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Effects of Maternal Depressive Symptoms on Sensitivity to Infant Distress and Non-Distress: Role of SES and Race

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Abstract

The goals of the present study were to examine the extent to which (a) maternal depressive symptoms (prenatal vs. postnatal depressive symptoms) undermine maternal sensitivity toward both infant distress and non-distress; (b) such effects are stronger in the context of socioeconomic risk. SES risk and depressive symptoms interacted such that depressive symptoms, both pre and postnatal, only predicted lower sensitivity among mothers at heightened SES risk. The effects were comparable for sensitivity to distress and non-distress and did not vary by maternal race.

Keywords

maternal depressive symptoms; maternal sensitivity; sensitivity to infant distress and non-distress; SES risk; Maternal depression; parenting

Maternal depression is a serious and common public health problem, affecting mothers and their infants. Eight to 13% of new mothers experience postpartum depression, with another 16-23% experiencing elevated symptomatology throughout the infant's first year of life (Ertel, Rich-Edwards, & Koenen, 2011). Symptoms of depression include withdrawn affect, persistent feelings of sadness, trouble sleeping or insomnia, feelings of worthlessness, anxiety, and lack of energy (Horowitz & Goodman, 2004). Furthermore, maternal depression is a well-documented predictor of compromised parenting. For example, mothers with elevated depressive symptoms interact with their infants less, are more withdrawn, and are less responsive to infant cues (Field, 2010; Jones, Field, Hart, Lundy, & Davalos, 2001). Notably, in a meta-analysis of 48 observational studies, depressive symptoms were a

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significant predictor of more negative parenting behaviors and of less positive parenting among mothers with low versus high socioeconomic status (SES; Lovejoy, Graczyk, O'Hare, & Neuman, 2000).

A commonly studied aspect of maternal parenting during infancy is maternal sensitivity. Sensitive maternal behavior is characterized by consistent, prompt, and appropriate responses toward infant cues (Ainsworth, Bell, & Stayton, 1974). To date, most research linking depressive symptoms with lower maternal sensitivity focuses on sensitivity in play or other non-stressful interactions (Bernard, Nissim, Vaccaro, Harris & Lindheim, 2018). The extent to which and conditions under which depressive symptoms undermine maternal sensitivity in distressing situations is unclear. This is an important gap given previous research suggests that sensitivity to infant distress is a unique predictor of infant attachment security, more adaptive emotion regulation, higher social competence, and lower behavior problems (Leerkes, 2011; Leerkes, Blankson, & O'Brien, 2009; McElwain & Booth-LaForce, 2006). Additionally, there is some evidence that maternal sensitivity to distress and non-distress have different predictors (Leerkes, Weaver & O'Brien, 2012). Thus, the primary goals of the present study are to extend prior literature by examining the extent to which (a) maternal depressive symptoms (prenatal vs. postnatal depressive symptoms) interfere with maternal sensitivity toward infant distress and non-distress; and (b) socioeconomic risk places mothers with elevated depressive symptoms at higher risk for less sensitive responsiveness towards infant distress and non-distress. A secondary and more exploratory goal is to formally test if the above effects are equivalent or vary for Black versus White mothers.

Maternal depressive symptoms may undermine sensitivity for several reasons. First, depressive symptoms drive distorted cognitions, which may lead to a mother-centered rather than infant-centered approach to caregiving (e.g. when mothers attend to their own needs before attending to infant signals) and to negative attributions for infant behavior (Leerkes & Siepak, 2006), resulting in less sensitive caregiving (Cicchetti, 2010; Dix, Moed, & Anderson, 2014). Second, mothers with depression appear biased when processing emotional events (Girgus & Nolen-Hoeksema, 2006) which may undermine their ability to read infant cues effectively, a hallmark feature of sensitivity. Consistent with this view, in a recent meta-analysis of 48 infancy studies, elevated maternal depressive symptoms were associated with lower maternal sensitivity toward infants regardless of observational context (Bernard et al., 2018). Thus, we hypothesized maternal depressive symptoms would undermine sensitivity in both distress and non-distress contexts.

The extent to which maternal depression undermines sensitivity may be dependent on family SES, which may be a source of stress or support. SES is typically defined as a combination of education, occupation, and income, and usually represents social status of individuals or groups. Home environments where SES is low may be more chaotic, leading to heightened stress thereby undermining effective parenting (Deater-Deckard, Chen, Wang, & Bell, 2012; Wang, Deater-Deckard, & Bell, 2013). Further, low maternal age and less maternal education are frequently associated with compromised mental health and parenting outcomes (Lanza, Rhoades, Greenberg, & Cox, 2011; Pittman & Boswell, 2008), illustrating the importance of considering multiple aspects of socioeconomic risk, not just income.

Drawing from the dual risk, or diathesis-stress perspective, depressive symptoms may be more likely to be associated with compromised parenting when paired with stressful life experiences, such as higher SES risk (Taraban & Shaw, 2018). Thus, we predict that maternal depression and elevated SES risk would interact to predict mother's lower sensitivity towards both infant distress and non-distress, such that the negative effect of depression on sensitivity would be stronger in the context of SES risk/disadvantage as reported in Lovejoy et al.'s meta-analysis (2000). Of note, SES was not a significant moderator of the association between depression and sensitivity in the meta-analysis conducted by Bernard et al., (2018), but race/ethnicity was, such that the association between depression and lower sensitivity was stronger in predominantly White samples leading the authors to call for further attention to the role of race in future studies.

Racial group differences in mean level depressive symptoms and sensitivity are apparent such that depressive symptoms are higher and sensitivity is lower among Black mothers compared to White mothers (Chang, Tabet, Elder, Kiel, & Flick, 2016; Hain, Oddo-Sommerfeld, Bahlmann, Louwen, & Schermelleh-Engel, 2016; Mesman, van IJzendoorn, & Bakermans-Kranenburg, 2012; Pereira, Negrao, Soares, & Mesman, 2015). However, these differences tend to become non-significant when SES is controlled, suggesting race differences may be confounded with SES. Beyond the meta-analysis by Bernard et al (2018), the possibility that associations between maternal depressive symptoms and sensitivity vary based on race remains largely untested. Such a question is important in the field of infant development given evidence that minority mothers are less likely to receive adequate treatment for depression than White mothers (Witt et al, 2011). Given the current sample is half Black and half White, a multi-group analysis was used to formally test whether associations between depressive symptoms, SES risk, and their interaction with sensitivity to distress and non-distress vary between Black and White mothers. Given limited prior research in this area in which race was examined at the individual level as opposed to sample level, we did not have a specific hypothesis.

Finally, given some evidence that the timing of maternal depression may moderate the impact of depression on parenting such that associations are higher among concurrent measures (Lovejoy et al, 2000), we examine both prenatal depressive symptoms and postnatal depressive symptoms assessed concurrently with parenting. Thus, the current study is a longitudinal, multi-method study that examined the extent to which prenatal and postnatal depressive symptoms undermine sensitive caregiving during distressing and non-distressing tasks. Further, the possibility that SES risk may exacerbate the association between maternal depressive symptoms and maternal sensitivity to infant distress and non-distress was examined. Finally, we explored possible race differences in patterns of associations.

The current study used data from a longitudinal study that followed 231 primiparous mothers (116 White; 115 Black) and their full-term infants (52% female) from a community sample in the southeastern United States from the prenatal period until infants were 2 years old. At recruitment, mothers ranged in age from 18-44 years ($M=25$ years, $SD=5.41$) and had a median annual family income of \$35,000 (range between less than \$2000 to over \$100,000). Most mothers (65%) had some amount of college education, and most mothers

(71%) were married or living with their infant's father. Recruitment, attrition, and data collection are described in more detail in (Leerkes, Su, Calkins, Supple, & O'Brien, 2016)). Mothers provided written consent to participate, and study procedures were approved by the Internal Review Board at (UNC Greensboro, IRB No.09-0035).

Mothers completed a brief demographic questionnaire prenatally. A principal components factor analysis on maternal age, maternal education, and family income-to-needs ratio yielded a single factor with eigenvalue of 2.15 that accounted for 71.51% of the variance. A composite SES risk index was computed by averaging the standardized values for maternal education, income-to-needs, and maternal age by multiplying the final score by -1 . A high SES risk index score indicates lower income-relative-to-needs, maternal education, and maternal age.

Maternal depressive symptoms were assessed prenatally, and when infants were 6, 12, and 24 months of age using the 20-item Center of Epidemiologic Studies-Depression Scale (CES-D; Radloff, 1977). Participants indicated how often they felt a particular way during the previous week on a 4-point scale ranging from 0 (never/rarely) to 3 (most of the time). Two overall scores were created: prenatal depressive symptoms reflected the scores of the CES-D administered during the third trimester ($\alpha = .87$), and postnatal depressive symptoms reflected a mean of 6, 12, and 24 month CES-D scores, all of which correlated with one another at greater than $r = .45$ (α s range from $.87$ to $.91$).

When infants were 6, 12, and 24 months of age, mothers and infants came into the laboratory and participated in videotaped observations (see author reference for more details). Mothers and infants engaged in non-stressful tasks and distress-eliciting tasks. Sensitivity to non-distress was measured at all three time points during 7 minutes of free play with provided age-appropriate toys, and routine caregiving task (e.g. diaper change and dressing) at 6 months only. There were three distress eliciting tasks at the 6 months visit. The first task was designed to elicit infant frustration and consisted of a 4-minute arm restraint procedure. The next distress task was a 4-minute novel toy approach and was designed to elicit fear. During the first minute of both tasks, mothers were instructed not to interact with their infant. After one minute, mothers were instructed to interact with their infant as they pleased. The last distress task was the still-face procedure (Tronick et al., 1987), in which mothers were seated at eye-level across from infants. First, mothers were instructed to interact with their infants for two minutes as they usually would. Next, they were asked to briefly look away from the infant, and then look back to the infant with a neutral face for two minutes. Finally, the mothers were instructed to look away and then back again at their infant, and then to interact and play with their infant as they normally would for two minutes.

When infants were 12 months of age, mothers and infants participated in two distress eliciting tasks. The first distress task, designed to elicit frustration, involved prompting the infant to get a toy phone out of an unopenable clear plastic jar for 4 minutes. To elicit fear, a character approach task was used. A researcher dressed as an ogre attempted to interact with the toddler for 4 minutes. Likewise, when infants were 24 months old, mothers and infants participated in two distress eliciting tasks. In the first distress task, toddlers were allowed to

play freely with a chosen toy before having the toy placed in a clear plastic box with a lock on it. Children were shown how to open the box with a key, but children were given a set of keys that did not match the lock. Children were encouraged and prompted by the researcher to open the box and get the toy out throughout the entire task, which lasted 4 minutes. Next, in the spider approach task, a stuffed spider attached to a remote-controlled car was placed in the laboratory with the mother and child and moved around the room and approached the child for 4 minutes to elicit distress. For the first minute of both tasks (12-month and 24-month visits), mothers were instructed to stay seated and remain neutral. For the next 3 minutes, mothers could interact in any way they wanted without interrupting the task.

Maternal sensitivity for 6, 12, and 24 months were rated separately for each task using Ainsworth's 9-point sensitivity/insensitivity scale ranging from (1) highly insensitive (e.g., behavior is geared toward mothers wishes rather than infant signals; may ignore signals or responses may be inappropriate or incomplete) to (9) highly sensitive (e.g., attuned to signals, responds contingently, responses are prompt and appropriate; Ainsworth, Bell, & Stayton, 1974). Reliability was calculated by double coding 15 to 20% of the video recordings at each wave, and coders were blind to depressive symptoms status of mothers. Interrater reliability was adequate across all time points and tasks (ICCs range from .74 to .96). Sensitivity scores across the three waves and multiple tasks were averaged to reflect two scores: average sensitivity to distress ($\alpha = .78$) and average sensitivity to non-distress ($\alpha = .84$).

Analyses were conducted in three parts. First, descriptive statistics, t-tests, and preliminary correlations among key variables were examined. Second, four multiple group analyses were conducted in Mplus (Muthén & Muthén, 2017) to determine if patterns of associations between pre or postnatal depression, SES risk, and their interaction term with (a) sensitivity to distress and (b) sensitivity to non-distress varied based on maternal race. If no group differences in associations were apparent, but mean race differences in key variables were, follow up regression analyses would then be conducted to test the effects of maternal depressive symptoms and SES on sensitivity while controlling for race. Overall, missing data were less than five percent. Postnatal depression, sensitivity to distress, and sensitivity to non-distress composite scores were calculated on any available data (e.g., if a participant missed the 6-month visit, but had data for the 12-month and 24-month waves, their sensitivity score was reflected as a composite of two waves of data that were available).

Table 1 contains information on descriptive statistics, correlations among variables of interest for White and Black mothers, and t-test results comparing mean level differences for White and Black mothers on all primary variables. There was a strong, positive correlation between sensitivity to distress and sensitivity to non-distress; likewise, prenatal and postnatal depressive symptoms correlated positively. Sensitivity to distress was negatively correlated with prenatal depressive symptoms, postnatal depressive symptoms, and SES risk. Similarly, sensitivity to non-distress was negatively correlated with prenatal depression, postnatal depression, and SES risk. Independent samples t-tests indicated White mothers were rated higher in sensitivity to distress and sensitivity to non-distress, and Black mothers reported higher pre- and postnatal depressive symptoms, and SES risk.

The four multi-group path models were all invariant (i.e., all χ^2 were non-significant), indicating no significant differences in patterns of association between Black and White mothers. Given race differences in several key variables, a final four regressions were run including race as a covariate (please see Table 2). Patterns across regression analyses were generally similar. That is, maternal depressive symptoms were a modest but statistically significant negative predictor of sensitivity in all models except the one in which prenatal depressive symptoms predicted sensitivity to distress. There was a robust main effect of SES risk on sensitivity in all models, and race predicted sensitivity independent of SES risk. Thus, high depressive symptoms, SES risk, and being Black were generally associated with lower sensitivity as main effects. The main effect for SES and depressive symptoms was qualified by a significant two-way depressive symptomology by SES risk interaction in each model. Simple slope analyses were conducted probing all interactions at one standard deviation above and below the mean of SES risk. As illustrated in Figure 1, for mothers higher in SES risk, there was a significant negative association between prenatal depressive symptoms and sensitivity to distress, such that as depressive symptoms increased, sensitivity decreased ($\beta = -.19$ to $.25$, $p < .01$). In contrast, for mothers low in SES risk, prenatal depressive symptoms were not significantly associated with sensitivity to distress. Patterns of simple slopes were similar for the other 3 regression models such that depressive symptoms were only significantly negatively associated with sensitivity in the context of high SES risk.

The results are highly consistent with meta-analytic evidence (Bernard, et al., 2018) that maternal depressive symptoms, particularly among mothers who are high in SES risk (Lovejoy et al., 2000), are linked with compromised parenting. This finding is consistent with the dual risk perspective and prior evidence that maternal sensitivity is particularly likely to be compromised in the context of multiple co-occurring risk factors (Lanza, Rhoades, Greenberg, & Cox, 2011). Furthermore, these results extend prior research by demonstrating this effect was comparable for both sensitivity to distress and non-distress, an important contribution given the significance of maternal sensitivity to infant distress for later child outcomes (Leerkes, Blankson, & O'Brien, 2009; McElwain & Booth-LaForce, 2006).

Although there were modest differences in the extent to which prenatal versus concurrent depressive symptoms predicted maternal sensitivity, the SES by depressive symptoms interaction was remarkably consistent for both. In contrast, Lovejoy et al (2000) reported that concurrent symptoms were a stronger predictor of parenting than a lifetime history of depression. However, in this study prenatal depressive symptoms were assessed in the relatively recent past and were moderately correlated with subsequent symptoms in this sample, perhaps explaining its continued role in predicting later parenting, and underscoring the value of screening for prenatal depressive symptoms in an effort to prevent compromised parenting. By far, the most robust predictor of sensitivity in this sample was SES risk. This strong main effect coupled with its role as an amplifier for the effects of depressive symptoms highlights the important role of SES on parenting. Intervention to address other issues, such as maternal depression, may not be effective without attending to family's basic needs. Importantly, although mean level race differences were apparent, and the effects of race on maternal sensitivity were significant independent of SES risk, there were no

differences in patterns of association based on race. In other words, the effects of depressive symptoms, SES risk, and their interaction on sensitivity were comparable for White and Black mothers.

There are several strengths of this study, including the diverse sample and attention to possible race differences, multiple assessments of depressive symptoms, and careful observation of sensitivity in distress and non-distress eliciting contexts. Furthermore, aggregating postpartum depressive symptoms and sensitivity over 3 assessment waves should have resulted in highly reliable measures. Although considering community samples is important because even non-clinical levels of depressive symptoms may undermine parenting and child outcomes (Field, 2010), results may have been different or stronger in a clinical or high-risk sample, thus our sample is a limitation. Another limitation is that we did not have a formal measure of prior lifetime depressive episode.

In sum, the results demonstrate that maternal sensitivity to distress and non-distress in infancy are compromised among mothers with elevated depressive symptoms and high SES risk, and even more so when the two risks co-occur.

References

- Ainsworth MDS, Bell SM, & Stayton DJ (1974). Infant-mother attachment and social development: 'Socialization' as a product of reciprocal responsiveness to signals In Richards MP (Ed.), *The introduction of the child into a social world* (pp. 99–135). London: Cambridge University Press.
- Bernard K, Nissim G, Vaccaro S, Harris JL, & Lindheim O (2018). Associations between maternal depression and maternal sensitivity from birth to 12 months: a meta-analysis. *Attachment & Human Development*, 20, 758–599. doi: 10.1080/14616734.2018.1430839
- Brown HE (2013). Racialized conflict and policy spillover effects: The role of race in the contemporary U.S. welfare state. *American Journal of Sociology*, 779, 394–443. doi:10.1086/674005
- Chang JJ, Tabet M, Elder K, Kiel DW, & Flick LH (2016). Racial/ethnic differences in the correlates of mental health services use among pregnant women with depressive symptoms. *Maternal Child Health Journal*, 20, 1911–1922. doi:10.1007/s10995-016-2005-1 [PubMed: 27126445]
- Cicchetti D (2010). Developmental psychology In Lamb ME, Freund AM, & Lemer RM (Eds.), *The handbook of life-span development*, Vol 2: Social and emotional development (pp. 511–589). Hoboken, NJ: John Wiley & Sons Inc.
- Crockenberg S, & McCluskey K (1986). Change in maternal behavior during the baby's first year of life. *Child Development*, 57, 746–753.
- Chronicity of maternal depressive symptoms, maternal sensitivity and child functioning at 36 months. (1999). *Developmental Psychology*, 35, 1297–1310. doi: 10.1037/0012-1649.35.5.1297. [PubMed: 10493655]
- Deater-Deckard K, Chen N, Wang Z, & Bell MA (2012). Socioeconomic risk moderates the link between household chaos and maternal executive function. *Journal of Family Psychology*, 26, 391–399. doi:10.1037/a0028331. [PubMed: 22563703]
- Dix TH, Moed, & Anderson. (2014). Mothers' depressive symptoms predict both increased and reduced negative reactivity: Aversion sensitivity and the regulation of emotion. *Psychological Science*, 25, 1353–1361. doi:10.1177/0956797614531025 [PubMed: 24796661]
- Earnshaw VA, Rosenthal L, Lewis JB, Stasko EC, Tobin JN, Lewis TT, ... Ickovics JR (2013). Maternal experiences with every day and infant birth weight: A test of mediators and moderators among young, urban women of color. *Behavior Medicine*, 45, 13–23.

- Ertel KA, Rich-Edwards JW, & Koenen KC (2011). Maternal depression in the United States: Nationally representative rates and risk. *Journal Women's Health*, 20, 1609–1617. doi:10.1089/jwh.2010.2657
- Few-Demo AL (2014). Intersectionality as the “new” critical approach in feminist family studies: Evolving racial/ethnic feminisms and critical race theories. *Journal of Family Theory and Review*, 6, 169–183. doi:10.1111/jftr.12039
- Field T (2010). Postpartum depression effects on early interactions, parenting, and safety practices: A review. *Infant Behavior and Development*, 33, 1–6. doi:10.1016/j.infbeh.2009.10.005 [PubMed: 19962196]
- Garcia-Coll C, Lamberty G, Jenkins R, McAdoo HP, Crnic K, Waski BH, & Garcia HV (1996). An integrative model for the study of developmental competencies in minority children. *Child Development*, 67, 1891–1914. doi:10.2307/1131600 [PubMed: 9022222]
- Girgus JS, & Nolen-Hoeksema S (2006). Cognition and depression In Keys CLM & Goodman SH (Eds.), *Women and depression: A handbook for the social, behavioral, and biomedical sciences*. New York, NY: Cambridge University Press.
- Hain S, Oddo-Sommerfeld S, Bahlmann F, Louwen F, & Schermelleh-Engel K (2016). Protective factors for antepartum and postpartum depression: A prospective study. *Journal of Psychosomatic Obstetrics & Gynecology*, 37, 119–129. doi:10.1080/0167482X.2016.1197904 [PubMed: 27376660]
- Horowitz JA, & Goodman J (2004). A longitudinal study of maternal postpartum depression symptoms. *Research and Theory for Nursing Practice*, 18, 149–163. [PubMed: 15553344]
- Huang ZJ, Lewin A, Mitchell SJ, & Zhang J (2012). Variations in the relationship between maternal depression, maternal sensitivity, and child attachment by race/ethnicity and nativity: Findings from a nationally represented cohort study. *Maternal Child Health Journal*, 16, 40–50. doi:10.1007/s10995-010-0716-2 [PubMed: 21107669]
- Jones NA, Field T, Hart S, Lundy B, & Davalos M (2001). Maternal self-perceptions and reactions to infant crying among intrusive and withdrawn depressed mothers. *Infant Mental Health Journal*, 22, 576–586.
- Joormann J, & Arditte K (2014). Cognitive aspects of depression In Gotlib IH & Hammen CL (Eds.), *Handbook of depression* (pp. 259–276). New York, NY: Guilford Press.
- Kettunen P & Hintikka J (2017). Psychosocial risk factors and treatment of new onset and recurrent depression during the post-partum period. *Nordic Journal of Psychiatry*, 71, 355–361. Doi: 10.1080/08039488.2017.1300324 [PubMed: 28290763]
- Lanza ST, Rhoades BL, Greenberg MT, & Cox M (2011). Modeling multiple risks during infancy to predict quality of the caregiving environment: Contributions of a person-centered approach. *Infant Behavior & Development*, 34, 390–406. doi: 10.1016/j.infbeh.2011.02.002 [PubMed: 21477866]
- Leerkes EM (2010). Predictors of maternal sensitivity to infant distress. *Parenting*, 10, 219–239. doi:10.1080/15295190903290840 [PubMed: 20824194]
- Leerkes EM, Blankson A, & O'Brien M (2009). Differential effects of maternal sensitivity to infant distress and nondistress on social-emotional functioning. *Child Development*, 80, 762–775. doi:10.1111/j.1467-8624.2009.01296.X [PubMed: 19489902]
- Leerkes EM, Supple AJ, O'Brien M, Calkins SD, Haltigan JD, Wong MS, & Fortuna K (2015). Antecedents of maternal sensitivity during distressing tasks: Integrating attachment, social information processing, and psychobiological perspectives. *Child Development*, 1–18. doi:10.1111/cdev.12288
- Lovejoy MC, Graczyk PA, O'Hare E, & Neuman G (2000). Maternal depression and parenting behavior: A meta-analytic review. *Clinical Psychology Review*, 20, 561–592. [PubMed: 10860167]
- McElwain NL, & Booth-LaForce. (2006). Maternal sensitivity to infant distress and nondistress as predictors of infant-mother attachment security. *Journal of Family Psychology*, 20, 247–255. doi:10.1037/0893-3200.20.2.247 [PubMed: 16756400]
- Mesman J, van IJendoorn MH, & Bakermans-Kranenburg MJ (2012). Unequal in opportunity, equal in process: Parental sensitivity promotes positive child development in ethnic minority families. *Child Development Perspectives*, 6, 239–250. doi:10.1111/j.1750-8606.2011.00223.x

- Mukherjee S, Trepka MJ, Pierre-Victor D, Bahelah R, & Avent T (2016). Racial/ethnic disparities in antenatal depression in the United States: A systematic review. *Maternal Child Health Journal*, 20, 1780–1797. doi:10.1007/s10995-016-1989-x [PubMed: 27016352]
- Muthén LK, & Muthén BO (2017). *Mplus user's guide* (8th ed.). Los Angeles, CA: Muthén & Muthén.
- Pereira M, Negrao M, Soares L, & Mesman J (2015). Predicting harsh discipline in at-risk mothers: The moderating effect of socioeconomic deprivation severity. *Journal of Child and Family Studies*, 24, 725–733. doi:10.1007/s10826-013-9883-2
- Pittman LD, & Boswell MK (2008). Low-income multigenerational households: Variation in family functioning by mother's age and race/ethnicity. *Journal of Family Issues*, 29, 851–881. doi:10.1177/0192513X07312107
- Radloff LS (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, 1, 385–401. doi:10.1177/014662167700100306
- Taraban L, & Shaw DS (2018). Parenting in context: Revisiting Belsky's classic process of parenting model in early childhood. *Developmental Review*, 48, 55–81.
- Wang Z, Deater-Deckard K, & Bell MA (2013). Household chaos moderates the link between attribution bias and parenting. *Parenting: Science and Practice*, 13, 233–252. doi:10.1080/15295192.2013.832569.
- Witt WP, Keller A, Gottlieb C, Litzelman K, Hampton J, Maguire J, & Hagen EW (2011). Access to adequate outpatient depression care for mothers in the USA: A nationally representative population-based study. *The Journal of Behavioral Health Services & Research*, 38, 191–204. Doi:10.1007/s11414-009-9194-y [PubMed: 19838806]

Highlights:

- Maternal depressive symptoms undermines maternal sensitivity to distress
- Maternal depressive symptoms undermines maternal sensitivity to non-distress
- Significant interaction between SES risk and depressive symptoms
- Lower sensitivity among mothers with heightened SES risk
- Depressive symptoms undermine maternal sensitivity in distressing situations
- Most robust predictor of sensitivity in this sample was SES risk
- No differences in the pattern of associations based on race.

Figure 1.

Interaction between prenatal maternal depressive symptoms and SES risk. Similar patterns were present for the 3 other significant interactions.

Table 1:Descriptive statistics, correlations, and *t*-test results

	1.	2.	3.	4.	5.
1. SES Risk	-				
2. Prenatal Dep	.25**	-			
3. Postnatal Dep	.35**	.52**	-		
4. Sen Distress	-.66**	-.25**	-.35**	-	
5. Sen Nondistress	-.65**	-.28**	-.38**	.88**	-
	1.	2.	3.	4.	5.
Possible Range	-4-4	0-60	0-60	1-9	1-9
Total Sample					
M	.02	13.64	10.78	5.31	5.68
SD	.85	8.71	7.69	1.39	1.45
White Mothers					
M	-.37	12.32	8.92	6.01	6.42
SD	.88	8.00	6.25	1.24	1.25
Black Mothers					
M	.40	14.94	12.63	4.60	4.93
SD	.60	9.21	8.56	1.16	1.24
<i>t</i>-test comparing means of White and Black Mothers	-8.18***	-2.44*	-3.86***	8.92***	9.19***

Note: Dep = depressive symptoms, Sen = sensitivity;

*
 $p < .05$ **
 $p < .01$ ***
 $p < .001$

Table 2.

Multiple regression models predicting sensitivity to distress and non-distress

Sensitivity to Distress						Sensitivity to Non-distress					
Prenatal Symptoms		<i>B</i>	<i>SE</i>	<i>β</i>	<i>R</i> ²	95% CI	<i>B</i>	<i>SE</i>	<i>β</i>	<i>R</i> ²	95% CI
Step 1:					.49					.50	
Mother Race		-.70	.15	-.25**		-.99, -.41	-.78	.15	-.27**		-1.08, -.47
Depression		-.01	.01	-.08		-.03, -.003	-.02	.01	-.12*		-.04, -.003
SES Risk		-.85	.09	-.52**		-1.03, -.68	-.85	.09	-.50**		-1.03, -.67
Step 2:					.51					.51	
Depression X SES		-.03	.01	-.12*		-.05, -.01	-.024	.01	-.11*		-.05, -.004
Risk											
Postnatal Symptoms		<i>B</i>	<i>SE</i>	<i>β</i>	<i>R</i> ²		<i>B</i>	<i>SE</i>	<i>β</i>	<i>R</i> ²	
Step 1:					.50					.50	
Mother Race		-.70	.15	-.25**		-.99, -.41	-.76	.15	-.27**		-1.06, -.47
Depression		-.02	.01	-.13*		-.04, -.01	-.03	.01	-.16**		-.05, -.01
SES Risk		-.82	.09	-.50**		-1.00, -.64	-.80	.09	-.47**		-.98, -.62
Step 2:					.52					.52	
Depression X SES		-.04	.01	-.16**		-.06, -.02	-.03	.01	-.13*		-.06, -.01
Risk											

Note: Mother race dummy coded 0 = White, 1 = Black;

* $p < .05$ ** $p < .01$.