoke, VA
Staff Nurse, NICU, 6/82-9/89
Perinatal Education Coordinator, 9/89-6/92

Professional Affiliations:

Sigma Theta Tau, since 1994
AWHONN, Association of Women's Health, Obstetric and Neonatal Nurses
Western North Carolina Chapter Leader 1999-2000.
NANN, National Association of Neonatal Nurses
Southern Nursing Research Society

Licenses:
Virginia Board of Nursing, 1982-1994 and 2001-current

Authorization to Practice:
Clinical Nurse Specialist, Virginia, 2003-Current

Certifications:
Low Risk Neonatal Nursing

Publications:

Baker, B.J., Pickler, R., & McGrath, J.M. Maternal competence an integrated review of the literature. (2011) *Nursing Inquiry,* (In Review).

Baker, B. J. & McGrath, J.M., Maternal infant synchrony: An integrated review of the literature. (2011). *Neonatal, Pediatric, Child Health Nursing Journal,* (In Press).

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