

Improvements in the Child-Rearing Attitudes of Latina Mothers Exposed to Interpersonal Trauma Predict Greater Maternal Sensitivity Toward Their 6-Month-Old Infants

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The current study investigated maternal sensitivity in a treatment-seeking sample of predominately Latina, low-income pregnant women with histories of interpersonal trauma exposure. Pregnant women ($N = 52$; $M = 27.08$ years, $SD = 5.66$) who enrolled in a study of a perinatal adaptation of child–parent psychotherapy reported on their posttraumatic stress symptoms and child-rearing attitudes at baseline and again at 6-months postpartum. Maternal sensitivity was measured via observational coding of a free-play episode at 6-months postpartum. Two thirds of mothers exhibited healthy levels of maternal sensitivity, $M > 4.0$ (range = 2.5–7.0). The results of multiple linear regression predicting maternal sensitivity, $R^2 = .26$, indicated that greater improvements in child-rearing attitudes over the course of treatment predicted higher levels of maternal sensitivity, $\beta = .33$, whereas improvements in posttraumatic stress symptoms over the course of treatment did not, $\beta = -.10$. Mothers' attitudes regarding parenting during the perinatal period may be a mechanism by which intervention fosters healthy mother–infant relationship dynamics. Thus, parenting attitudes are a worthy target of intervention in vulnerable families.

Exposure to intimate partner violence (IPV) during pregnancy is increasingly recognized as a major health concern for women and their offspring (Gazmararian et al., 1996; Mendez-Figueroa, Dahlke, Vrees, & Rouse, 2013). IPV is one of the most common forms of trauma during pregnancy, with estimates between 3.5 to 10 percent for industrialized countries (Campbell, Garcia-Moreno, & Sharps, 2004). IPV during pregnancy has been termed “a quintessential threat” (Campbell, 2001, p. 1578) because of the direct and indirect threats to both mother and child health. IPV has also been associated with an increased risk of maltreatment and mental health problems for the offspring, potentially feeding the intergenerational transmission of trauma and psychopathology (Howell, 2011). The gravity of these adverse circumstances in early life is reflected in the rate of child mortality due to abuse, which is highest between birth and 12 months (U.S. Department of Health and

Human Services, 2012). Pregnancy is a natural and powerful period of transition in a women's life and may be a unique window of opportunity for intervention to mitigate the negative effects of IPV in the current and next generation.

Pregnant women who experience IPV are at an elevated risk for vaginal bleeding, placental abruption, and preterm labor (Sharps, Laughon, & Giangrande, 2007), as well as depression and posttraumatic stress disorder (PTSD; Horrigan, Schroeder, & Schaffer, 2000; Kendall-Tackett, 2007). Less education, unmarried status, unplanned pregnancy, and first child are all common characteristics of women exposed to IPV during pregnancy (Goodwin et al., 2000; Saltzman et al., 2003). A nationally representative cohort study found that Latina women were more likely to experience IPV during pregnancy than Whites (Charles & Perreria, 2007, but see Wiemann et al., 2000 for an exception). Moreover, IPV-exposed pregnant Latinas have been shown to manifest elevated levels of depression and PTSD (Rodriguez et al., 2008). Given that Latinos/as are the largest minority group in the United States (U.S. Census Bureau, 2010) and are often underserved by health care systems (e.g., De Jesus & Xiao, 2014), more attention is needed to understand how to ameliorate the effects of exposure to IPV in this population.

The majority of studies linking maternal IPV exposure and child sequelae have concentrated either on birth outcomes or

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behavioral problems in early and middle childhood. Studies of birth outcomes have consistently found that IPV during pregnancy is linked to greater odds of prematurity or low birth weight status of the infant (Coker, Sanderson, & Dong, 2004; Shah & Shah, 2010). Behavioral outcome studies have shown that violence within the family has deleterious effects on child development even when the child is not the target (Flach et al., 2011). There is a relative dearth of information on how correlates of maternal IPV exposure, such as psychological functioning and mental health, affect relational experiences in the first year of life (Bogat, DeJonghe, Levendosky, Davidson, & von Eye, 2006). The current study addressed existing gaps in the literature by examining maternal mental health predictors of maternal sensitivity at 6-months postpartum in a sample of Latina women exposed to IPV during pregnancy.

Maternal sensitivity describes a mother's ability to interpret her child's emotional cues accurately and to respond to them appropriately, promptly, and consistently (Ainsworth, 1969). Mothers with a history of abuse or who suffer from post-traumatic stress often exhibit less sensitivity during interactions with their children (Moehler, Biringen, & Poutska, 2007; Muller-Nix et al., 2004). This is significant because research has shown that maternal sensitivity in early life is one critical predictor of a secure mother-child attachment bond (De Wolff & van IJzendoorn, 1997). Moreover, the link between maternal insensitivity and insecure attachment has been posited as the primary pathway for the intergenerational transmission of maltreatment (Morton & Browne, 1998). Although the transmission of maltreatment from one generation to the next unfolds within a complex ecology of other risk factors, supporting IPV-exposed mothers in their efforts to parent sensitively may be one critical way to foster healthy early development and interrupt the cycle of abuse.

A systematic review of four comparative intervention studies that reliably screened for domestic violence in pregnant women involved provision of a resource card and counseling with a trained domestic violence counselor (Parker, McFarlane, Soeken, Silva, & Reel, 1999). These interventions consistently decreased mothers' self-reported threats and experiences of violence pre- and postnatally (O'Reilly, Beale, & Gillies, 2010). A cognitive-behavioral intervention also demonstrated decreases in violence occurrence as well as lower rates of neonatal prematurity and low birth weight in African American women (Kiely, El-Mohandes, El-Khorazaty, & Gantz, 2010). Although there are a number of effective relationship-based interventions for at-risk pregnant women (for reviews, see Bakermans-Kranenburg, van IJzendoorn, & Juffer, 2003; Mortensen & Mastergeorge, 2014), we are not aware of any existing interventions that specifically target low-income women with histories of IPV and focus on supporting mother-infant relationship quality. Although extensive research has been conducted on maternal depression and maternal sensitivity (e.g., Dannemiller, 1999; Mills-Koonce, Garipey, Sutton, & Cox, 2008), the relation between posttraumatic stress and mother-infant relationship quality has been understudied. The perinatal

adaptation of child-parent psychotherapy was developed to address this gap.

Child-parent psychotherapy (CPP) is a relationship-based clinical intervention for primary caregivers and their children under age 5 years who have experienced interpersonal trauma (Lieberman, Van Horn, & Ippen, 2005; Lieberman & Van Horn, 2008). This therapeutic approach recognizes the parent-child relationship as the central context for healthy child development and is thus the critical context for therapeutic impact. CPP involves joint parent-child sessions with a therapist who helps translate emotional meaning between parent and child to establish or restore the child's sense of safety within the relationship. CPP has been shown in multiple randomized clinical trials to improve child and caregiver functioning in violence-exposed families (Cicchetti, Rogosch, & Toth, 2006; Lieberman, Ghosh-Ippen, & Van Horn, 2006; Toth, Maughan, Manly, Spagnola, & Cicchetti, 2002). Notably, it is the only intervention that has been shown to increase and sustain secure attachments between caregivers and maltreated infants over the long-term (Stronach, Toth, Rogosch, & Cicchetti, 2013).

As described in detail by Lavi, Gard, Hagan, and Lieberman (2015), the perinatal adaptation of CPP (P-CPP) begins during pregnancy and uses multiple modalities to mitigate the effects of IPV exposure on women's parenting and the newly forming mother-infant relationship. P-CPP intervention modalities include psychoeducation on pregnancy, childbirth, and infant development and the impact of IPV on the fetus/baby; body-based and mindfulness-promoting strategies to help women become aware of and tolerate negative body sensations associated with posttraumatic stress reactions; and promoting maternal insight into her negative attributions to the unborn infant as well as reflective developmental guidance during interactions with the infant (Diaz, Van Horn, & Lieberman, 2008).

An uncontrolled trial of perinatal CPP was conducted to assess the feasibility of enrolling and retaining low-income, predominately Spanish-speaking pregnant women and to evaluate whether the key targets of the intervention demonstrated significant improvement from pre- to postintervention (pregnancy through 6-months postpartum). Findings showed that maternal mental health and child-rearing attitudes improved significantly from pre- to postintervention (Lavi et al., 2015). The aim of the current study was to examine whether these changes were related to observable aspects of mother-infant-relationship quality 6 months after birth. We predicted that previously demonstrated improvements in mothers' posttraumatic stress symptoms and child-rearing attitudes during treatment would be associated with higher levels of maternal sensitivity during interaction with their 6-month-old infant.

Method

Participants and Procedure

Participants were recruited through the women's health clinic at the San Francisco General Hospital. Clinic social workers

approached pregnant women between the ages of 18–40 years who endorsed feeling unsafe in their romantic relationship when screened during a routine prenatal check-up. Social workers requested permission to refer them to “a treatment study focused on helping women who have stress in their relationships to be emotionally and physically healthy before and after birth.” Exclusion criteria included mental retardation, psychosis, or current substance abuse. Approximately 208 women were identified as meeting eligibility criteria and gave permission to be contacted by a clinician. Of the 208 women contacted by a clinician, 116 women attended an in-person session during which they were provided a description of the study, including the nature and length of treatment. As described in a previous report (Lavi et al., 2015), of the 116 women who provided written informed consent, 64 completed treatment and the pre- and posttreatment assessments. The 52 women who did not complete treatment dropped out at various points during the study: 22 dropped out during the pretreatment assessment phase, one dropped out following consent but before the pretreatment assessment, 18 dropped out after the pretreatment assessment phase but before the birth, 11 dropped out after birth but before the posttreatment assessment. In sum, 55.8% of women contacted by phone enrolled in the study and 55.2% of those who enrolled completed treatment and pre- and postassessments. These attrition rates are comparable to rates documented in other community-based samples (Kingston, Tough, & Whitfield, 2012).

Study procedures were reviewed and approved by the University of California, San Francisco and San Francisco General Hospital Institutional Review Boards. All clinicians were bilingual and trained in child–parent psychotherapy through the Child Trauma Research Program at San Francisco General Hospital. Clinicians conducted written informed consent, followed by the assessment and treatment in the participant’s native language (82.0% Spanish). Clinicians assessed participants’ histories of traumatic experiences, pregnancy-specific adversity, depressive symptoms, posttraumatic stress symptoms (PTSS), and child-rearing attitudes (CRA) during the intake phase of the study, which was 4.04 sessions long on average ($SD = 1.15$; range = 2–7). Participants were on average 27.40 weeks pregnant ($SD = 9.42$ range = 11–42) at intake. Following the intake phase, women participated in weekly P-CPP treatment through the remainder of their pregnancy, with an average of 4.90 sessions ($SD = 5.59$; range = 0–17) and throughout the 6 months following birth, with an average of 13.50 sessions ($SD = 5.06$; range = 5–35). Because each intake session consisted of intensive one-on-one interviews with the therapist, all intake and treatment sessions were combined to capture total dosage of intervention (Table 1). At the postassessment, participants again completed measures of pregnancy-specific adversity, PTSS, and CRA, and mother–infant dyads completed a videotaped 10-minute free-play episode involving a standardized set of toys. The free-play episode was administered at the completion of treatment to assess the association between treatment and maternal behavior, with the 6-month timeframe established a

priori based on the expectation that therapeutic gains would be most likely to appear by this time. Of the 64 women who completed treatment and posttreatment assessment measures, 11 did not have free-play episodes due to equipment malfunction (63.6%) or declined consent to be videotaped (36.3%), leaving a final sample of 52 women in the current analysis.

Women were, on average, 27.08 years old ($SD = 5.66$; range = 18–40), predominantly Latina (86.5%), of lower income (mean monthly income = \$1,141.18, $SD = \$571.83$; range = \$0–\$2,600), on the supplemental nutrition program for women, infants, and children (WIC; 59.6%), and unemployed (63.5%). Nearly half of women were single, separated, or divorced from partner (48.1%) and had less than a high school education (42.3%). This was the first pregnancy for 36.5% of the women. Average age of infants was 6.57 months old ($SD = 0.72$; range = 4.53–8.28) at postassessment, and 57.7% were female.

Chi-square analysis and one-way analysis of variance (ANOVA) were used to assess differences between the attrited, full, and current subsamples. There were no differences between the current subsample and those who attrited with regards to maternal age ($p = .695$), Latina ethnicity (yes/no; $p = .110$), relationship status ($p = .756$), years of education ($p = .896$), monthly income ($p = .433$), membership in WIC ($p = .473$), primiparity ($p = .278$), infant sex ($p = .185$), or infant age ($p = .202$). Neither were differences found between the current subsample and those who did not have a free-play video: maternal age ($p = .910$), monthly income ($p = .608$), Latina ethnicity (yes/no) ($p = .926$), relationship status ($p = .620$), years of education ($p = .835$), membership in WIC ($p = .846$), primiparity ($p = .342$), infant sex ($p = .250$), or infant age ($p = .419$).

Measures

Women’s lifetime experiences of traumatic events were assessed at intake using the Life Stressor Checklist-Revised (LSC-R; Wolfe, Kimerling, Brown, Chrestman, & Levin, 1996), which was administered in an interview format. The LSC-R includes 30 items assessing the occurrence of abuse, neglect, accidental injury, sudden loss, divorce, incarceration, and other negative events over an adult’s lifetime. The number of endorsed items was summed to create a history of traumatic events score.

The Abuse Assessment Screen (AAS; McFarlane, Parker, Soeken, & Bullock, 1992) is a 5-item questionnaire and the most commonly used to screen for abuse during pregnancy. The clinician administered the AAS during the intake interview and gathered information regarding whether the pregnancy was planned and whether the participant had experienced any pregnancy complications. Following the birth, the clinician asked whether the participant had experienced any complications during the delivery. The one AAS item addressing physical, sexual, or verbal abuse experienced during the pregnancy and the other three questions that addressed pregnancy and delivery were averaged to create the 0–4 pregnancy-specific adversity scale.

Table 1
Means, Standard Deviations, and Bivariate Correlations Among Study Variables

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
1. Years of education	10.96	3.76	–					
2. History of traumatic events	12.33	5.03	.14	–				
3. Pregnancy-specific adversities	0.54	0.15	–.03	.24	–			
4. Treatment dosage	22.46	8.45	–.09	–.18	–.03	–		
5. Change in PTSS	–0.01	0.99	–.01	.28*	–.13	.14	–	
6. Change in CRA	–0.03	0.99	.16	–.11	.18	–.01	–.27	–
7. Maternal sensitivity	4.78	1.19	.35*	.14	–.10	.13	–.05	.30*

Note. *n* = 48–51. PTSS = posttraumatic stress symptoms; CRA = child-rearing attitudes.

**p* < .05.

The Davidson Trauma Scale (Davidson et al., 1997; $\alpha_{intake} = .93$ and $\alpha_{post} = .95$) is a 17-item, 5-point Likert scale, self-report measure that has been validated on rape victims, war veterans, victims of natural disaster, and other traumas as well as in Latino/a populations (Caraballo, Perez-Pedrogo, & Albizu-Garcia, 2013). Items correspond to symptoms of intrusive reexperiencing, avoidance and numbness, and hyperarousal. Participants rated each symptom item for frequency and severity during the previous week. A DTS total frequency score over 40 has demonstrated 88% efficiency in correctly classifying study participants who had received a diagnosis of posttraumatic stress disorder via an independently administered Structured Clinical Interview for DSM Disorders (First, Spitzer, Gibbon, & Williams, 2002). Consistent with previous research, we used the frequency scale in the current study.

The Adult-Adolescent Parenting Inventory-2 (AAPI-2; Bavolek & Keene, 2001; $\alpha_{intake} = .88$ and $\alpha_{post} = .85$) is a 40-item, 5-point Likert scale, self-report measure, designed to identify child-rearing attitudes associated with risk for abusive and neglectful parenting practices in adolescent parents and adult parents. The AAPI has been validated on populations at elevated risk for child maltreatment (Connors, Whiteside-Mansell, Deere, Ledet, & Edwards, 2006), and validity, internal consistency, and test-retest reliability has been demonstrated in Latina/o populations as well (Solís-Camara & Diaz-Romero, 1991). The five subscales include Inappropriate Parental Expectations (e.g., “Children should be taught to obey their parents at all times”), Parental Lack of Empathic Awareness (e.g., “Babies need to learn how to be considerate of the needs of their mothers”), Strong Belief in Corporal Punishment (e.g., “A good spanking never hurt anyone”), Parent–Child Role Reversal (e.g., “Children should be their parents’ best friend”), and Oppressing Children’s Power and Independence (e.g., “Children who receive praise will think too much of themselves”), with reverse scoring so that higher scores indicate more appropriate child-rearing attitudes. The total score was used to comprehensively capture child-rearing attitudes in the current study.

The observed measure of maternal sensitivity was drawn from the Emotional Availability Scales (4th ed., EAS;

Biringen, 2008), a system that has demonstrated reliability and continuity over time (Bornstein, Gini, Suwalsky, Leach, & Haynes, 2006). Although this coding system consists of four mother-focused scales (Sensitivity, Structuring, Non-Hostility, and Non-Intrusiveness) and two child-focused scales (Responsiveness and Involvement), the current study included Maternal Sensitivity only. We focused on the Maternal Sensitivity Scale because the extant literature demonstrates that sensitivity is a key construct in the formation of a secure attachment bond and that it is particularly vulnerable to compromise by trauma exposure. Three coders with advanced degrees achieved reliability with the developer of the EAS ($r > .80$) and then double-coded 33% of the tapes ($ICC = .95$ – $.99$) before completing the remaining tapes singly.

Data Analysis

SPSS 22.0 was used to conduct all analyses. Means and *SD*s were reported for continuous variables and frequency and percentages were reported to describe the prevalence of discrete traumatic events. Bivariate analyses were conducted among study variables. A repeated measures ANOVA was conducted to determine significant change in maternal functioning (i.e., PTSS and CRA) from intake to postassessment, as was found in a previous study of a related sample (Lavi et al., 2015). Linear regression modeling was conducted to estimate the association between changes in maternal functioning and maternal sensitivity. To account for variability in scores at intake, standardized residualized change scores were computed by regressing postassessment PTSS and CRA scores onto the corresponding intake scores separately. These change scores were used in the prediction of maternal sensitivity. Given the minimal amount of missing data (i.e., < 5%), alternative or additional missing data procedures were not conducted.

Results

The majority of participants reported lifetime traumatic experiences including emotional abuse and neglect (88.2%), the sudden death of someone close (66.7%), and physical neglect

(41.2%). A childhood history of trauma was also predominant in the sample, with 66.7% of participants reporting exposure to family violence, 56.9% of participants reporting physical abuse, and 27.5% reporting forced sexual encounters before the age of 16 years. The majority of participants (80.4%) reported verbal, physical, and/or sexual abuse during pregnancy, most commonly at the hands of the unborn infant's father (84.4%). Pregnancy difficulties were also common: 71.2% reported the pregnancy was unplanned, 56.0% reported complications during pregnancy, and 31.3% reported complications during delivery.

Descriptive statistics and bivariate correlations among study variables are presented in Table 1. Using the cutoff score of > 4.0 , which denotes adequate sensitivity (Biringen, 2000), 61.5% of mothers exhibited healthy sensitivity toward their infant (range = 2.5 to 7). We examined associations between PTSS or CRA change scores or maternal sensitivity and other variables of interest including years of education, history of traumatic events, pregnancy-specific adversity, depressive symptoms, and number of treatment sessions (see below). Neither maternal sensitivity nor PTSS or CRA change scores differed for primiparous mothers compared to those whose pregnancy was not their first ($ps = .867, .459, \text{ and } .952$, respectively). Finally, we examined whether infants had witnessed IPV. Only six mothers (11.5%) reported that their infants had witnessed IPV, a proportion too small to support substantive group difference analyses.

As expected, PTSS, Wilks's $\lambda = .52$, $F(1, 50) = 45.49$, $p < .001$; $\eta_p^2 = .48$ and CRA, Wilks's $\lambda = .59$, $F(1, 50) = 32.89$, $p < .001$; $\eta_p^2 = .41$, demonstrated significant change from intake to postassessment. Women's PTSS decreased ($M = 57.85$, $SD = 29.96$ to $M = 28.86$, $SD = 28.61$) and their CRA increased ($M = 131.04$, $SD = 20.65$ to $M = 147.54$, $SD = 13.44$). Consistent with a previous report on a related sample (Lavi et al., 2015), both posttraumatic stress symptoms and child-rearing attitudes improved with the P-CPP treatment.

The PTSS and CRA standardized residualized change scores were used in a linear regression model predicting maternal sensitivity. Maternal years of education, history of traumatic events, and pregnancy-specific adversities were also included. The overall model was significant. Mothers with more years of education and those with greater improvements in CRA were more sensitive with their 6-month-old children. No evidence was found for an association between change in PTSS and level of maternal sensitivity (Table 2).

Discussion

The deleterious effects of IPV on mother and child begin before the child's birth and call for well-validated relational interventions that start during pregnancy. Perinatal child-parent psychotherapy (P-CPP) has been shown to improve mothers' child-rearing attitudes (CRA) and posttraumatic stress symptoms (PTSS) from pretest to 6-months postpartum. Based on

the extensive literature highlighting the importance of maternal sensitivity to healthy parent-child relationships and the significant impact of IPV on maternal functioning and the parent-child relationship quality (Bogat, Levendosky, von Eye, & Davidson II, 2011), we tested the hypothesis that P-CPP-associated improvements in CRA and PTSS would be related to higher levels of observed maternal sensitivity in a highly vulnerable sample of Latina women exposed to IPV. We found partial support for our hypothesis. Improvements in CRA over the course of the intervention predicted higher levels of maternal sensitivity during play with her 6-month-old child. This suggests that maternal perceptions of and attitudes toward parenting may be one mechanism by which treatment can improve parenting behavior and foster healthy mother-infant interaction among women who have experienced IPV.

Although changes in PTSS were observed between pre- and post-P-CPP, these changes were not associated with maternal sensitivity. This aligns with others' findings that maternal mental representations of her infant are a more powerful predictor of parenting behaviors than PTSS (Schechter et al., 2008). Although the intervention significantly decreased PTSS, overall rates of PTSS were still elevated at the postassessment. It is possible the improvements in PTSS were simply not large enough to impact maternal sensitivity directly. Much of the existing work on PTSS and parenting behavior is cross-sectional. Future studies should examine how patterns of change in maternal PTSS are associated with sensitivity or whether maternal attitudes and perceptions better explain the association.

Two thirds of mothers in our sample responded to their 6-month-old infant with healthy levels of sensitivity, a promising outcome in a highly vulnerable population. It is common for nonoptimal parenting behaviors including insensitivity, hostility, and maltreatment to be elevated in mothers exposed to IPV (Bogat et al., 2011). The more optimal functioning observed in this sample may be a product of the P-CPP intervention, but this possibility could not be tested given a lack of a control group (or a pre- and postassessment of maternal sensitivity). Moreover, it is likely that levels of maternal sensitivity are also influenced by contextual factors such as availability of social support, family participation in childcare, and poverty. The factors that support more positive parenting in IPV-exposed mothers, including interventions such as CPP, warrant further attention.

The current study had several limitations. Sample size and lack of a control group limit the generalizability of the findings and reflect the nature of the investigation as an uncontrolled trial with a traumatized population of pregnant women that is difficult to recruit and retain. The predominantly Latina sample is a notable strength of the current study, but the size and homogeneity of the current sample precluded exploring ethnicity by level of acculturation (Martin, Fisher, & Kim, 2012). A critical future direction is the need to better understand the roles of ethnicity and culture as risk and protective factors for IPV, parenting, and child outcomes. Finally, we could not conduct a baseline assessment of dyadic interactions because the women were enrolled during pregnancy, and maternal

Table 2
Multiple Regression Showing That Improvement in Child-Rearing Attitudes During Treatment Predicts Maternal Sensitivity

Variable	<i>B</i>	<i>SE</i>	β	<i>t</i>	95% <i>CI</i>
Years of education	0.10	0.04	.33	2.43*	[0.02, 0.19]
History of traumatic events	0.05	0.03	.21	1.41	[-0.02, 0.12]
Pregnancy-specific adversities	-1.58	1.09	-.20	-1.45	[-3.78, 0.62]
Change in PTSS	-0.12	0.18	-.10	-0.66	[-0.47, 0.24]
Change in CRA	0.39	0.17	.33	2.36*	[0.06, 0.73]

Note. PTSS = posttraumatic stress symptoms; CRA = child-rearing attitudes. $F(5, 42) = 3.02, p = .020; R^2 = .26. n = 47$ due to one participant who was included in the bivariate correlations but excluded from the regression.

* $p < .05$.

sensitivity was not assessed at birth to minimize participant burden. Nevertheless, the study included a comprehensive and clinically sensitive measurement of trauma history in a population of highly vulnerable women, the adaptation of a treatment that has been extensively validated for parents and children exposed to violence, and the use of an empirically based and clinically informed observational measure of maternal sensitivity. These features strengthen the contribution of the findings to the fields of early intervention and infant mental health.

In sum, fostering high-quality mother-child relationships may effectively begin from the very earliest stage of the relationship, before the infant is even born. Mothers' attitudes regarding parenting during this period are a worthy focus of intervention as they may be a mechanism by which intervention supports healthy early relationships. The results of this work align with a call for adopting a joint attachment and trauma lens in efforts to ameliorate the negative impact of IPV on women and children.

References

- Ainsworth, M. D. S. (1969). Maternal sensitivity scales. *Power*, 6, 1379-1388. Retrieved from <http://www.psychology.sunysb.edu/attachment/measures/content/maternal%20sensitivity%20scales.pdf>
- Bakermans-Kranenburg, M. J., van IJzendoorn, M. H., & Juffer, F. (2003). Less is more: Meta-analyses of sensitivity and attachment interventions in early childhood. *Psychological Bulletin*, 129, 195-215. doi:10.1037/0033-2909.129.2.195
- Bavolek, S. J., & Keene, R. G. (2001). *Adult-adolescent parenting inventory-2*. Asheville, NC: Family Development Resources.
- Biringen, Z. (2000). Emotional availability: Conceptualization and research findings. *American Journal of Orthopsychiatry*, 70, 104-115. doi:10.1037/h0087711
- Biringen, Z. (2008). *The Emotional Availability (EA) Scales* (4th ed.). Boulder, CO: Colorado State University.
- Bogat, G. A., DeJonghe, E., Levendosky, A. A., Davidson, W. S., & von Eye, A. (2006). Trauma symptoms among infants exposed to intimate partner violence. *Child Abuse & Neglect*, 30, 109-125. doi:10.1016/j.chiabu.2005.09.002
- Bogat, G. A., Levendosky, A. A., von Eye, A., & Davidson II, W. S. (2011). Effects of intimate partner violence on the attachment relationship between mother and child: Data from a longitudinal study beginning during pregnancy. In S. A. Graham-Bermann & A. A. Levendosky (Eds.), *How intimate partner violence affects children: Developmental research, case studies, and evidence-based intervention* (pp. 19-46). Washington, DC: American Psychological Association.
- Bornstein, M. H., Gini, M., Suwalsky, J. T. D., Leach, D. B., & Haynes, O. M. (2006). Emotional availability in mother-child dyads: Short-term stability and continuity from variable-centered and person-centered perspectives. *Merrill-Palmer Quarterly*, 52, 547-571. doi:10.1352/mpq.2006.0024
- Campbell, J. C. (2001). Abuse during pregnancy: A quintessential threat to maternal and child health—so when do we start to act? *Canadian Medical Association Journal*, 164, 1578-1579. Retrieved from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC81113/>
- Campbell, J., Garcia-Moreno, C., & Sharps, P. (2004). Abuse during pregnancy in industrialized and developing countries. *Violence Against Women*, 10, 770-789. doi:10.1177/1077801204265551
- Caraballo, J. N., Perez-Pedrogo, C., & Albizu-Garcia, C. E. (2013). Assessing post-traumatic stress symptoms in a Latino prison population. *International Journal of Prisoner Health*, 9, 196-207. doi:10.1108/IJPH-02-2013-0004
- Charles, P., & Perreira, K. (2007). Intimate partner violence during pregnancy and 1-year post-partum. *Journal of Family Violence*, 22, 609-619. doi:10.1007/s10896-007-9112-0
- Cicchetti, D., Rogosch, F. A., & Toth, S. L. (2006). Fostering secure attachment in infants in maltreating families through preventive interventions. *Development Psychopathology*, 18, 623-649. doi:10.1017/S0954579406060329
- Coker, A. L., Sanderson, M., & Dong, B. (2004). Partner violence during pregnancy and risk of adverse pregnancy outcomes. *Paediatric and Perinatal Epidemiology*, 18, 260-269. doi:10.1111/j.1365-3016.2004.00569.x
- Conners, N. A., Whiteside-Mansell, L., Deere, D., Ledet, T., & Edwards, M. C. (2006). Measuring the potential for child maltreatment: The reliability and validity of the Adult Adolescent Parenting Inventory-2. *Child Abuse & Neglect*, 30, 39-53. doi:10.1016/j.chiabu.2005.08.011
- Dannemiller, J. L. (1999). Chronicity of maternal depressive symptoms, maternal sensitivity, and child functioning at 36 months. *Developmental Psychology*, 35, 1297-1310. doi:10.1037/0012-1649.35.5.1297
- Davidson, J. R. T., Book, S. W., Colket, J. T., Tupler, L. A., Roth, S., David, D., . . . Smith, R. D. (1997). Assessment of a new self-rating scale for post-traumatic stress disorder. *Psychological Medicine*, 27, 153-160. doi:10.1017/S0033291796004229
- De Jesus, M., & Xiao, C. (2014). Predicting health care utilization among Latinos: Health locus of control beliefs or access factors? *Health Education & Behavior*, 41, 423-430. doi:10.1177/1090198114529130

- De Wolff, M. S., & van IJzendoorn, M. H. (1997). Sensitivity and attachment: A meta-analysis on parental antecedents of infant attachment. *Child Development, 68*, 571–591. doi:10.1111/j.1467-8624.1997.tb04218.x
- Diaz, M., Van Horn, P., & Lieberman, A. F. (2008). *Perinatal child-parent psychotherapy manual*. San Francisco, CA: University of California San Francisco.
- First, M. B., Spitzer, R. L., Gibbon, M., & Williams, J. B. W. (2002). *Structured Clinical Interview for DSM-IV-TR Axis I Disorders, Research Version, Patient Edition*. New York: Biometrics Research, New York State Psychiatric Institute.
- Flach, C., Leese, M., Heron, J., Evans, J., Feder, G., Sharp, D., & Howard, L. M. (2011). Antenatal domestic violence, maternal mental health and subsequent child behaviour: A cohort study. *British Journal of Obstetrics and Gynaecology: An International Journal of Obstetrics and Gynaecology, 118*, 1383–1391. doi:10.1111/j.1471-0528.2011.03040.x
- Gazmararian, J. A., Lazorick, S., Spitz, A. M., Ballard, T. J., Saltzman, L. E., & Marks, J. S. (1996). Prevalence of violence against pregnant women. *Journal of the American Medical Association, 275*, 1915–1920. doi:10.1001/jama.1996.03530480057041.
- Goodwin, M. M., Gazmararian, J. A., Johnson, C. H., Colley Gilbert, B. C., Saltzman, L. E., & the PRAMS Working Group. (2000). Pregnancy intendedness and physical abuse around the time of pregnancy: Findings from the Pregnancy Risk Assessment Monitoring System, 1996–1997. *Maternal and Child Health Journal, 4*, 85–92. Retrieved from <http://ntserver1.wsulibs.wsu.edu:2076/scripts/wsull.pl?url=http://ntserver1.wsulibs.wsu.edu:2063/login.aspx?direct=true&db=ccm&AN=2000077850&site=ehost-live>
- Horrigan, T. J., Schroeder, A. V., & Schaffer, R. M. (2000). The triad of substance abuse, violence, and depression are interrelated in pregnancy. *Journal of Substance Abuse Treatment, 18*, 55–58. doi:10.1016/S0740-5472(99)00058-6
- Howell, K. H. (2011). Resilience and psychopathology in children exposed to family violence. *Aggression and Violent Behavior, 16*, 562–569. doi:10.1016/j.avb.2011.09.001
- Kiely, M., El-Mohandes, A. A. E., El-Khorazaty, M. N., & Gantz, M. G. (2010). An integrated intervention to reduce intimate partner violence in pregnancy: A randomized trial. *Obstetrics & Gynecology, 115*, 273–283. doi:10.1097/AOG.0b13e3181cbd482
- Kingston, D., Tough, S., & Whitfield, H. (2012). Prenatal and postpartum maternal psychological distress and infant development: A systematic review. *Child Psychiatry & Human Development, 43*, 683–714. doi:10.1007/s10578-012-0291-4
- Lavi, I., Gard, A., Hagan, M. J., & Lieberman, A. F. (2015). Child–parent psychotherapy examined in a perinatal sample: Depression, posttraumatic stress symptoms and child-rearing attitudes. *Journal of Social and Clinical Psychology, 34*, 64–82. doi:10.1521/jscp.2015.34.1.64
- Lieberman, A. F., Ghosh-Ippen, C., & Van Horn, P. (2006). Parent–child psychotherapy: Six-month follow up of a randomized control trial. *Journal of the American Academy of Child and Adolescent Psychiatry, 45*, 912–918. doi:10.1097/01.chi.0000222784.03735.92
- Lieberman, A. F., & Van Horn, P. (2008). *Psychotherapy with infants and young children: Repairing the effects of stress and trauma on early development*. New York, NY: Guilford.
- Lieberman, A. F., Van Horn, P., & Ippen, C. G. (2005). Toward evidence-based treatment: Child–parent psychotherapy with preschoolers exposed to marital violence. *Journal of the American Academy of Child & Adolescent Psychiatry, 44*, 1241–1248. doi:10.1097/01.chi.0000181047.59702.58
- Martin, C. G., Fisher, P., & Kim, H. (2012). Risk for maternal harsh parenting in high-risk families from birth to age three: Does ethnicity matter. *Prevention Science, 13*, 64–74. doi:10.1007/s11121-011-0247-0
- McFarlane, J., Parker, B., Soeken, K., & Bullock, L. (1992). Assessing for abuse during pregnancy: Severity and frequency of injuries and associated entry into prenatal care. *Journal of the American Medical Association, 267*, 3176–3178. doi:10.1001/jama.1992.03480230068030
- Mendez-Figueroa, H., Dahlke, J. D., Vrees, R. A., & Rouse, D. J. (2013). Trauma in pregnancy: An updated systematic review. *American Journal of Obstetrics and Gynecology, 209*, 1–10. doi:10.1016/j.ajog.2013.01.021
- Mills-Koonce, W. R., Garipey, J.-L., Sutton, K., & Cox, M. J. (2008). Changes in maternal sensitivity across the first three years: Are mothers from different attachment dyads differentially influenced by depressive symptomatology? *Attachment & Human Development, 10*, 299–317. doi:10.1080/14616730802113612
- Moehler, E., Biringen, Z., & Poutska, L. (2007). Emotional availability in a sample of mothers with a history of abuse. *American Journal of Orthopsychiatry, 77*, 624–628. doi:10.1037/0002-9432.77.4.624
- Mortensen, J. A., & Mastergeorge, A. M. (2014). A meta-analytic review of relationship-based interventions for low-income families with infants and toddlers: Facilitating supportive parent–child interactions. *Infant Mental Health Journal, 35*, 336–353. doi:10.1002/imhj.21451
- Morton, N., & Browne, K. D. (1998). Theory and observation of attachment and its relation to child maltreatment: A review. *Child Abuse & Neglect, 22*, 1093–1104. doi:10.1016/S0145-2134(98)00088-X
- Muller-Nix, C., Forcada-Guex, M., Pierrehumbert, B., Jaunin, L., Borghini, A., & Ansermet, F. (2004). Prematurity, maternal stress and mother–child interactions. *Early Human Development, 79*, 145–158. doi:10.1016/j.earlhumdev.2004.05.002
- O'Reilly, R., Beale, B., & Gillies, D. (2010). Screening and intervention for domestic violence during pregnancy care: A systematic review. *Trauma Violence Abuse, 11*, 190–201. doi:10.1177/1524838010378298
- Parker, B., McFarlane, J., Soeken, K., Silva, C., & Reel, S. (1999). Testing an intervention to prevent further abuse to pregnant women. *Research in Nursing and Health, 22*, 59–66. doi:10.1002/(SICI)1098-240X(199902)22:13.0.CO;2-B
- Rodriguez, M. A., Heilemann, M. V., Fielder, E., Ang, A., Nevarez, F., & Mangione, C. M. (2008). Intimate partner violence, depression, and PTSD among pregnant Latina women. *Annals of Family Medicine, 6*, 44–52. doi:10.1370/afm.743
- Saltzman, L. E., Johnson, C. H., Gilbert, B. C., & Goodwin, M. M. (2003). Physical abuse around the time of pregnancy: An examination of prevalence and risk factors in 16 states. *Maternal and Child Health Journal, 7*, 31–43. doi:10.1023/A:1022589501039
- Schechter, D. S., Coates, S. W., Kaminer, T., Coots, T., Zeanah, C. H., Davies, M., . . . Myers, M. M. (2008). Distorted maternal mental representations and atypical behavior in a clinical sample of violence-exposed mothers and their toddlers. *Journal of Trauma & Dissociation, 9*, 123–147. doi:10.1080/15299730802045666
- Shah, P. S., & Shah, J. (2010). Maternal exposure to domestic violence and pregnancy and birth outcomes: A systematic review and meta-analysis. *Journal of Women's Health, 19*, 2017–2031. doi:10.1089/jwh.2010.2051
- Sharps, P. W., Laughon, K., & Giangrande, S. K. (2007). Intimate partner violence and the childbearing year: Maternal and infant health consequences. *Trauma Violence Abuse, 8*, 105–116. doi:10.1177/1524838007302594
- Solís-Camara, P., & Diaz-Romero, M. (1991). La validez del Inventario de Paternidad Para Adultos y Adolescentes: Los índices del abuso infantil

- [The validity of the Adult-Adolescent Parenting Inventory: The indexes of infant abuse]. *Salud Mental*, *14*, 11–16. Retrieved from http://www.researchgate.net/publication/267568251_La_validez_del_Inventario_de_Paternidad_para_Adultos_y_Adolescentes_los_indices_del_abuso_infantil
- Stronach, E. P., Toth, S. L., Rogosch, R., & Cicchetti, D. (2013). Preventive interventions and sustained attachment security in maltreated children. *Development and Psychopathology*, *25*, 919–930. doi:10.1017/s0954579413000278
- Toth, S. L., Maughan, A., Manly, J. T., Spagnola, M., & Cicchetti, D. (2002). The relative efficacy of two interventions in altering maltreated preschool childrens representational models: Implications for attachment theory. *Developmental Psychopathology*, *14*, 877–908. doi:10.1017/s095457940200411x
- U.S. Census Bureau. (2010). *Census 2010*. Washington, DC: Author. Retrieved from <http://www.census.gov/2010census/>
- U.S. Department of Health and Human Services. (2012). *Child maltreatment*. Washington, DC: Author. Retrieved from <http://www.acf.hhs.gov/sites/default/files/cb/cm2012.pdf>
- Wiemann, C. M., Agurcia, C. A., Berenson, A. B., Volk, B. J., & Rickert, V. I. (2000). Pregnant adolescents: Experiences and behaviors associated with physical assault by an intimate partner. *Maternal and Child Health Journal*, *4*, 93–102. doi:10.1023/A:1009518220331
- Wolfe, J., & Kimerling, R. (1997). Gender issues in the assessment of Post-traumatic Stress Disorder. In J. Wilson & T.M. Keane (Eds.), *Assessing psychological trauma and PTSD* (pp. 192–238). New York: Guilford.