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Sequential observation of infant regulated and dysregulated behavior following soothing and stimulating maternal behavior during feeding

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Abstract

Purpose—To describe maternal behaviors occurring before infant regulated or dysregulated behavior at three times in early infancy and examine behavioral patterns over time with their prematurely born infants.

Method & Design—Video-recordings of 37 dyads were coded on infant regulated and dysregulated behaviors following maternal soothing and stimulating behaviors.

Results—At each time, infants showed more regulation after maternal soothing than after maternal stimulating. Further study is merited.

Practice Implications—Knowing infant regulation and dysregulation following categories of maternal behavior could help mothers anticipate infant regulatory or dysregulatory behavior in response to their own behavior and identify supportive caregiving strategies.

Keywords

Feeding Behaviors; Lag Analysis; Sequential Analysis

Studying premature infants' responses and behaviors during feeding is an important means of understanding their capacities and limits for regulation and their vulnerability to dysregulation. Regulation is an ongoing process that manages stimulation in relation to moment-by-moment contextual demands so that successful functioning in physiologic, emotional, and behavioral domains is possible. When the demands and/or the individual's resources for successful regulation are inadequate, functioning is disrupted, and dysregulation—impaired or disrupted functioning—may be observed in physiologic, emotional, and behavioral domains (Calkins & Hill, 2007; Cole, Michel, & Teti, 1994). Regulation processes, both internal to the infant as well as those involving the caregiver, who is usually the mother, are vital in achieving or maintaining successful functioning for full term or premature infants (Beebe & Lachmann, 1988; Browne & Talmi, 2012; Karoly, 1993; Kopp, 2001; Zhou, Chen, & Main, 2012). Infant regulation of feeding encompasses physiological parameters or status, social-emotional states, motoric movements, and the quality of behavioral responses to stimulation or soothing during a task such as feeding

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(Lowman, Stone, & Cole, 2006; National Research Council and Institute of Medicine, 2000; Zhou, et al., 2012). Conversely, dysregulation for a very young infant is observed in unmanaged or ungoverned physiological parameters or status, social-emotional states, motoric movements, and the quality of behavioral responses to stimulation or soothing that is less than optimal for adaptive functioning. Understanding infant regulation and dysregulation in the context of feeding, the condition with which it is associated, and its immediate outcomes may be important for promoting infant growth and development in the short and long term, particularly for prematurely born infants who may be vulnerable to dysregulation (Clark, Woodward, Horwood, & Moor, 2008; Poehlmann, et al., 2011; Spittle, et al., 2009). Although the qualities or features of regulation and dysregulation during feeding have been described and explored in very young, prematurely born infants (Thoyre, Shaker, & Pridham, 2005), little systematic study of the ongoing, real-time contribution of maternal feeding behavior to an infant's feeding behavior indicative of regulation or dysregulation is available. The purpose of this study was to describe maternal behaviors that occur before infant regulation or dysregulation at three times in early infancy and examine the patterns over time with their prematurely born infants.

Theoretical Framework

A concept of regulation, derived from biopsychosocial literature (Cole, Martin, & Dennis, 2004; Cole, et al., 1994; Schore, 1994), provided the theoretical underpinnings for this study. In the early months of a child's life, the mother is an extension of the infant's internal regulatory system (Beebe & Lachmann, 1988; Nugent, Blanchard, & Stewart, 2007) and must establish a connection with the infant. Making this connection requires the mother to read and understand the infant's cues and then respond to the infant's needs in a sensitive and timely manner. Over time, the mother must also provide the infant with opportunities to begin the process of self-regulation (National Research Council and Institute of Medicine, 2000). For example, when the infant is crying the mother may bring the infant's hands closer to his mouth so the infant can suck on his fingers in an effort to regulate (Lowman, et al., 2006). As the infant matures and develops capacities for regulation, including the capacity to wait or to tolerate frustration, the mother could give the infant the opportunity to attempt self-soothing behavior before intervening. Over time the infant learns to find his fingers on his own and self-regulate.

During feeding at approximately 38 weeks postmenstrual age (PMA), infants are capable of regulating sucking, swallowing, and breathing in a coordinated manner (Bu'Lock, Wooldridge, & Baum, 1990). Postmenstrual age is the gestational age in weeks plus the age after preterm birth up to term age (Blackmon, et al., 2004). Between sucks, or during sucking pauses, very young infants are capable of very brief periods of social interaction including gazing at mother, a form of regulated behavior (Lavelli & Fogel, 2005). When premature infants' capacities for regulating sucking, swallowing, and breathing are exceeded, dysregulation is likely to be observed in signs of physiologic instability and dysfunctional motoric behavior. Through the dysregulated period, an infant expends energy needed for growth and socio-emotional development (McGrath & Braescu, 2004), and potentially develops dysfunctional processes of managing tasks or challenges such as those occurring during feeding (Thoyre, et al., 2005).

The primary aim of this study was to describe infant regulated or dysregulated behavior that followed within 3 seconds of each of the two maternal types of behavior. Maternal behaviors selected for study included soothing and its contrasting behavior stimulating. A second aim was to explore the sequence of maternal behavior and infant regulation or dysregulation behavior that followed at three times--just before hospital discharge from the special care unit and at 1 and 4 months corrected age. Corrected age is the chronological age in weeks

minus the number of weeks the infant was born before term (Blackmon, et al., 2004). Longitudinal study of the relationships among variables is important due to expected developmental maturation of the infant. A baseline assessment was done in the hospital just prior to the mother's full assumption of care. By 1-month corrected age, the mother will have had a chance to get to know her infant at home. At 4-months corrected age infants are often participating in the feeding in some way. This period allows an opportunity to observe the contribution of maternal soothing or stimulating behavior to infant regulation or dysregulation behavior from just before the mother assumes full responsibility of care to just before some of the responsibility of feeding is likely to be shifting to the infant.

Methods

This short-term longitudinal study was a secondary analysis of previously collected observational data. The original study examined the effect of maternal feeding behavior on premature infants' physiologic regulation during feeding and its development over the infant's first four post-term months (Brown, 2007). Human subjects approval was received from the academic center and participating hospital institutional review boards for the study protocol and consent form prior to initiation of the study.

Participants

The sample was recruited from an urban and suburban community in the Midwest. The sample consisted of 37 mother-premature infant dyads seen at three times in early infancy. All mothers were at least 17 years of age or older and able to speak and read English. Premature infants were between 24–35 weeks gestational age at birth, appropriate weight for gestational age, and with no major congenital malformation or known drug exposure. Both breast and bottle-fed infants were included. Thirty-five percent of mothers breastfed but no one was exclusively breastfeeding.

Procedures

Mothers were recruited to the study in the hospital when their infants were over 32 weeks PMA. Once recruited, mothers signed the consent form and demographic data were collected. The primary investigator and a research assistant (RA) were present for all data collection visits. The following procedure was used for all visits, that took place at a date and time convenient for the mother. Visits were scheduled to include an infant feeding at a time when the mother expected it to occur. The first visit took place in the hospital right before discharge and the last two, at 1 and 4 months corrected age, took place in the infant's home. In the hospital and at home the mothers decided the location of the feeding. In the Neonatal Intensive Care Unit (NICU), about half of the mothers decided to feed in a private room set up for a family's feeding comfort and the other half decided to feed in the unit at the infant's bedside with privacy screens in place. Four fathers were present during the first data collection visit. Children were not allowed in the NICU so siblings were not present. At home about 90% of mothers fed in the living or family room and about 10% fed in the infant's room. Fathers were not present in the room during the home visits. Of the 17 multiparas 12 provided activities for their other children during the feeding and the RA was available to play with the others. Mothers were informed that the researcher and RA would not talk with her during the feeding and that she should feed as she usually would. The mother and infant were video recorded during the entire feeding interaction. After the feeding mothers were thanked for their participation and given a small monetary token of appreciation.

Variables and Measures

The Mother-Infant Feeding Tool (MIFT; Brown, Thoyre, Pridham, & Schubert, 2009) was used to code infant and maternal behaviors from the video-taped feeding interaction. This instrument is designed for real-time, micro-analytic coding of interactive behavior of a caregiver and infant during feeding. Categories of MIFT behaviors were selected for inclusion in this study because they were, for the infant, theoretically indicative of regulated or dysregulated behavior. For the mother, selected categories were theoretically supportive of infant regulation or likely to increase the possibility of infant dysregulation. The classes of infant behaviors for both regulation and dysregulation included the following (a) social-emotional, (b) behavioral, (c) physiological, and (d) motoric. For mothers, the classes of behaviors coded included soothing and stimulating behavior. The categories coded in each class are shown in Table 1 and Table 2. The instrument, its structure, classes and categories of behaviors within classes, and application to parent and infant feeding interaction are described in detail in a report of the earlier study (Brown, et al., 2009). Categories of infant behavior observed when an infant is learning to nipple feed were derived from literature focused on regulation in respect to competent functioning (Bronson, 2000; Kopp, 2001) and from studies of developmental care (Als, Lester, & Brazelton, 1979; Grenier, Bigsby, Vergara, & Lester, 2003; Lowman, et al., 2006; McGrath & Braescu, 2004; Peters, 2001).

The maternal behaviors were chosen because they were identified in the literature as important to infant regulation. These behaviors encompass social-emotional and task related behaviors that are likely to be observed during the feeding of a young infant, including a preterm infant (Pridham, Steward, Thoyre, Brown, & Brown, 2007; Thoyre, 2003; Thoyre, et al., 2005). These behaviors are also based on concepts of developmental care (Als, 1999; Als, et al., 2003; Starr & Hoyer, 1998). Further, these concepts have been applied in other studies and refer to behaviors that could help infants become regulated or maintain regulation (Becker, Grunwald, & Brazy, 1999; Sizun, Ansquer, Browne, Tordjman, & Morin, 2002; Starr & Hoyer, 1998). Two coders trained in application of the MIFT participated in coding. One coder coded all of the videotapes. The second coder coded a randomly selected 20% of the videotapes. Reliability was measured using Cohen's Kappa, an agreement score that corrects for chance.

Analysis

Mother and infant behaviors were coded using Observer XT 10 (Noldus Information Technology Inc., Leesburg, VA). The use of this system, which permits coding of behaviors in real time and with duration, has been previously reported in detail (Brown, et al., 2009). Data collected with the Observer XT10 was transformed to a format suitable for sequential analysis. For this transformation the Observer to Sequential (OTS) data program was used. This program created a sequential data interchange standard (SDIS) file. The SDIS is a standard format for analysis of sequential data (Bakeman & Quera, 2000). The SDIS file is compatible with the General Sequential Querier (GSEQ) program. This program allowed us to combine behaviors to develop new categories and to reduce the data (Bakeman & Quera, 2000, 2008, 2011). For example we used the GSEQ program to combine supportive talk, not talking, not moving, gentle touching, rooting, feeding without tongue and/or cheek support and supportive to create maternal soothing. See Tables 1 and 2 for combined behaviors. We then applied the GSEQ (Bakeman & Quera, 1995) to calculate the transitional probability of one behavior preceding another. Transitional probability is the probability of transitioning from one behavior (e.g. mother behavior) to another behavior (e.g. infant behavior) in a single step. By definition the transitional probability of successive mother/infant behaviors XY is:

$$\text{Probability of } Y|X = \frac{\text{Frequency of } XY}{\text{Frequency of } X}$$

For this study we assessed the transitional probability of maternal soothing and maternal stimulating behavior, preceding infant regulation or infant dysregulation. We used a General Linear Mixed Model (GLMM) framework to explore changes in infant regulation, and infant dysregulation as a function of maternal stimulating, and maternal soothing behaviors, across time while accounting for correlations between repeated measurements from each subject. GLMM has been used for the assessment of change in repeated measurements because this method encompasses a broad range of data situations including missing observations, continuous explanatory variables, and time-dependent explanatory variables (Bijleveld & van der Kamp, 1998). The GLMM was fit for using exchangeable correlation structure. In this analysis, maternal behavior, time period and the interaction of maternal behavior with time were entered into the GLMM. The difference between categories of maternal behaviors for infant regulation and infant dysregulation were tested for significance. A post-hoc contrast analysis was used to explore the pattern of change over time for maternal behaviors that occur just prior to infant regulation and infant dysregulation.

Results

Sample Characteristics

The mothers who participated in the study were relatively homogenous in race/ethnicity and income. Seventy-two percent of the mothers were Caucasian, 67% were married, and 49% had a family income of \$55,000 or more a year. Forty-nine percent of the infants were male, and 59% weighed 1800 grams or less at birth. The average age of mothers at entry to the study was 29 years ($SD = 6.90$), the average gestational age at birth for infants was 30 weeks ($SD = 3.10$), and the average infant weight at birth was 1591 grams ($SD = 604$).

Descriptive Analysis of Behavioral Categories

Cohen's Kappa values for infant regulated and dysregulated behaviors ranged from $-.82$ to $-.87$, indicating good agreement to strong agreement (Banerjee, Capozzoli, McSweeney, & Sinha, 1999; Fleiss, Levin, & Paik, 2003; Thomsen, Olsen, & Nielsen, 2002). Cohen's Kappa values for mother soothing and stimulating behaviors ranged from $.79$ to $.96$ indicating good to strong agreement (Fleiss, et al., 2003; Thomsen, et al., 2002).

Behaviors included in the analysis and their mean frequency of occurrence and the percent of feeding time are shown in Table 3. The amount of time infants were described by regulated behaviors increased over time and the amount of time infants spent being dysregulated decreased over time. The amount of time mothers spent applying soothing behaviors decreased over time.

Sequential Analysis

In this analysis we used the behavior that immediately preceded the target (infant) behavior as the criterion (maternal) behavior. In other words, we started with infant regulated or infant dysregulated (target) behavior and examined what categories of maternal (criterion) behaviors immediately preceded it. All transitional probabilities are reported as a percentage.

Infant regulation as target—The average transitional probabilities for the event of infant regulated behavior given mother soothing behavior at Times 1–3 were: 4.2%; 4.0%; and

4.3% respectively. The average transitional probabilities for the event of infant regulated behavior given mother stimulating behavior at Times 1–3 were: 1.8%; 2.5%; and 2.6% respectively. Figure 1 depicts the raw transition probability of the infant transitioning to regulated behavior for each maternal criterion behavior. Overall the transitional probability for infant regulation was significantly different across mother behaviors ($F = 15.59$, $df = 1,232$, $p < .001$), but not across time ($F = 0.34$, $df = 2,232$, $p = .71$), with no behavior by time interaction discovered ($F = 0.37$, $df = 2,232$, $p = .69$). Overall, across the three time periods, mothers who soothed had a significantly higher transitional probability of their infant transitioning to regulated behavior than mothers who stimulated. Table 4 depicts the fixed effects for infant regulated behavior.

Infant dysregulation as target—The average transitional probabilities for the event of infant dysregulated behavior given mother soothing behavior at Times 1–3 were: 3.3%; 2.5%; and 1.6% respectively. The average transitional probabilities for infant dysregulated behavior given mother stimulating behavior at Times 1–3 were: 1.8%; 1.3%; and 1.8% respectively. Figure 2 depicts the raw transitional probability of the infant transitioning to dysregulated behavior for each maternal criterion behavior. Again, the highest transitional probability to infant dysregulation was discovered for mothers who soothe. The transitional probability for infant dysregulation was significantly different across mother's behavior ($F = 4.02$, $df = 1,232$, $p < .05$), but not across time ($F = 1.87$, $df = 2,232$, $p = .16$). No behavior by time interaction was discovered ($F = 1.68$, $df = 2,232$, $p = .19$). Overall, mothers who soothed had significantly higher probability of their infants transitioning to dysregulation than mothers who stimulated, especially at the first time period. At Time 3, however, mothers were similar (converged). Table 5 depicts the fixed effects for infant dysregulated behavior.

Discussion

The concept of regulation provided the theoretical underpinning for this study. We sought to describe maternal behaviors that occur prior to infant regulated and infant dysregulated behaviors at three times in early infancy, for prematurely born infants. These times were just before hospital discharge and at 1 and 4 months PMA. We also examined patterns in the sequential relationship of mother and infant behavior through the infant's first 4 months, age corrected for prematurity. This study contributed new information about the sequential relationship of infant regulated and dysregulated behaviors to maternal soothing and stimulating behaviors and changes in that relationship over time. We found across all three time periods that mothers who soothed had a higher probability of their infants transitioning to a regulated behavior than mothers who stimulated. Mothers who soothed also had a higher probability of their infants transitioning to dysregulated behaviors at Time 1 and Time 2 than mothers who stimulated. The unexpected results of the maternal soothing being dysregulating at Times 1 and 2 could be the result of having behaviors that are soothing under one condition of dysregulation but mildly stimulating in another dysregulated condition. For example, gently stroking the baby could be soothing to an infant who is emotionally dysregulated but mildly stimulating to an infant whose dysregulation is evidenced in muscle tone. It could also be the result of the infant's previous condition of regulation or dysregulation. If the infant was already dysregulated, the soothing the mother provided may not have been effective in correcting the dysregulation.

The probabilities in our study were small. The reason for the small probabilities could be two-fold. First, we were only interested in certain maternal behaviors that preceded infant regulation or dysregulation behavior. We did not examine the transitional probability of infant regulation or dysregulation behavior affecting the next infant behavior, either regulated or dysregulated in classification. Second, we only used meaningful codes in the

analysis, resulting in the exclusion of the undeterminable codes. It is possible the excluded codes preceded infant regulation or dysregulation.

Our sequential analysis only went back one event from the infant behavior to the maternal behavior. It is possible that the effect of a mother's behavior on her infant's behavior is not immediate. Considering the immaturity of the infant's neuromotor system and limitations in the speed with which information may be processed, exploring more than one lag should be considered.

Another limitation of the study involves a relatively homogenous sample. For the most part, the mothers were Caucasian, married, and middle class. The extent to which the patterns of mother-infant interactions observed in this study may be generalized to mothers and infants from other sociocultural groups cannot be assumed.

Consideration of the present findings as well as the limitations suggests several important avenues for further research. The small probabilities in this study suggest the need to explore infant variables as antecedents to infant dysregulated behavior and the need to examine two or three lags from maternal behavior to infant behavior and infant behavior to maternal behavior. The unexpected results of the maternal soothing being dysregulating at Time 1 and Time 2 suggest the need to unpack regulation and dysregulation behaviors, perhaps examining all four categories of regulated behavior (social-emotional, motoric, behavioral, and physiological) and categories of dysregulated behavior in the analysis. It also suggests the need to examine the infant's condition of regulation or dysregulation behavior prior to the lagged behavior to see if it makes a difference on the effect of the mother's behavior on the infant's behavior. How the mother's age, and education, and the degree of the infant's prematurity and medical status affect the sequential relationship of maternal and infant behavior are questions for further study. More study is needed of the sequential relationship of maternal and infant behavior within specific infant ages, across time, and in different contexts of living.

How Do I Apply This Evidence to Nursing Practice?

Regulation at its earliest stages may be linked to the internal and transactional processes that enable a child to guide goal-directed activity, including feeding and social-emotional behavior observed in interpersonal interaction (Karoly, 1993). Processes that affect regulated behaviors including responses of a caregiver/mother to infant dysregulation, may develop persisting patterns of behavior, emotion, and cognition that shape a child's experience of life events, efficacy for handling challenge, and tendencies to externalize or internalize problems (Karoly, 1993; Zhou, et al., 2012; Zhou, et al., 2008). Mothers, if aware of their infants' signals or conditions of emotional, behavioral, and physiological regulation or dysregulation, and of the contribution of their own behavior to their infants' condition, could potentially take preventive or corrective action. However, mothers may not be knowledgeable observers of their infants' behavior. If dysregulated behavior is observed, mothers may not know how to respond. Nurses with knowledge of patterns of infant behavior following different types of maternal behavior during feeding could help the mother anticipate the infant's response and identify caregiving strategies that provide support for infant regulation. This paper is a beginning step in understanding mother-infant interaction during feeding in respect to the sequence of maternal and infant behaviors that may be associated with infant regulated or dysregulated behavior.

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Figure 1.
Transitional Probability for Infant Regulation

Figure 2.
Transitional Probability for Infant Dysregulation

Table 1**Infant Categories of Regulation and Dysregulation**

Regulation	
Regulated behavior	infant feeding smoothly; not pulling away from bottle or mother; turns to bottle, opens mouth with tongue down
Regulated motor	partially contracted state of the limbs, flexion, midline positioning; actively sucking and swallowing; formula cannot be seen escaping from infant's mouth
Regulated emotions	infant's face is relaxed
Regulated physiology	pink with patterned breathing
Sucking/not sucking	
Not dribbling	
Dysregulation	
Dysregulated behavior	a change in behavior including averting, pulling/turning away/resisting, body language, including closed/fisted hands in the context of signs of disorganization; has the quality of the infant attempting to protect him/herself;
Dysregulated motor	hypotonic or hypertonic muscle tone; tremors; flailing; startle; finger splaying; coughing or choking; formula is seen escaping from infant's mouth
Dysregulated emotions	facial expressions, including raised eyebrows, frowning, grimacing, crying
Dysregulated physiology	dysregulated breathing; Includes signs of non-homeostatic autonomic functioning, including pallor, grunting; or use of accessory muscles for breathing

Table 2**Maternal Categories of Soothing and Stimulating**

Soothing	
Supportive Talk	Mother praises infant or encourages infant in a high pitched voice which has a sing-song quality.
Not Talking	The mother is quiet
No movement	The mother is still
Gentle touching	The mother gently caresses, kisses, rubs or pats the infant
Rooting	The mother touches or strokes the infant's lips or cheeks with the nipple or the tip of her finger
Feeding without tongue and/or cheek support	The mother does not use her fingers to apply pressure under the infant's chin or cheeks during sucking
Supportive	The mother supports the infant in an optimal position for feeding. In this position the infant can bring hands to midline, has chin tucked, and neck is in a neutral position for optimal sucking, swallowing, and breathing. The mother also makes sure the lighting, sound, and temperature are conducive for feeding.
Stimulating	
Talking	The mother talks to either the baby or to another person in her typical voice. The mother talks to the baby or to another person with a harsh tone. There may be a sharpness, anger, or annoyance in the voice.
Rocking	The mother moves infant up and down or sways back and forth
Rough Touching	The mother's touch has a forceful, erratic, or aggressive quality.
Jiggling the bottle or breast	The mother shakes or twists the bottle while it is still in the infant's mouth
Pushing/pulling the bottle or breast	The mother shoves or prods to get the nipple in the infant's mouth or she jerks or yanks to get the nipple out of the infant's mouth
Providing tongue and /or cheek support	The mother applies pressure to the infant's cheeks and under the infant's chin
Not supporting	The mother does not hold the infant in a position conducive to feeding (e.g. hyper- or hypo extension of the neck) or not providing an environment conducive to feeding (e.g. bright or noisy)

Table 3

Means and Standard Deviations for the Frequencies of Mother and Infant Behavior Categories at Three Times

Behavior Category	Mean (Standard Deviation)			Percent of Feeding Time		
	Time1	Time 2	Time 3	Time 1	Time 2	Time3
Maternal Stimulating	6(55)	5(29)	6(27)	37	31	78
Maternal Soothing	66(234)	63(231)	59(200)	63	69	22
Infant Dysregulation	18(110)	9(30)	7(12)	43	24	14
Infant Regulation	74(204)	62(191)	54(149)	57	76	86

Time 1: Right before hospital discharge infants were between 34–38 weeks PMA

Time 2: Infants were 1 month corrected age

Time 3: Infants were 4 months corrected age

Table 4

Solution for Fixed Effects for Infant Dysregulated Behavior

Effect	Estimate	Standard Error	<i>p</i> -value	Lower 95% CI	Upper 95% CI
Intercept	1.55	0.50	.002	0.56	2.54
Time period 1	1.74	0.68	.01	0.38	3.10
Time period 2	0.91	0.71	.19	−0.48	2.31
Maternal Behavior Stimulating (MBSTIM)	0.25	0.71	.74	−1.17	1.62
Time period 1 by MBSTIM	−1.70	0.97	.08	−3.62	0.21
Time period 2 by MBSTIM	−1.39	1.00	.16	−3.37	0.58

Note: Maternal Behavior Soothing was not observed in any of the 3 time periods and therefore could not be included in this table. Mother Behavior Stimulating was not observed in Time period 3.

Table 5

Solution for Fixed effects for Infant Regulated behavior

Effect	Estimate	Standard Error	<i>p</i> -value	Lower 95% CI	Upper 95% CI
Intercept	4.34	0.59	<.001	3.16	5.52
Time period 1	−0.14	0.82	.86	−1.76	1.48
Time period 2	−0.36	0.84	.66	−2.03	1.30
Maternal Behavior Stimulating (MBSTIM)	−1.76	0.84	.03	−3.43	−0.09
Time period 1 by MBSTIM	−0.68	1.16	.55	−2.97	1.61
Time period 2 by MBSTIM	0.29	1.19	.80	−2.06	2.65

Note: Maternal Behavior Soothing was not observed in any of the 3 time periods and therefore could not be included in this table. Mother Behavior Stimulating was not observed in Time period 3.