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THE ROLE OF PRENATAL EMPOWERMENT IN PREDICTING
PARENT AND INFANT OUTCOMES AMONG WORKING WOMEN

by

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A THESIS

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THE ROLE OF PRENATAL EMPOWERMENT IN PREDICTING
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University of Nebraska, 2019

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The current study examined the relationship between women's prenatal empowerment and children's social-emotional competence. A longitudinal study was conducted in Nebraska that included ($N = 38$) working women and their infants. Mothers' prenatal empowerment and infants' social-emotional competence, parental stress, parent-child relationship, and mothers' knowledge of infant development were measured. Results from the current study did not support a direct association between mothers' prenatal empowerment and infants' social-emotional competence. However, mothers' prenatal empowerment and infant's social-emotional competence were both significantly related to parental stress. These findings indicate that prenatal empowerment may be indirectly associated with infants' social-emotional development.

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CHAPTER 1

INTRODUCTION

Children's positive social-emotional development provides a base for their lifelong learning, relates to their later school success, and prevents future social and behavioral difficulties (Head Start Bureau, 2010). An important aspect of children's social-emotional development is social-emotional learning. Social-emotional learning refers to the knowledge and skills needed for children to recognize and regulate feelings to successfully interact with others (Epstein, 2009). Social-emotional learning includes four components: (1) emotional self-regulation and self-awareness, (2) social knowledge and understanding, (3) social skills, and (4) social dispositions (Epstein, 2009). These components involve the processes of becoming aware of and managing emotions, effectively communicating one's emotions, and being able to understand the emotions of others. Social-emotional learning begins developing in infancy and is importantly influenced by the quality of caregiving that an infant receives. In this section, I will briefly present research findings on the link between the quality of mother-infant relationships and children's social-emotional outcomes and then discuss how maternal empowerment may be another important but understudied construct associated with the quality of mother-infant relationships and children's social-emotional outcomes.

Quality of Mother-Infant Relationships

The quality of mother-infant relationships and interactions are positively associated with infants' social-emotional outcomes (Martí, Bonillo, Jané, Fisher, & Duch, 2016). High-quality mother-child relationships are characterized by responsiveness,

acceptance, warmth, closeness, and sensitivity. Each of these qualities, while highly related, contributes uniquely to children's social-emotional development.

As an example, mothers who consistently displayed responsive behaviors (e.g., maintaining contingent responses, attention redirecting, verbal scaffolding, labeling on object, and providing verbal encouragement) were more likely to support their children's social-cognitive development (e.g., communication, personal-social and problem-solving outcomes) than those who did not during toddlerhood (Baumrind, 1989; Cha, 2017). Such responsive parenting behaviors are positively associated with an infants' social cooperation and early communication skills (Landry, Smith, & Swank, 2006). For example, when mothers followed their infants' cues, infants were observed to be more responsive and engaged (e.g., making eye contact and babbling), which was positively related to children's later language development (Landry et al., 2006). Positive interactions and relationships were also predictive of children's ability to regulate their emotions. In one study, mothers' use of smiling, laughing, and having a positive tone of voice during free play with their five-month infants was positively associated with their infant's attention behavior at 10 months (Swingler, Perry, Calkins, & Bell, 2017). In addition, parental acceptance is demonstrated when parents regularly express their love, warmth, and understanding verbally and physically to their children (Rohner, 2004). In contrast, maternal avoidance and anxiety (e.g., negative engagement, intrusiveness, being withdrawn, etc.) was negatively associated with infant language and cognitive development (Reck et al., 2018).

Warm parenting has been positively associated with young children's social-emotional outcomes. In particular, maternal closeness was positively associated with

preschoolers' social-emotional competence and negatively associated with preschoolers' externalizing behaviors (Martí et al., 2016). For example, infants at two months of age who experienced positive emotions for an extended period with their mothers (e.g., warmth, acceptance, responsiveness, non-demanding behavior, and sensitivity) exhibited fewer internalizing and externalizing behaviors when they were two years old (Mäntymaa et al., 2015). Another aspect of positive parenting is maternal sensitivity, which refers to mothers' abilities to recognize their infant's cues and respond to them accurately and appropriately (Bigelow et al., 2010). In one study, maternal sensitivity was significantly and positively related to infants' social behavior (e.g., smiling and visual contact) at three and 12 months (Kivijärvi, Voeten, Niemelä, Räihä, Lertola, & Piha, 2001).

In summary, a significant body of literature supports the important link between the quality of mother-infant relationships and young children's social-emotional competence. An area less explored in research, however, is how maternal characteristics and her developing view of her child during pregnancy might predict the quality of mother-infant relationships and in turn infants' social-emotional development. While there is limited literature, the construct of maternal empowerment may contribute to understanding the quality of mother-infant relationships and its association with children's social-emotional outcomes during early childhood. During pregnancy, maternal empowerment is reflected by how mothers perceive pregnancy and how they seek and receive resources and support. Higher-level maternal empowerment exhibited during pregnancy may lead to higher-level perceived support and positive attitudes toward parenthood after the infant is born. In the following section, I will examine key components of maternal empowerment and how they are associated with the quality of

mother-infant relationships and infants' social-emotional competence. I will also discuss two additional constructs (i.e., maternal stress, knowledge of infant development) that may be associated with maternal empowerment and its association with the quality of mother-child relationships.

Maternal Empowerment

Empowerment is defined as an ongoing process through which individuals or groups build their capacity to effectively analyze, adapt to, and perceive greater control over their environments (Kameda & Shimada, 2008; Page & Czuba, 1999; Portela & Santarelli, 2003). Empowerment can be interpreted in sociological, psychological, economic, and various other dimensions (Page & Czuba, 1999). For example, in the field of maternal and child health care, empowerment is used to explain women's perceived capability of seeking out resources and supports to get quality health care (Holmström & Röing, 2010). In the field of human development, empowerment has been considered a mechanism of maintaining and enhancing family well-being. For instance, Zimmerman (2000) found that parents who experienced higher levels of empowerment felt more confident in making decisions that, in turn, positively influenced their families. Parents with high levels of empowerment found it easier to identify available social support and resources that their children could use. On the other hand, parents with lower levels of empowerment felt that they had less control over their lives and were not confident to make health- and child care-related decisions by themselves (Vuorenmaa, Perälä, Halme, Kaunonen, & Åstedt-Kurki, 2016).

Maternal empowerment during pregnancy (i.e., prenatal empowerment) may be particularly important for the quality of later infant care and the infant's developmental

outcomes. Prenatal empowerment is the process through which pregnant women seek to increase knowledge of health care and child care, receive social support, and gain confidence and capacity to handle pregnancy and delivery (Kameda & Shimada, 2008). Components of empowerment specifically associated with pregnancy include self-efficacy, self-esteem, perceived social support, and attitudes toward parenthood (Kameda & Shimada, 2008; Klima, Vonderheid, Norr, & Park, 2015). In the following section, each component of prenatal empowerment is discussed as it relates to parenting and child behaviors.

Components of Prenatal Empowerment

Beliefs about self. General self-esteem is the reflection of an individual's competence and worth in general. Self-esteem is one's overall evaluation of his or her self-worth (Farrow & Blissett, 2007; Teti & Gelfand, 1991). Maternal self-esteem is a type of parental cognition that reflects a mother's perceived competence and worth in parenting (Chen & Conrad, 2001). It includes the mothers' evaluation of their caretaking ability and preparation for motherhood, their acceptance of their babies, their expectations of the relationship with the baby, and their feelings about pregnancy (Shea & Tronick, 1988). Maternal self-esteem was associated with mothers' parenting behaviors and children's social-emotional outcomes (Denis, Ponsin, & Callahan, 2012; Finken & Amato, 1993). Mothers with lower maternal self-esteem evaluated themselves as inadequate or unsuccessful mothers. They often reported that they were unable to resolve parenting-related difficulties (Denis et al., 2012). Moreover, children's behavioral problems were negatively associated with higher levels of maternal self-esteem (Finken & Amato, 1993).

Self-efficacy refers to the cognitions that an individual has regarding their abilities. It consists of beliefs for how well an individual can successfully enact strategies, overcome challenges, and achieve goals (Bandura, 2012). Parenting self-efficacy refers to a parent's perceptions of their abilities to address the challenges of entering parenthood (Troutman, Moran, Arndt, Johnson, & Chmielewski, 2012) and is associated with infant temperament and the overall stress level perceived by parents. Mothers who reported higher-level parenting self-efficacy also reported fewer negative behaviors and higher-level soothability in their infant. On the other hand, infants' higher-level negative reactivity and lower-level soothability reported by mothers were significantly associated with lower-level parenting self-efficacy (Verhage, Oosterman, & Schuengel, 2013).

The previous study also examined the relationship among maternal self-efficacy, mothers' knowledge of infant development and the quality of mother-infant interactions. Mothers who had higher levels of self-efficacy and more knowledge of infant development provided more positive physical contact, visual contact, and greater responsiveness to children's negative behaviors (Hess, Teti, & Hussey-Gardner, 2004). In addition, self-efficacy and mental health during pregnancy and postpartum were significantly related to each other. For example, in one study, women who had higher-level prenatal self-efficacy had lower-level postpartum anxiety and depression, and fewer mood symptoms (Kunseler, Willemen, Oosterman & Schuengel, 2014).

Beliefs about social support. During pregnancy, there may be many emotional and physical changes, and social support can be particularly important (Gul, Riaz, Batool, Yasmin, & Riaz, 2018). However, women need to believe that social supports are available. Receiving social support during pregnancy from close friends and

spouse/partner can be important for enhancing later maternal self-efficacy and maternal sensitivity (Kivijärvi, Rähä, Virtanen, Lertola, & Piha, 2004). Mothers who reported receiving a large amount of social support during pregnancy were more likely to be sensitive to their infants. These mothers were emotionally more available to their infants and appropriately responded to their infant's needs (Kivijärvi et al., 2004). Additionally, receiving higher levels of social support may mitigate the impact of family stress after the baby is born. For example, family stress was significantly predictive of mothers' postpartum depression when mothers were living in low-income environments and were receiving fewer social supports from family members, friends, and partners (Coburn, Gonzales, Luecken, & Crnic, 2016). Women who received more social support also reported higher levels of self-confidence during parenthood, and perceived social support mediated the influence of maternal stress and depression on her parenting self-efficacy (Leahy-Warren, McCarthy, & Corcoran, 2012). Higher levels of social support were also negatively related to maternal maladjustment (e.g., depression, anxiety, stress, and worries) (Mihelie, Filus, & Morawaska, 2016). Furthermore, prenatal spouse supports were positively associated with maternal sensitivity. Women who were satisfied with the level of their spouses' prenatal support exhibited more positive postpartum mood, which facilitated sensitive parenting behaviors (Kivijärvi et al., 2004).

Perceived social support was not only positively associated with women's adaptation to motherhood and mother-child sensitivity but also related to the infant's health outcomes (Kivijärvi et al., 2004; Mihelie, Filus, & Morawaska, 2016). Social supports that the mother received from family, friends or partner helped the mother maintain their mental health and reduced problems occurring in their transition to

parenthood (Mihelie et al., 2016). Prenatal health, infant health status, and infant birth status (e.g., full-term, preterm) were also associated with sources of social support (e.g., relative, friend, father of the infant) and types of support (e.g., money, goods, advice). In one study, mothers experiencing prenatal depression were more likely to have babies with low birth weight than mothers without prenatal depression. In addition, babies of depressed mothers received lower APGAR (i.e., Appearance, Pulse, Grimace, Activity, and Respiration) score than those of non-depressed mothers. Moreover, mothers with depression reported to smaller social networks and were less satisfied with the social support received from their partner (Nylen, O'Hara, & Engeldinger, 2013).

Beliefs about parenthood. Maternal attitudes refer to a mother's outlook on the parent role and childrearing responsibilities (Deave, 2005). Women's attitudes toward their pregnancy had a strong and positive association with later mother-child relationships and child outcomes. Women with an unwanted pregnancy showed negative attitudes towards pregnancy, which was significantly associated with their failure to bond with their infant (e.g., feeling rejection and hatred toward the baby) early on (Kokubu, Okano, & Sugiyama, 2012). Mothers' awareness of their role as a parent was positively related to children's cognitive and behavioral outcomes (Deave, 2005). In contrast, mothers' negative beliefs about parenting when their child was three years old (e.g., Being a parent is hard; I feel trapped by my responsibilities; I often feel tired; Taking care of my child is a lot work) were more likely to have a child who exhibited more externalizing behaviors at age five and greater physical aggression at age nine (Walter, 2015).

In summary, some literature supports the association between the five dimensions of prenatal empowerment and children's social-emotional competence. However, the role of prenatal empowerment inclusive of all five dimensions in relation to children's social-emotional competence has been less explored. Moreover, there is limited research on how parental stress, mothers' knowledge of infant development, and women's prenatal empowerment collectively contribute to children's social-emotional competence. In the following section, I discuss the potential associations among these constructs.

Factors Associated with Women's Empowerment and Parenting

Parental Stress

Parents often experience stress in taking care of their children (Berry & Jones, 1995), and parental stress tends to be associated with mothers' capacity to comfort infants. Higher levels of negative emotions and lower levels of soothability of infants expressed at three to four weeks of age tended to be associated with their mothers' high levels of parental stress at eight weeks postpartum; and parental stress was negatively associated with mothers' self-efficacy (Troutman et al., 2012). In addition, self-efficacy and psychological symptoms during pregnancy and after childbirth were significantly related to each other. Mothers with higher levels of prenatal self-efficacy were more likely to report less anxiety (i.e., current anxiety and anxiety disposition) than mothers with lower levels of prenatal self-efficacy during the transition to parenthood (from 32 weeks of pregnancy to three months after childbirth). In addition, mothers with lower-level anxiety tended to report an increased level of self-efficacy (Kunseler et al., 2014). More specifically, women who reported higher levels of prenatal self-efficacy showed lower levels of postpartum anxiety and depression and fewer negative mood symptoms.

Parental stress was also negatively associated with child's social behaviors. Mothers perceiving a high level of parental stress when their child was three years old were more likely to report that their child exhibited internalizing behavior problems at age five (Woodman, Mawdsley, & Hauser-Cram, 2015).

Mothers' Knowledge of Infant Development

Mothers' knowledge of infant development is also associated with parenting behaviors (Conrad, Gross, Fogg, & Ruchala, 1992). Mothers who exhibited greater knowledge of infant development and high levels of maternal confidence showed more positive and sensitive behaviors with their infants than mothers who did not. However, mothers who reported a high level of confidence (who believed they were competent mothers) but had less knowledge of infant development demonstrated less competence in the interactions with their children (Conrad et al., 1992). Consistent with Conrad's findings, mothers of high-risk infants who had high levels of self-efficacy and greater knowledge of infant development, compared with those who did not, showed higher-quality interactions including positive physical contact, more frequent visual contact with children, and more responsivity to children's negative behaviors (Hess et al., 2004). Additionally, the mothers who reported high parental self-efficacy and low knowledge of children's development were the least sensitive when playing with their infants.

The Current Study

While research is emerging, evidence suggests that prenatal empowerment may meaningfully predict later qualities of the mother-child relationships and infants' social-emotional competence. The current study aims to examine (a) the direct association between women's prenatal empowerment and infants' social-emotional competence and

(b) whether the quality of mother-infant relationships mediates the association between prenatal empowerment and infants' social-emotional competence.

Research Questions and Hypotheses

Research Question 1

Is there an association between pregnant women's empowerment and infants' social-emotional competence at 3-4 months of age?

Hypothesis 1. Women's prenatal empowerment will be associated with infants' social-emotional competence. Specifically, mothers who have higher levels of prenatal empowerment will have infants with higher levels of social-emotional competence than those with lower levels of prenatal empowerment.

Research Question 2

Does the quality of mother-infant relationships mediate the association between women's empowerment and early social-emotional competence among infants?

Hypothesis 2. The quality of the mother-infant relationships will mediate the association between women's empowerment and infants' early social-emotional competence. Women's prenatal empowerment will be indirectly associated with infants' early social-emotional competence through the quality of mother-infant relationships.

CHAPTER 2

METHODS

Participants

Participants included 38 working women in their third trimester of pregnancy living in Nebraska and their infants. Approximately 95% of the participants were White ($n=36$), and 5% ($n=2$) identified their ethnicity as Hispanic or Latino. Among mothers who reported their educational level, 79% had a bachelor's degree or above ($n=30$). About 32% ($n=12$) of participants had household income between \$50,000 and \$74,999, and 61% ($n=23$) reported household income above \$75,000 (see Table 1).

Procedures

The study involved two data-collection points: Time 1 (T1) was when the mother was in the third trimester of pregnancy, and Time 2 (T2) was three months after the infants' birth. Three researchers traveled to rural Nebraska towns and communities to visit the local hospitals, clinics, community organizations, and early care and education programs to recruit participants. Close to 100 copies of flyers and consent forms were distributed. Local extension educators also assisted in recruiting participants from their local counties, and the digital flyers introducing the current study were posted on social media (e.g., Facebook, Twitter). People who expressed interest in the study contacted researchers via email, text, or phone calls. The potential participants received initial contact and consent forms via email. The initial contact form included a brief description of the current study, a section asking potential participants to provide contact information, and a section asking about the most convenient time and the preferred method of contact

(e.g., phone, email, text, etc.). Once agreeing to participate in the study, each family was assigned a unique ID.

Mothers during the third trimester of pregnancy were contacted and asked to complete a Time 1 online survey. The survey included questions about pregnancy, demographic information, prenatal empowerment, and anticipated due date of the baby. Participants received \$30 compensation after they completed the Time 1 survey. After the infant was born and turned three months old, mothers were contacted by email and asked to complete a Time 2 online survey. The survey included questions about mother-infant interactions, perceived stress, and infants' social-emotional competence observed by the mothers. After participating in the Time 2 survey, participants received \$30 as compensation.

Measures

Prenatal empowerment. Women's prenatal empowerment was measured by the Empowerment Scale for Pregnant Women (EPW: Kameda & Shimada, 2008), which included 27 items in five dimensions (self-efficacy, future image, self-esteem, support and assurance from others, and joy of an addition to the family). Participants reported how much they agreed with each of the 27 statements on a scale of 1-4. (1 = strongly disagree, 4 = strongly agree). An example item of the scale was, "When I don't know what to do, I can probably research and solve the problem by myself." Four items were reverse-coded before scores were composited (27 items: possible range = 1-4). The internal consistencies for each dimension measured by Cronbach's alpha were .86 (Self-efficacy), .76 (Future image), .68 (Self-esteem), .75 (Support and assurance from others), and .68 (Joy of an addition to the family), and the internal consistency of all items

was .89. Considering the higher overall consistency and the small sample size, the overall composite scores were used in the analyses. People with an internal locus of control tend to believe that they can influence events, while people with external locus of control tend to believe they have no control over what happens (Kambara, Higuchi, & Shimizu, 1982). The significant and positive correlation between the prenatal empowerment scale and the internal locus of control scale provides evidence of validity of this measure because the locus of control measure assesses a similar construct to empowerment.

Quality of mother-infant relationships. Quality of mother-infant relationships was measured using the Maternal Attachment Inventory (MAI: Muller, 1996). The MAI included 22 items with response categories including four statements in a sequence of frequency “1=Almost never, 2=Sometimes, 3=Often, and 4=Almost always.” Example items included “I feel love for my baby”, “I feel warm and happy with my baby,” “I want my baby to trust me.” The total score was calculated by averaging all item scores (22 items: possible range = 1-4). The internal consistency measured using Cronbach’s alpha was .83. The moderate correlation was found between scores from Prenatal Attachment Inventory (PAI) and MAI scores, and MAI scores were associated with scores from Maternal Separation Anxiety Scale (MSAS) (Muller, 1996). The moderate correlations provided evidence of validity of this scale because PAI and MSAS measure similar constructs with MAI.

Infant social-emotional competence. The Brief Infant-Toddler Social and Emotional Assessment (BITSEA: Briggs-Gowen, Carter, Irwin, & Cicchetti, 2004) was used to measure infants’ social-emotional development. The 42-item BITSEA consisted of two sections. The first section was BITSEA Problem (BITSEA/P), which included 31

items (possible range = 0-62) about children's challenging behavior, while the second part was BITSEA Competence (BITSEA/C), which included 11 items (possible range = 0-22) related to children's social-emotional competence. Mothers responded to BITSEA items on a 3-point scale (i.e., 0 = not true/rarely, 1 = somewhat true/sometimes, 2 = very true/always). An example of competence item was "Shows pleasure when she succeeds (e.g., claps for self)," and one example of behavior problem item was "Hits, bites or kicks you (or other parents)." The total score was calculated by summing up the item scores for each section (Briggs-Gowen et al., 2004). The internal consistencies measured using Cronbach's alpha were .74 for BITSEA/C and .68 for BITSEA/P. BITSEA/C was found higher than it found in the original study but BITSEA/P was found lower (i.e., alpha = .65 and .79, respectively). These did not change when items with weaker correlations were dropped; therefore, all item scores were kept. BITSEA/P scores showed positive correlations with ITSEA (i.e., a longer version of BITSEA that had already been validated) internalizing, externalizing, and dysregulation domains but negative correlations with ITSEA competence scores. BITSEA/C was strongly and positively correlated with ITSEA competence scores. These correlations provide evidence for validity of this measure (Briggs-Gowen et al., 2004).

Parental stress. The Parental Stress Scale (PSS; Berry & Jones, 1995) was used to measure mothers' positive themes and negative themes of parenthood experienced. PSS included 18 statements, half of which were worded as to indicate greater stress (negative parenthood themes; e.g., "having children has been a financial burden"). The other half was worded as to indicate less stress (positive parenthood themes; e.g., "I am happy in my role as a parent"). Participants reported how much they agreed to each of the

18 statements (1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree). Eight positively stated items were reverse-scored, and the possible overall scores ranged from 18 to 54. The higher score indicated a higher level of stress. The internal consistency for overall scale measured by Cronbach's alpha was .78. PSS scores showed positive correlations with PSI (i.e., a longer measure designed to measure stress in a parent-child system that had already been validated). The strong and positive correlation between PSS and PSI indicated that PSS is measuring a similar construct to what PSI measures (Berry & Jones, 1995).

Knowledge of infant development. The Knowledge of Infant Development Inventory (KIDI; MacPhee, 1981) was used to measure the knowledge that mothers had about infant development. It took approximately 10 minutes for mothers to respond to 17 items on whether they agreed or disagreed to each statement. If the mother disagreed with a statement, further questions were asked on if the mother thought each statement was true for younger or older children (Huang, Caughy, Genevro, & Miller, 2005). KIDI items were grouped into four non-exclusive categories: knowledge on infants' developmental norms and milestones, principles of infant development, parenting, and health and safety. Based on Huang et al. (2005), each KIDI item was scored as right (+1), wrong (-1), or not sure (0). Three percentage scores were computed which include the percentage of the correct score, percentage of the underestimate score, and percentage of the overestimate score (possible range= 0%-100%). The number of correct responses was divided by the total number of items and multiplied by 100 to represent the percentage of the correct answer. The overestimate was mothers' incorrectly estimating that their infants are capable of doing the activity. In other words, mothers thought their infants

could do an activity at that age but actually it was too hard for their infants to do. The underestimate was the mothers incorrectly thinking their infants are too young to do the activity, which was the mothers thinking their infants are not able do this activity but actually the infants were able to do it (Huang et al., 2005). Example items include “Babies do some things just to make trouble for their parents, like crying or soiling their diapers,” and “Most babies can sit on the floor without falling over by seven months.” The internal consistency measured by Cronbach’s alpha was .61. Construct validity information was provided by the developers of KIDI. People with more experience or informal knowledge of child development showed more confidence in response to KIDI, while people with more formal knowledge of child development responded with more accuracy to KIDI (MacPhee, 1981).

CHAPTER 3

RESULTS

Preliminary Analyses

Mean scores and standard deviations for the five main variables are presented in Table 2. Data on prenatal empowerment, infants' social-emotional competence, and parental stress were normally distributed. The distribution of the data on mother-infant relationships was skewed with the range of 3.32 to 4.00 on a scale of 1.00 to 4.00, which means that most mothers felt closely attached to their baby. In addition, mothers had fairly accurate understanding of infant development ($M = 76\%$, $SD = 16\%$), which is consistent with other researchers found (i.e., 72%-81%; Bornstein, Cote, Haynes, Hahn, & Park, 2010; MacPhee, 1981). Bivariate correlations (i.e., Pearson's correlations) among the main study variables are presented in Table 3. The p value less than .05 was defined as significant. Prenatal empowerment at Time 1 was significantly and negatively associated with parental stress at Time 2 ($r(38) = -.33$, $p = .046$). Mothers' prenatal empowerment at Time 1 was significantly and positively associated with perceived quality of mother-infant relationships at Time 2 ($r(38) = .35$, $p = .03$). Quality of mother-infant relationships was also significantly and negatively associated with parental stress ($r(38) = -.60$, $p < .001$). Infants' social-emotional competence was significantly and negatively associated with parental stress at Time 2 ($r(38) = -.33$, $p = .04$) and significantly and positively related to maternal knowledge of infant development ($r(38) = .35$, $p = .03$).

Regression Results

Research Question 1: Is there an association between pregnant women's empowerment and infants' social-emotional competence at 3-4 months of age?

Multiple linear regression analysis was conducted to address the first research question. There were no significant associations between control variables (i.e., mother's race, ethnicity, education level, and household income) and infants' social-emotional competence, so they were not included in the model. Prenatal empowerment was entered as the independent variable; infants' social-emotional competence was included as the dependent variable; and parental stress, quality of mother-infant relationships, and mothers' knowledge of infant development were added as covariates. Results revealed that mothers' prenatal empowerment did not significantly predict infants' social-emotional competence at 3-4 months, after controlling for mothers' knowledge of infant development, parental stress, and quality of mother-infant relationships. However, mothers' knowledge of infant development and parental stress significantly predicted infants' social-emotional competence ($t = 2.28, p = .03$ and $t = -.21, p = .05$, respectively), controlling for the other predictors in the model.

Research Question 2: Does the quality of mother-infant relationships mediate the association between women's empowerment and early social-emotional competence among infants? Mothers' prenatal empowerment at Time 1 was significantly and positively associated with perceived quality of mother-infant relationships at Time 2 ($r(38) = .35, p = .03$). However, due to the non-significant association between the quality of mother-infant relationships and infants' social-emotional competence, the mediation effect of the quality of the mother-infant

relationships on the association between women's prenatal empowerment and infant's early social-emotional competence was not examined.

CHAPTER 4

DISCUSSION

The present study examined the association between mothers' prenatal empowerment and their infants' social-emotional competence at 3-4 months of age. Specifically, the study investigated the associations among mothers' prenatal empowerment, perceived quality of mother-infant relationships, parental stress, mothers' knowledge of infant development, and infants' social-emotional competence. While previous research (Kunseler et al., 2014; Landry et al., 2006) has indicated the possible associations among mothers' empowerment, mother-infant relationships, parental stress and infants social emotional competence, it is still unclear if mothers' prenatal empowerment is directly associated with infants' social emotional competence and how prenatal empowerment indirectly predicts infants' development through predicting the quality of mother-infant relationships.

Association between Prenatal Empowerment and Infants' Social-Emotional Competence

The first hypothesis regarding the association between mothers' prenatal empowerment and infants' social-emotional competence was not supported by the data: there was no significant direct association between mothers' prenatal empowerment and infants' social-emotional competence. This finding is inconsistent with a previous study (Verhage et al., 2013) showing that mothers with higher prenatal self-efficacy (i.e., at 32 weeks of pregnancy) reported their infants exhibited fewer negative behaviors at 3 months. This inconsistent finding might have resulted from the differences in how prenatal empowerment was measured. The prenatal empowerment measure used in the

current study included five dimensions: self-efficacy, future image, self-esteem, perceived social support, and attitudes toward parenthood (Kameda & Shimada, 2008; Klima, Vonderheid, Norr, & Park, 2015). Researchers in previous studies examined the dimensions separately and found significant associations with infants' social-emotional competence (Treat, Sheffield-Morris, Williams, & Hays-Grudo, 2019; Verhage et al., 2013). For example, Verhage et al. (2013) used the Nurturing Role Questionnaire to measure mothers' prenatal self-efficacy. In addition, Treat et al. (2019) examined the similar association as the current study, which is the association between mothers' self-efficacy (the main dimension of empowerment) and infants' social-emotional development. Mothers' infant social-emotional development was measured using the BITSEA in both studies, but they used two separate scales to measure mother's empowerment (e.g., self-efficacy and perceived social support) rather than a composite scales. In the Treat et al. (2019), parenting self-efficacy was measured using the Competence subscale of Parenting Stress Index (PSI-4) and the Social Provision Scale to measure mothers' perceived social support. They defined parenting self-efficacy as mothers' view of their parenting skills and abilities, which is similar to the definition of prenatal self-efficacy in the current study. Even though one is parenting self-efficacy, another is prenatal self-efficacy, both of those two definitions are about mothers' view of their abilities to take care of their infants. In the current study, the mean score of the entire empowerment scale that includes self-efficacy and perceived social support and three other dimensions was used in the analysis because the internal consistency was higher for the entire scale (i.e., $\alpha = .89$) than those for individual

subscales/dimensions (i.e., alphas = .68 to .86) and the sample size was too small to add more variables into the model.

Another speculation for the non-significant association between mothers' prenatal empowerment and infants' social-emotional competence is that mothers' prenatal expectations and their actual postnatal experiences might have been different. Harwood, McLean, and Durkin (2007) found that some mothers' postpartum experience was more positive than their prenatal expectations, while some other mothers' postnatal experience was more negative than their prenatal expectations. Some researchers found that prenatal self-efficacy was significantly associated with prenatal parenting expectations. Mothers who felt more confident during pregnancy tended to have more realistic parenting expectations (Mihelic, Filus, & Morawaska, 2016). In addition, mothers who felt more confident about their parenting abilities showed more optimistic expectations toward parenthood (Harwood et al., 2007). However, others found that the expectations and beliefs of parenthood during pregnancy and after childbirth were different. For example, in Verhage et al. (2013), mother's self-efficacy was measured at three different time points: 32 weeks of pregnancy, three months after childbirth, and 12 months after childbirth, which is consistent with the time points used in the current study. They found that mothers' self-efficacy significantly increased from pregnancy to 3 months after birth, and from 3 to 12 months after birth. Their results revealed that mothers' self-efficacy during pregnancy was significantly associated with infants' social-emotional development (i.e., negative reactivity and infant soothability) at 3 and 12 months after birth. Mothers' self-efficacy at 3 months after childbirth was significantly associated with infants' negative reactivity at 3 months and 12 months, but not significantly associated with

infants' soothability at 3 months and 12 months. In addition, mothers' self-efficacy at 12 months after childbirth was only significantly associated with infants' negative reactivity but not soothability at 3 months and 12 months (Verhage et al., 2013). In the current study, mothers' empowerment was measured during the third trimester of pregnancy. Therefore, changes in mothers' self-efficacy and expectations before and after childbirth and their association with infants' social-emotional competence could not be examined. Mothers' perceptions of their infants' social-emotional competence may also have been attributed to the changes in mothers' self-efficacy and parenting expectations after childbirth.

Additional Exploration of Study Variables

Positive qualities of mother-infant relationships tend to be associated with children's social-emotional competence (Landry et al., 2006; Swingler et al., 2017). Thus, the current study sought to examine the potential mediating role of the quality of mother-infant relationships. However, there were not significant associations between infant's social emotional-competence and the quality of mother-infant relationships and prenatal empowerment. While prenatal empowerment was significantly associated with the quality of mother-infant relationships, these constructs were not related to infant social-emotional competence. As such, the mediating role of the quality of mother-infant relationships was not examined.

While not the central aim of the study, mothers' parental stress was significantly and negatively associated with prenatal empowerment and infants' social-emotional competence. In other words, mothers who had lower-levels of prenatal empowerment (e.g., perceived social support, self-efficacy) tended to report higher-levels of parenting

stress; and mothers with higher-levels of parenting stress tended to report that their infants demonstrated lower-levels of social-emotional competence. These findings were consistent with those reported in previous research in that mothers with higher levels of parenting stress felt poorly attached to their infants, and these poor attachments were associated with fewer positive infant social-emotional outcomes (Mason, Briggs, & Silver, 2011). As such, identifying ways to enhance prenatal empowerment may be beneficial for promoting higher quality mother-infant relationships and decreasing parent stress.

Limitations and Future Directions

Although this study provides some insight about one of the understudied constructs in the field, mothers' prenatal empowerment, in relation to other relevant mother and infant variables, it also had several limitations that should be considered in future studies. First, the sample size was small, which makes the detection of significant associations between the main predictor (i.e., mothers' prenatal empowerment) and the dependent variable (i.e., infants' social-emotional competence at 3-4 months) difficult. According to Treat et al. (2019), the correlation between parenting self-efficacy and children's social and emotional problems was $r(43) = -.44$, and the correlation between mother perceived social support and children's social and emotional problems was $r(43) = -.36$. Since the current study used the overall scale instead of the subscales of mothers' empowerment, the correlation between mothers' empowerment and children's social emotional-competence is expected to fall in the range of 0.36 to 0.44. In order to maintain a 80% level of power, the sufficient range of the sample size is 33 to 59. The sample size

of the current study was at the lower end. A sample size of 60 may have better addressed the research questions.

Second, the sample was not diverse. Almost 95% of the participants were White; 79% with high educational attainment (i.e., bachelor's degree or higher); and 93% in middle- to high-income households (i.e., above \$50,000). The homogeneity of the sample may have limited the generalizability of the result to a larger and diverse population, particularly for families who are high risk. Further studies should explore the direct relations between womens' prenatal empowerment and infants' social-emotional competence with a more diverse sample to address differences exhibited in other ethnic and socioeconomic groups.

Third, mothers were the sole responders to all measures included in the study – they reported on prenatal empowerment, stress level, mother-infant relationships, and infants' social emotional competence. Therefore, the shared variance among those variables may exist. In other words, the mothers might have used a common cognitive set of rules to respond to different measures (Avolio, Yammarino, & Bass, 1991). For example, based on the literature, mothers with higher levels of stress tend to report their children have more social emotional problems (Junge, Garthus-Niegel, Slinning, Polte, Simonsen, & Eberhard-Gran, 2017). Further studies should include data from different sources (i.e., observation) to reduce the potential effect of single-source bias resulting from common methods variance.

According to the previous literature, mothers' empowerment changes over time (Harwood et al., 2007; Mihelic et al., 2016), which may partially explain why a direct relationship between mothers' prenatal empowerment and children social-emotional

competence was not supported by the current study. Mothers' postpartum empowerment (at three to four months after childbirth) was not measured but might have had a direct association with infants' social-emotional competence. Another possible direction for future inquiry is to measure mothers' empowerment at two time points (e.g., prenatal and postpartum) and examine how mothers' empowerment may change from pregnancy to motherhood and how prenatal empowerment and parental empowerment are differentially associated with children's social emotional competence.

Overall, in the current study, the direct association between mothers' prenatal empowerment measured as a total score and infant's social-emotional competence was not found; however, the findings provide some evidence that mothers' prenatal empowerment may be indirectly associated with infants' social-emotional competence and that future research is warranted.

REFERENCE

- Avolio, B. J., Yammarino, F. J., & Bass, B. M. (1991). Identifying common methods variance with data collected from a single source: An unresolved sticky issue. *Journal of Management*, *17*(3), 571-587.
- Bandura, A. (2012). On the functional properties of perceived self-efficacy revisited.
- Baumrind, D. (1989). Rearing competent children. In W. Damon (Ed.), *Child Development Today and Tomorrow* (pp. 349–378). San Francisco: Jossey-Bass.
- Berry, J. O., & Jones, W. H. (1995). The parental stress scale: Initial psychometric evidence. *Journal of Social and Personal Relationships*, *12*(3), 463-472.
- Bigelow, A. E., MacLean, K., Proctor, J., Myatt, T., Gillis, R., & Power, M. (2010). Maternal sensitivity throughout infancy: Continuity and relation to attachment security. *Infant Behavior and Development*, *33*(1), 50-60.
- Bornstein, M. H., Cote, L. R., Haynes, O. M., Hahn, C. S., & Park, Y. (2010). Parenting knowledge: experiential and sociodemographic factors in European American mothers of young children. *Developmental psychology*, *46*(6), 1677–1693.
doi:10.1037/a0020677
- Briggs-Gowan, M. J., Carter, A. S., Irwin, J. R., Wachtel, K., & Cicchetti, D. V. (2004). The Brief Infant-Toddler Social and Emotional Assessment: screening for social-emotional problems and delays in competence. *Journal of Pediatric Psychology*, *29*(2), 143-155.
- Cha, K. (2017). Relationships among negative emotionality, Responsive parenting and early social-cognitive development in Korean children. *Infant & Child Development*, *26*(3), 1-30

- Chen, C. W., & Conrad, B. (2001). The Relationship between maternal self-esteem and maternal attachment in mothers of hospitalized premature infants. *The Journal of Nursing Research, 9*(4), 69-82.
- Coburn, S. S., Gonzales, N. A., Luecken, L. J., & Crnic, K. A. (2016). Multiple domains of stress predict postpartum depressive symptoms in low-income Mexican American women: The moderating effect of social support. *Archives of Women's Mental Health, 19*(6), 1009-1018.
- Conrad, B., Gross, D., Fogg, L., & Ruchala, P. (1992). Maternal confidence, knowledge, and quality of mother-toddler interactions: A preliminary study. *Infant Mental Health Journal, 13*(4), 353-362.
- Deave, T. (2005). Associations between child development and women's attitudes to pregnancy and motherhood. *Journal of Reproductive and Infant Psychology, 23*(1), 63-75.
- Denis, A., Ponsin, M., & Callahan, S. (2012). The relationship between maternal self-esteem, maternal competence, infant temperament and post-partum blues. *Journal of Reproductive and Infant Psychology, 30*(4), 388-397.
- Epstein, A. S. (2009). *Me, you, us: Social-emotional learning in preschool*. Washington, DC: National Association for the Education of Young Children.
- Farrow, C., & Blissett, J. (2007). The development of maternal self-esteem. *Infant Mental Health Journal, 28*(5), 517-535.
- Finken, L. L., & Amato, P. R. (1993). Parental self-esteem and behavior problems in children: Similarities between mothers and fathers. *Sex Roles, 28*(9-10), 569-582.

- Gul, B., Riaz, M. A., Batool, N., Yasmin, H., & Riaz, M. N. (2018). Social support and health related quality of life among pregnant women. *Journal of Pakistan Medical Association, 68*(6), 872-5.
- Harwood, K., McLean, N., & Durkin, K. (2007). First-time mothers' expectations of parenthood: What happens when optimistic expectations are not matched by later experiences? *Developmental Psychology, 43*(1), 1-12.
- Head Start Bureau. (2010). *Head Start child outcomes framework: Social and Emotional Development*. Retrieved from <https://eclkc.ohs.acf.hhs.gov/sites/default/files/pdf/elof-ohs-framework.pdf>
- Hess, C. R., Teti, D. M., & Hussey-Gardner, B. (2004). Self-efficacy and parenting of high-risk infants: The moderating role of parent knowledge of infant development. *Journal of Applied Developmental Psychology, 25*(4), 423–437.
- Holmström, I., & Röing, M. (2010). The relation between patient-centeredness and patient empowerment: A discussion on concepts. *Patient Education and Counseling, 79*(2), 167-172.
- Huang, K. Y., O'Brien Caughy, M., Genevro, J. L., & Miller, T. L. (2005). Maternal knowledge of child development and quality of parenting among White, African-American and Hispanic mothers. *Journal of Applied Developmental Psychology, 26*(2), 149–170.
- Junge, C., Garthus-Niegel, S., Slinning, K., Polte, C., Simonsen, T. B., & Eberhard-Gran, M. (2017). The impact of perinatal depression on children's social-emotional development: A longitudinal study. *Maternal and Child Health Journal, 21*(3), 607-615.

- Kambara, M., Higuchi, K., & Shimizu, N. (1982). Development of locus of control scale: Reliability and validation. *Japanese Journal of Educational Psychology*, 30(4), 302-307.
- Kameda, Y., & Shimada, K. (2008). Development of an Empowerment Scale for Pregnant Women. *Journal of the Tsuruma Health Science Society Kanazawa University*, 32(1), 39-48.
- Kivijärvi, M., Räihä, H., Virtanen, S., Lertola, K., & Piha, J. (2004). Maternal sensitivity behavior and infant crying, fussing and contented behavior: The effects of mother's experienced social support. *Scandinavian Journal of Psychology*, 45(3), 239-246.
- Kivijärvi, M., Voeten, M. J., Niemelä, P., Räihä, H., Lertola, K., & Piha, J. (2001). Maternal sensitivity behavior and infant behavior in early interaction. *Infant Mental Health Journal: Official Publication of The World Association for Infant Mental Health*, 22(6), 627-640.
- Klima, C. S., Vonderheid, S. C., Norr, K. F., & Park, C. G. (2015). Development of the pregnancy-related empowerment scale. *Nursing and Health*, 3(5), 120-127.
- Kokubu, M., Okano, T., & Sugiyama, T. (2012). Postnatal depression, maternal bonding failure, and negative attitudes towards pregnancy: A longitudinal study of pregnant women in Japan. *Archives of Women's Mental Health*, 15(3), 211-216.
- Kunseler, F. C., Willemsen, A. M., Oosterman, M., & Schuengel, C. (2014). Changes in parenting self-efficacy and mood symptoms in the transition to parenthood: A bidirectional association. *Parenting*, 14, 215-234.

- Landry, S. H., Smith, K. E., & Swank, P. R. (2006). Responsive parenting: Establishing early foundations for social, communication, and independent problem-solving skills. *Developmental Psychology, 42*(4), 627–642. doi:10.1037/0012-1649.42.4.627
- Leahy-Warren, P., McCarthy, G., & Corcoran, P. (2012). First-time mothers: Social support, maternal parental self-efficacy and postnatal depression. *Journal of Clinical Nursing, 21*, 388-397.
- MacPhee, D. (1981). Manual: Knowledge of infant development inventory. *Unpublished manuscript, University of North Carolina.*
- Mäntymaa, M., Puura, K., Luoma, I., Latva, R., Salmelin, R. K., & Tamminen, T. (2015), Shared pleasure in early mother-infant interaction: Predicting lower levels of emotional and behavioral problems in the child and protecting against the influence of parental psychopathology. *Journal of Infant Mental Health, 36*(2), 223-237.
- Martí, M., Bonillo, A., Jané, M. C., Fisher, E. M., & Duch, H. (2016). Cumulative risk, the mother–child relationship, and social-emotional competence in latino Head Start children. *Early Education and Development, 27*(5), 590–622.
- Mason, Z. S., Briggs, R. D., & Silver, E. J. (2011). Maternal attachment feelings mediate between maternal reports of depression, infant social–emotional development, and parenting stress. *Journal of Reproductive and Infant Psychology, 29*(4), 382-394.
- Mihelic, M., Filus, A., & Morawaska, A. (2016). Correlates of prenatal parenting expectations in new mothers: Is better self-efficacy a potential target for preventing postnatal adjustment difficulties? *Prevention Science, 17*(8), 949-959.

- Müller, M. E. (1996). Prenatal and postnatal attachment: A modest correlation. *Journal of Obstetric, Gynecologic, & Neonatal Nursing*, 25(2), 161-166.
- Nylen, K. J., O'Hara, M. W., & Engeldinger, J. (2013). Perceived social support interacts with prenatal depression to predict birth outcomes. *Journal of Behavioral Medicine*, 36(4), 427-440.
- Page, N., & Czuba, C. E. (1999). Empowerment: What is it. *Journal of Extension*, 37(5), 1-5.
- Portela, A., & Santarelli, C. (2003). Empowerment of women, men, families and communities: True partners for improving maternal and newborn health. *British Medical Bulletin*, 67(1), 59–72.
- Reck, C., Van Den Bergh, B., Tietz, A., Müller, M., Ropeter, A., Zipser, B., & Pauen, S. (2018). Maternal avoidance, anxiety cognitions and interactive behaviour predicts infant development at 12 months in the context of anxiety disorders in the postpartum period. *Infant Behavior and Development*, 50, 116-131.
- Rohner, R. P. (2004). The Parental "Acceptance-Rejection Syndrome": Universal Correlates of Perceived Rejection. *American Psychologist*, 59(8), 830-840.
- Shea, E., & Tronick, E. Z. (1988). The maternal self-report inventory: A research and clinical instrument for assessing maternal self-esteem. In H. E. Fitzgerald (Ed.), *Theory and research in behavioral pediatrics*. Vol. 4 (pp. 101 – 139). New York: Plenum Press.
- Swingler, M. M., Perry, N. B., Calkins, S. D., & Bell, M. A. (2017). Maternal behavior predicts infant neurophysiological and behavioral attention processes in the first year. *Developmental Psychology*, 53(1), 13-27.

- Teti, D. M., & Gelfand, D. M. (1991). Behavioral competence among mothers of infants in the first year: The mediational role of maternal self-efficacy. *Child development, 62*(5), 918-929.
- Treat, A. E., Sheffield Morris, A., Williamson, A. C., Hays-Grudo, J., & Laurin, D. (2019). Adverse childhood experiences, parenting, and child executive function. *Early Child Development and Care, 189*(6), 926-937.
- Troutman, B., Moran, T. E., Arndt, S., Johnson, R. F., & Chmielewski, M. (2012). Development of parenting self-efficacy in mothers of infants with high negative emotionality. *Infant Mental Health Journal, 33*(1), 45-54.
- Verhage, M. L., Oosterman, M., & Schuengel, C. (2013). Parenting self-efficacy predicts perceptions of infant negative temperament characteristics, not vice versa. *Journal of Family Psychology, 27*(5), 844-849.
- Vuorenmaa, M., Perälä, M. L., Halme, N., Kaunonen, M., & Åstedt-Kurki, P. (2016). Associations between family characteristics and parental empowerment in the family, family service situations and the family service system. *Child: care, health and development, 42*(1), 25-35.
- Walters, G. D. (2015). Maternal dysphoria, maternal attitudes toward parenting, and childhood externalizing behavior as predictors of physical aggression. *Journal of Aggression, Maltreatment & Trauma, 24*(7), 825-844.
- Woodman, A. C., Mawdsley, H. P., & Hauser-Cram, P. (2015). Parenting stress and child behavior problems within families of children with developmental disabilities: Transactional relations across 15 years. *Research in Developmental Disabilities, 36C*, 264-276.

Zimmerman, M. A. (2000). Empowerment theory: Psychological, organizational and community levels of analysis. In J. Rappaport & E. Seidman (Eds.), *Handbook of community psychology* (pp. 43-63). New York: Kluwer Academic/Plenum.

Table 1

Participant's Demographic Information

		N	%
Ethnicity	Hispanic/Latino	2	5.3
	Non-Hispanic/Latino	36	94.7
Race	White	36	94.7
	American Indian or Alaska	1	2.6
	Asian	1	2.6
Household Income	\$25,000-\$34,999	1	2.6
	\$35,000-\$49,999	2	5.3
	\$50,000-\$74,999	12	31.6
	\$75,000-\$99,999	12	31.6
	\$100,000-\$149,999	7	18.4
	\$150,000-199,999	3	7.9
	\$200,000 or more	1	2.6
Education	Some college but no degree	4	10.5
	Associate degree	3	7.9
	Bachelor degree	13	34.2
	Graduate degree	17	44.7
	Other	1	2.6
Marital Status	Single	3	7.9
	Married	33	86.8
	Divorced	1	2.6

Other	1	2.6
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Table 2

Descriptive Statistics of Study Variables (N=38)

	<i>M</i>	<i>SD</i>	<i>Observed range</i>	<i>Possible range</i>	<i>Skewness</i>
Women's Prenatal Empowerment	3.50	.28	2.93-3.93	1-4	-.38
BITSEA Competence	8.13	3.57	0.00-15.00	0-22	-.31
BITSEA Problem	2.76	2.58	0.00-11.00	0-62	1.42
Parental Stress	1.93	.37	1.17-2.78	1-3	.47
Mother-Infant Relationships	3.87	.15	3.32-4.00	1-4	-1.90
KIDI % Accuracy	.76	.16	.18-.94	0-100	-1.64
KIDI% Overestimate	.07	.05	.00-.18	0-100	.17
KIDI% Underestimate	.09	.07	.00-.24	0-100	.32

Note. T1 = Time 1 (third trimester of pregnancy); T2 = Time 2 (infant at 3-4 months)

Table 3

Bivariate Correlations among Study Variables

	1.	2.	3.	4.	5.	6.	7.	8.
1. Women's Prenatal Empowerment	--							
2. BITSEA Competence	.09	--						
3. BITSEA Problem	-.16	.12	--					
4. Parental Stress	-.34*	-.33*	.15	--				
5. Mother-Infant Attachment	.35*	.18	.08	-.59**	--			
6. KIDI % Accuracy	.20	.35*	-.15	-.09	.29	--		
7. KIDI% Overestimate	.15	-.11*	.04	.04	-.09	-.33*	--	
8. KIDI% Underestimate	.06	-.12	.20	.08	-.01	-.42**	.05	--

Note. * $p < .05$; T1 = Time 1 (third trimester of pregnancy); T2 = Time 2 (infant at 3-4 months)

Table 4

Regression Analysis Predicting Infant Social-Emotional Competence

	<i>b</i>	<i>SE</i>	β	<i>t</i>	95% CI
(Constant)	25.74	20.25		1.27	[-15.46, 66.94]
Women's Prenatal Empowerment	-0.89	2.13	-0.07	-0.42	[-5.22, 3.45]
Parental Stress	-3.85	1.87	-0.40	-2.07*	[-7.65, -0.06]
Mother-Infant Attachment	-3.44	4.68	-0.15	-0.76	[-12.95, 6.08]
KIDI % Accuracy	8.11	3.56	0.37	2.28*	[0.87, 15.35]

Note. * $p < .05$