

Multiple domains of new mothers' adaptation: Interrelations and roots in childhood maternal nonsupportive emotion socialization

By: Hongjian Cao, Nan Zhou, [Esther M. Leerkes](#), and Jin Qu

Cao, H., Zhou, N., Leerkes, E. M., & Qu, J. (2018). Multiple domains of new mothers' adaptation: Interrelations and roots in childhood maternal nonsupportive emotion socialization. *Journal of Family Psychology*, 32(5), 575-587.

*****©American Psychological Association, 2018. This paper is not the copy of record and may not exactly replicate the authoritative document published in the APA journal. Please do not copy or cite without author's permission. The final article is available, upon publication, at: <http://dx.doi.org/10.1037/fam0000416>.**

Abstract:

This study focused on the interrelations among different domains of maternal adaptation (i.e., emotion-regulation difficulties, depressive symptoms, and couple-relationship satisfaction) over the transition to parenthood and also their associations with mothers' recalled childhood maternal nonsupportive emotion socialization. Data were obtained from a socioeconomically and racially diverse sample of 196 primiparous mothers during the 3rd trimester of pregnancy and at 6 months postpartum. Results indicated that (a) mothers' adaptation in different domains had shared roots in their recalled childhood maternal nonsupportive emotion socialization; (b) maternal adaptation in various domains were interrelated with rather than independent of each other, and such associations were unidirectional rather than reciprocal (e.g., mothers' prenatal couple-relationship satisfaction was negatively associated with their depressive symptoms at 6 months postpartum rather than the reverse); and (c) mothers' adaptation in a given domain served as the mechanism via which their recalled childhood maternal nonsupportive emotion socialization shaped their adaptation in the other domains (e.g., mothers' recalled maternal nonsupportive emotion socialization was positively associated with their depressive symptoms at 6 months postpartum via its positive association with their prenatal emotion-regulation difficulties). These associations were independent of several critical covariates (e.g., child negative affect, maternal attachment). Such findings contribute to a more nuanced understanding of the complexity inherent within maternal adaptation over the transition to parenthood and highlight potential avenues for interventions aimed at promoting mothers' successful navigation of challenges over this transition.

Keywords: emotion socialization | emotion regulation | depressive symptoms | couple-relationship satisfaction | transition to parenthood

Article:

The transition to parenthood is a unique family life stage characterized by challenges that often contribute to changes in individual and relational domains (Cowan & Cowan, 2000). Although parental adaptation to this transition has long been viewed as a multifaceted rather than monolithic construct, few studies have approached it from a multidimensional perspective, and

even fewer have examined the interrelations among different adaptation domains. Among various adaptation domains, three have been showed to be particularly sensitive to changes across the transition to parenthood: emotion regulation (Rutherford, Wallace, Laurent, & Mayes, 2015), depressive symptoms (Nelson, Kushlev, & Lyubomirsky, 2014), and couple-relationship satisfaction (Doss & Rhoades, 2017). Moreover, there is an ongoing debate on the temporal dynamics (i.e., directionality) of the association for each pair of the three adaptation domains (Berking & Wupperman, 2012; Gross & Muñoz, 1995; Levenson, Haase, Bloch, Holley, & Seider, 2014). Without addressing these questions, the *complexity* inherent within parental adaptation over the transition to parenthood cannot be adequately understood.

Furthermore, parental maladaptation to this transition has been linked to compromised parenting (Zhou, Cao, & Leerkes, 2017) and poorer infant adjustment (Feldman et al., 2009), highlighting the practical importance of identifying factors contributing to individual differences in adaptation over this transition. As Cowan and Cowan (2000) proposed, the manner in which individuals navigate challenges across the transition to parenthood and their adaptation to this transition should be affected by childhood experiences in their family of origin. Research has suggested that among childhood experiences, emotion-related parenting experiences have far-reaching implications for individuals' personal and relational well-being in adulthood (Eisenberg, Cumberland, & Spinrad, 1998; Leerkes, Supple, Su, & Cavanaugh, 2015; Morris, Silk, Steinberg, Myers, & Robinson, 2007). However, it is surprising to find that research examining whether this is the case for individuals experiencing the transition to parenthood has remained sparse.

In addition, an emerging body of research has set about testing whether individuals' childhood emotion-socialization experiences may predict their adaptation in a given domain via affecting their adaptation in another domain in adulthood (e.g., childhood emotional maltreatment in family of origin to adult children's romantic relationship or mental health outcomes via their emotion regulation; Bradbury & Shaffer, 2012; Krause, Mendelson, & Lynch, 2003). Given that emotion regulation, depressive symptoms, and couple-relationship satisfaction are malleable over the transition to parenthood, and each may have roots in childhood emotion socialization, the transition to parenthood may provide an ideal opportunity for testing similar associations.

Thus, we address three questions in the present study. First, we examine the extent to which mothers' recalled childhood maternal nonsupportive emotion socialization predicts their emotion-regulation difficulties, depressive symptoms, and couple-relationship satisfaction over the transition to parenthood. Second, we examine the extent to which new mothers' emotion-regulation difficulties, depressive symptoms, and relationship satisfaction are related to one another from the third trimester of pregnancy to 6 months postpartum. A cross-lagged panel analysis is utilized to clarify the directionality of such interrelations. Last, we examine the extent to which new mothers' recalled maternal nonsupportive emotion socialization predicts their adaptation in a given domain via its effects on mothers' adaptation in the other domains.

Changes in Maternal Adaptation Across the Transition to Parenthood

New mothers face numerous demands (e.g., fatigue because of disrupted sleep), posing challenges to their self-regulatory resources, personal mental health, and couple-relationship

satisfaction. In the following paragraphs, we summarize findings about patterns of change in each of the three studied domains of adaptation over the transition to parenthood.

Emotion regulation has long been viewed as a personal capacity formed early in life that remains stable over time. However, from a life-span development (John & Gross, 2004) and self-regulatory strength perspective (Baumeister & Heatherton, 1996), emotion-regulation capacity (a) is a depletable and renewable resource, (b) fluctuates as a function of situational factors, and (c) is responsive to life experiences. Emerging evidence has supported that emotion regulation evolves well into adulthood, and life transitions involve modification opportunities for emotion-regulation capacity, including transition to parenthood (Rutherford et al., 2015). Changes and demands in early parenthood are often emotion-arousing and thus pose challenges to parents' self-regulatory resources. First, in the face of infants' distress, which evokes strong parental emotions, new parents must maintain an emotionally regulated state to facilitate successful caregiving (Leerkes, Su, Calkins, Supple, & O'Brien, 2016). Second, the fatigue incurred by disrupted sleep, breast-feeding, and work-family conflicts (Loutzenhiser, McAuslan, & Sharpe, 2015) may drain time and energy that new parents might otherwise devote to regulating their emotions. Third, there is an increased incidence of mood disorders during this transition, which may diminish new parents' emotion-regulation capacity (Berking & Wupperman, 2012). Last, conflicts between partners tend to become more frequent over this transition (Kluwer & Johnson, 2007). Because of diminished self-regulation, partners tend to engage in more destructive behaviors, which in turn escalates conflicts and further depletes partners' regulatory resources.

Depressive symptomatology is one of the more common mental health problems women experience during the transition to parenthood. The existing findings about how maternal depressive symptoms may change over the transition to parenthood have remained mixed. Some studies have found mothers experienced increases in depressive symptoms over this transition (e.g., Matthey, Barnett, Ungerer, & Waters, 2000), whereas others have found no change or even declines in maternal depressive symptoms across this transition (e.g., Hock, Schirtzinger, Lutz, & Widaman, 1995). More recent studies have suggested that maternal depressive symptoms might change in a curvilinear pattern during this transition (e.g., Keeton, Perry-Jenkins, & Sayer, 2008), and there is notable heterogeneity in the trajectories of maternal depressive symptoms across this transition (Parade, Blankson, Leerkes, Crockenberg, & Faldowski, 2014). Regardless of the valence of changes, the dynamic nature of maternal depressive symptoms over this transition has been highlighted.

Despite pleasures surrounding the birth of a child (Nelson et al., 2014), both narrative (Doss & Rhoades, 2017) and meta-analytic (Mitnick, Heyman, & Smith Slep, 2009) reviews have indicated that the transition to parenthood is associated with a small-to-moderate deterioration in relationship satisfaction for the "average" couple. Parents generally report greater and more sudden declines in couple-relationship satisfaction than do nonparents in the first few years of parenthood, although (a) there is notable variability in the trajectories of couple-relationship satisfaction across the transition to parenthood, (b) nonparents also often experience declines in marital satisfaction over time, and (c) the ultimate magnitude of changes in relationship satisfaction over time tends to become similar between parents and nonparents.

The Role of Childhood Parental Nonsupportive Emotion Socialization

In the current report, we focus on *parental emotion socialization*, which has been defined as the set of practices parents utilize to teach children about the causes and consequences of emotions, the ways to display emotions, and the strategies to regulate emotions (Eisenberg et al., 1998). Although numerous parental responses to children's negative emotions have been examined, three types of practices have typically been viewed as "nonsupportive," including minimizing reactions (e.g., devaluing the child's distress), punitive reactions (e.g., scolding a child for being upset), and distress reactions (e.g., getting angry with the child, feeling upset when the child displays negative emotions; Fabes, Poulin, Eisenberg, & Madden-Derdich, 2002).

Prior research has consistently indicated that parental responses to children's negative emotions have critical implications for children's perception, expression, and regulation of emotions. Specifically, children whose emotions are responded to negatively by caregivers may have limited opportunities to learn how to regulate their own emotions effectively, may internalize negative caregiving experiences as their own fault, and may engage negatively in social relationships both because of their difficulties regulating emotions and because they tend to respond negatively to social partners' emotions via modeling (Eisenberg et al., 1998; Morris et al., 2007). Furthermore, such early proximal emotion-related experiences likely set in motion cascades of processes that ultimately shape children's long-term social-emotional adjustment (Eisenberg et al., 1998).

Consistent with this view, parental nonsupportive responses to children's negative emotions in childhood have been found to be positively associated with children's maladaptive emotion-regulation strategies in adulthood (e.g., Krause et al., 2003). Thus, it may be the case that parental nonsupportive emotional responses in childhood may predict greater difficulties regulating emotions in adulthood. In addition, given that the most defining characteristics of depressive symptoms are emotional in nature and that emotion regulation plays a key role in shaping mental health outcomes (Berking & Wupperman, 2012), it is also warranted to expect that parental emotion socialization should have salient relevance for the development of children's depressive symptoms (Yap, Allen, & Sheeber, 2007). Indeed, research has indicated that parental negative emotion socialization in childhood was positively associated with adult children's depressive symptoms (Leerkes et al., 2015). Last, because emotion regulation has critical implications for couple-relationship well-being (English, John, & Gross, 2013), the seeds of adult children's romantic relationship well-being may be sown by their early experiences of parental emotion socialization. Prior research has supported this view but tends to focus on the negative association between childhood emotional maltreatment and adult children's couple-relationship well-being (Bradbury & Shaffer, 2012). The more "normative" variation in childhood parental nonsupportive responses to children's negative emotions may have a similar effect.

Interrelations Among Different Domains of Adaptation

There has been controversy surrounding the temporal dynamics of associations between the aforementioned adaptation domains, and few studies have examined such associations during critical life transitions, when social functioning is particularly malleable. For example, research

on the association between marital satisfaction and mental health has been primarily guided by the notion that marital discord may be more of a trigger for depressive symptoms than vice versa, but there have been increasing calls for examinations of the bidirectionality of this association (Rehman, Gollan, & Mortimer, 2008). Some studies have indicated couple-relationship satisfaction predicted trajectories of depressive symptoms over the transition to parenthood (e.g., Parade et al., 2014), whereas others found depressive symptoms predicted relationship satisfaction over this transition (e.g., Trillingsgaard, Baucom, & Heyman, 2014), and yet another found a reciprocal association between relationship satisfaction and maternal depressive symptoms during this transition (Choi, 2016). Thus, directionality of this association over this transition warrants more examinations.

Likewise, intimate partners inevitably encounter emotion-arousing situations (Levenson et al., 2014), and whether partners can effectively regulate emotions plays a critical role in shaping relationship satisfaction (Bloch, Haase, & Levenson, 2014). Yet, the reverse may also be the case, such that being in a nurturing relationship may promote one's emotion-regulation capacity by providing a sense of security and increasing trust in others, whereas living in an unhappy relationship may diminish one's emotion-regulation capacity by inducing emotional distress and eliminating one viable source of emotional support (English et al., 2013).

Finally, when individuals cannot effectively regulate their emotions to everyday events, they tend to experience longer periods of and more severe levels of depression. However, efforts are also needed to test the possibility that deficits in emotion regulation may develop as a result of depression (Berking & Wupperman, 2012). As Gross and Muñoz (1995) stated, emotion regulation "occurs in the context of an ongoing stream of emotional stimulation and behavioral responding." (p. 153). Accordingly, depressed individuals have difficulties modifying negative emotions, and their maladaptive emotional state may shape the ways they regulate future emotions. Findings on the association between emotion regulation and depressive symptoms have remained mixed. Some studies have found that emotion regulation predicted changes in emotional adjustment but emotional adjustment did not predict changes in emotion regulation (Berking, Orth, Wupperman, Meier, & Caspar, 2008). However, others found bidirectional associations between emotion regulation and depression (Nolen-Hoeksema, Stice, Wade, & Bohon, 2007). Thus, clarifying the directionality of this association is one of the central foci of the current study.

Indirect Effects of Childhood Emotion Socialization via Adaptation in Other Domains

As noted already, emotion regulation, depressive symptoms, and couple-relationship satisfaction are interrelated, and each may have origins in early parental emotion socialization. Thus, it is warranted to expect that mothers' experiences of parental emotion socialization may predict their adaptation in a given domain over the transition to parenthood partly via affecting their adaptation in the other domains. Consistent with this, studies have indicated that parental emotion socialization is linked to adolescent or adult children's depressive symptoms indirectly by shaping their emotion-regulation capacity (Krause et al., 2003; Yap et al., 2007). Likewise, evidence has been found supporting the indirect effects from childhood emotional maltreatment or emotional climate in adult children's family of origin to their romantic relationship outcomes via adult children's emotion-regulation processes (Bradbury & Shaffer, 2012; Hardy, Soloski,

Ratcliffe, Anderson, & Willoughby, 2015). However, given the potential reciprocity of the association for each pair of the three studied adaptation outcomes, it seems more appropriate to test a cross-lagged model in which all three outcomes are included to obtain a more accurate understanding of all possible indirect pathways.

The Current Study

In the current study, we examined the interrelations among maternal emotion-regulation difficulties, depressive symptoms, and couple-relationship satisfaction over the transition to parenthood and also their associations with mothers' recalled childhood maternal nonsupportive emotion socialization. In analyses, we controlled for a series of variables because prior research has indicated that they could influence how individuals report on their childhood experiences with parents and shape individuals' adaptation to the transition to parenthood, including demographics (i.e., maternal age, race, socioeconomic status, couple-relationship duration and status; Leerkes et al., 2015), infant temperament difficulty (Mehall, Spinrad, Eisenberg, & Gaertner, 2009), and adult attachment (Talbot, Baker, & McHale, 2009). Doing so rules out the possibility that the observed associations between emotion socialization and maternal adaptation are a function of these variables. Strengths of this study relative to others in the existing literature include (a) half of the present sample was African American, whereas most prior studies have been composed of primarily European American mothers; (b) a focus on direct and indirect effects of normative variation in emotion socialization rather than emotional maltreatment on adult adaptation during a major life transition; (c) simultaneous consideration of three domains of adaptation; and (d) the utilization of a cross-lagged approach.

Method

Sample Characteristics

Participants were drawn from a larger study on the origins of maternal sensitivity that included 259 primiparous mothers and their infants from the southeastern United States. Sixty-three women whose relationship status was single, divorced, separated, or widowed at either the prenatal wave or the 6 months postpartum wave were removed from the analytic sample, given that one of the key variables in the current study was couple-relationship satisfaction. Thirteen out of the 63 women who were screened out had been in a relationship at the prenatal wave. This resulted in an analytic sample of 196 women, of whom 111 (56.60%) were European American and 85 were African American. These mothers ranged in age from 18 to 44 years ($M = 25.66$, $SD = 5.66$). Around 25.2% had a high school diploma or less, 25.3% had some college or a 2-year college degree, and 49.5% had a 4-year college degree or beyond. Of the 196 mothers, 99 mothers (50.5%) were married. Annual family income ranged from less than \$2,000 to more than \$100,000 ($Mdn = \$30,000$ – $\$39,999$). This sample is not representative of adult women living in the region of data collection, because the original study exclusively focused on pregnant primiparous mothers and oversampled African American mothers to increase racial diversity.

Of the 196 mothers, 170 (86.70%) participated in the 6 months postpartum assessment. The primary reasons for not participating included the following: (a) they were too busy ($n = 2$), (b) the infant died ($n = 2$), (c) they did not respond to multiple attempts to contact them ($n = 15$), and

(d) they voluntarily withdrew from the study after the assessment at the prenatal wave ($n = 7$). To test attrition effects, we conducted independent-samples t tests (i.e., attrited vs. retained for continuous key variables and covariates) and chi-square tests (i.e., attrited vs. retained for categorical covariates) based on prenatal data. One difference emerged: The attrited mothers reported higher levels of recalled maternal nonsupportive emotional responses ($M = 3.29$, $SD = 1.13$) than did the retained mothers ($M = 2.79$, $SD = .80$), $t(191) = 2.74$, $p < .01$. To take advantage of all available information across waves, we retained mothers having data at the prenatal wave but missing data at the 6 months wave in the analytic sample.

Data-Collection Procedures

Mothers were recruited from child birth education and breast-feeding classes, local obstetric practices, and clinics, as well as through referrals from other participants via flyers or presentations by members of the research team. Inclusion criteria were that women had to be 18 or older, African American or European American, fluent in English, and expecting their first child. Enrolled women were mailed consent forms and a packet of surveys including measures of demographics, childhood emotion socialization, emotion regulation, depressive symptoms, and relationship satisfaction. Women returned their consent forms and questionnaires when visiting our laboratory for an interview 6–8 weeks prior to their due date, during which the Adult Attachment Interview (AAI; George, Kaplan, & Main, 1984–1996) was conducted. Women were followed at 6 months postpartum and completed the same measures of emotion regulation, depressive symptoms, and couple-relationship satisfaction and reported infants' negative emotionality. Mothers received \$50 and a gift at each wave (i.e., canvas tote bag, water bottle, infant onesie, bib and sippy cup with study logo on them). All procedures were approved by the university's institutional review board.

Measures

Childhood maternal nonsupportive emotion socialization

Only at the prenatal wave did women rate the extent to which they recalled how their mothers and fathers (rated separately) responded to their negative emotions in specific ways across nine different situations (e.g., being scared of injections) during their first 16 years of life, using a modified version of the Coping with Children's Negative Emotions Scale (Fabes et al., 2002). For each situation, participants rated how likely, on a 7-point scale ranging from 1 (*very unlikely*) to 7 (*very likely*), their parents were to react in each of six alternative fashions, including three fashions that reflect nonsupportive reactions: (a) *minimizing reactions* (the degree to which parents minimize the seriousness of the situation or devalue the child's distress), (b) *punitive reactions* (the degree to which parents punish their children when they express negative emotions), and (c) *distress reactions* (the degree to which parents experience distress when children express negative affect). Subscale scores were created separately for mothers and fathers by averaging the ratings on items across the nine scenarios in a scale. Then, a composite was formed by averaging the distress reactions, punitive reactions, and minimizing reactions subscales. Higher scores indicate higher levels of maternal nonsupportive emotion socialization. Cronbach's alpha was .87.

For the 196 participants in the present study, fathers' data for 29 participants (14.8%) were unavailable, primarily because of the absence of fathers in their childhood. Furthermore, the missingness of fathers' data was not at random based on Little's missing completely at random test, $\chi^2(104, N = 196) = 147.56, p < .01$. Follow-up group comparison analyses demonstrated that fathers' data were more likely to be missing for participants who were unmarried, low-income, and African American and reported lower levels of couple-relationship satisfaction and attachment security (see Appendix A). Thus, we focused on only emotion-socialization practices by mothers.

Emotion-regulation difficulties

Mothers completed the 36-item Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) by rating how often specific items applied to them on a 5-point scale ranging from 1 (*almost never*) to 5 (*almost always*). The DERS has six dimensions: (a) nonacceptance (six items concerning a tendency to have negative secondary emotional responses to one's negative emotions or to have nonaccepting reactions to one's distress), (b) goals (five items concerning difficulties concentrating and accomplishing tasks when experiencing negative emotions), (c) impulse (six items concerning difficulties in remaining in control of one's own behavior when experiencing negative emotions), (d) awareness (six items concerning difficulties in the ability to acknowledge emotions), (e) strategies (eight items concerning the belief that there is little that can be done to regulate emotions adaptively once an individual is upset), and (f) clarity (five items concerning the extent to which individuals are unclear about and unaware of the emotions they are experiencing). A total score was calculated as the average of the six subscales, with higher scores indicating higher levels of emotion-regulation difficulties. Cronbach's alphas were .91 at the prenatal wave and .93 at 6 months postpartum.

Depressive symptoms

The 20-item Center for Epidemiologic Studies–Depression Scale (Radloff, 1977) was used to measure depression. It consists of a checklist of depressive cognitions, moods, and feelings (e.g., “I felt that I could not shake off the blues even with help from my family or friends”). Mothers indicated how often they felt a particular way in the prior week on a 4-point scale ranging from 1 (*rarely/never*) to 4 (*most of the time*). Items were summed to derive a global score, with higher scores indicating higher levels of depressive symptoms. Cronbach's alphas were .87 at the prenatal wave and .90 at 6 months postpartum.

Couple-relationship satisfaction

Women completed the questionnaire (Huston, McHale, & Crouter, 1986) by rating their levels of satisfaction on a 7-point scale ranging from 1 (*extremely dissatisfied*) to 7 (*extremely satisfied*). This questionnaire is composed of eight items. Items were averaged such that higher scores indicated higher levels of couple-relationship satisfaction. Cronbach's alphas were .88 at the prenatal wave and .94 at 6 months postpartum.

Covariates

During the prenatal visit, mothers completed the Adult Attachment Interview (AAI; George et al., 1984–1996). Given the complexity of our model and the greater statistical power afforded by using continuous versus dichotomous variables, we used the Coherence of Mind rating (1 = *not at all coherent* to 9 = *very coherent*) as our criterion measure of adult attachment security, with higher scores indicating higher levels of attachment security. The Coherence of Mind rating has been shown to be the rating best distinguishing between secure and insecure adults on the AAI (Bosquet & Egeland, 2001). Interrater reliability on this rating was good (intraclass correlation = .75, $p < .001$), based on 50 double-coded cases. Mothers completed the Infant Behavior Questionnaire—Revised Very Short Form (Putnam, Helbig, Gartstein, Rothbart, & Leerkes, 2014) at 6 months postpartum. We used mothers' reports on the negative affect subscale (12 items; e.g., "When tired, how often did your baby show distress?") on a 7-point scale ranging from 1 (*never*) to 7 (*always*) as the criterion measure of infant temperament difficulty, with higher scores indicating higher levels of infant difficulty. Cronbach's alpha was .74. Mothers also reported their age, race, family income, and couple-relationship status and duration at the prenatal phase. Family income-to-needs ratio was calculated using family income and the number of individuals living in the household.

Analytic Approach and Procedures

Hypotheses were tested by conducting path analyses via Mplus Version 7.4 (Muthén & Muthén, 1998-2015). As depicted in Figure 1, new mothers' recalled childhood maternal nonsupportive emotion socialization was specified as an exogenous variable predicting their emotion-regulation difficulties, depressive symptoms, and relationship satisfaction at both the prenatal wave and 6 months postpartum. To test the directionality of the interrelations among maternal adaptation in different domains, we estimated a cross-lagged panel model in which mothers' adaptation in different domains at the prenatal wave were linked to their adaptation at 6 months postpartum.

Covariates were included in the model as exogenous variables predicting maternal adaptation in three domains at 6 months postpartum and also correlating with maternal adaptation in three domains at the prenatal wave. We evaluated the adequacy of the model using the chi-square statistic, the comparative fit index, the root-mean-square error of approximation, and the standardized root-mean-square residual. The indirect effects were assessed using bootstrapping. The standard errors and confidence intervals (CIs) for indirect effects were based on 2,000 bootstrap resamples. Conclusions regarding mediation are based on whether the indirect pathways are significant when examining 95% bias-corrected bootstrapped CIs around the unstandardized indirect associations. The CIs that do not span 0 reflect significant indirect effects. Missing values were primarily due to unavailability of data from a specific wave and were handled via full-information maximum likelihood to take advantage of all available information across waves.

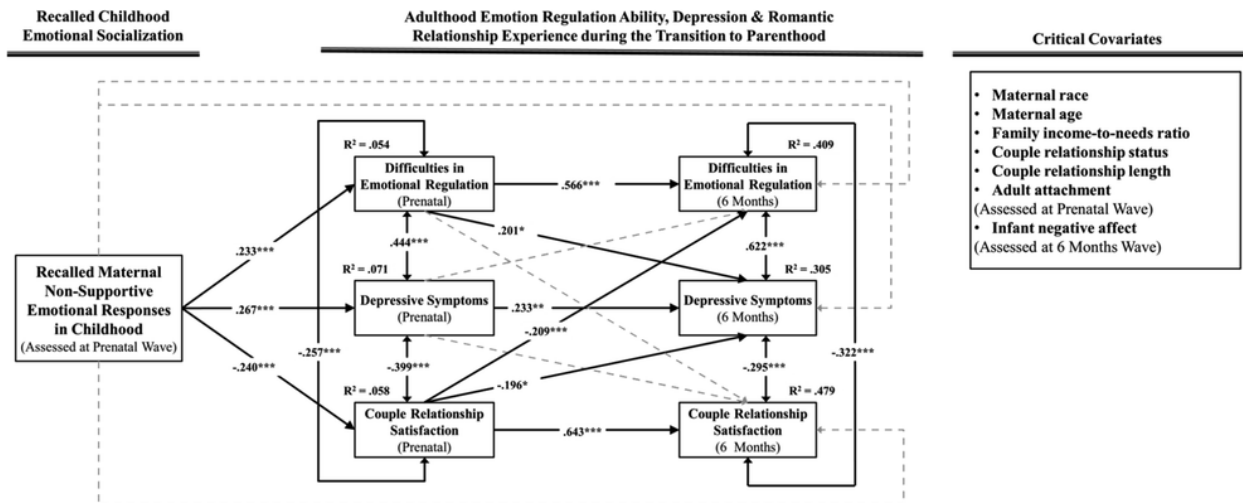


Figure 1. Recalled maternal nonsupportive emotional responses in childhood and new mothers' emotion-regulation difficulty, depressive symptoms, and couple-relationship satisfaction during the transition to parenthood. $\chi^2(14, N = 196) = 20.404, p = .118$, root-mean-square error of approximation = .048 with 90% confidence interval [.000, .091], comparative fit index = .988, standardized root-mean-square residual = .049. All reported estimated parameters are standardized. To simplify presentation, measurement errors and residuals are not shown in the figure. Also for clarity, (a) parameter estimates for pathways that were not statistically significant at $p < .05$ are not reported, and such pathways are depicted in gray dashed lines in the figure, and (b) correlations and pathways involving the covariates are not depicted. * $p < .05$. ** $p < .01$. *** $p < .001$.

Results

The zero-order correlations and descriptive statistics for study variables are presented in Table 1. Mothers' recalled childhood maternal nonsupportive emotional responses, emotion-regulation difficulties, depressive symptoms, and relationship satisfaction were significantly correlated with each other, and the direction of correlations was as expected. Because maternal demographic characteristics, attachment, and infant negative affect were (marginally) significantly associated with one or more key variables of interest, they were entered as covariates in analyses. To test hypotheses, we estimated a model in which new mothers' recalled childhood maternal nonsupportive emotion socialization was linked to their emotion-regulation difficulties, depressive symptoms, and couple-relationship satisfaction at both the prenatal wave and 6 months postpartum, and furthermore, mothers' adaptation in different domains at the prenatal wave were linked to their adaptations at 6 months postpartum. Given the utilization of a cross-lagged model, structural invariance and measurement equivalence across waves for each adaptation construct have been tested and established (see Appendix B for details).

The model had good fit, $\chi^2(14, N = 196) = 20.404, p = .118$, RMSEA = .048, CFI = .988, SRMR = .049. The standardized coefficients are presented in Figure 1. Independent of covariates (the relevant parameter estimates for correlations and pathways involving the covariates are available in Appendix C), mothers' recalled maternal nonsupportive emotion socialization was positively associated with their emotion-regulation difficulties ($b = .111, SE = .032, \beta = .233, p < .001$) and

depressive symptoms ($b = 2.442$, $SE = .608$, $\beta = .267$, $p < .001$) and negatively associated with relationship satisfaction ($b = -.280$, $SE = .074$, $\beta = -.240$, $p < .001$) at the prenatal wave.

Table 1
Descriptive Statistics and Correlations for Emotion Regulation Difficulties, Depressive Symptoms, Couple-Relationship Satisfaction and Critical Covariates

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Maternal race ^a (pre)	—													
2. Maternal age ^b (pre)	.34	—												
3. Couple-rel status ^c (pre)	-.59	-.51	—											
4. Couple-rel length ^b (pre)	.45	.54	-.57	—										
5. Family ITN ratio (pre)	.47	.51	-.47	.50	—									
6. AAI CoM (pre)	.27	.21	-.26	.10	.22	—								
7. Infant neg affect (6 M)	-.32	-.22	.16	-.05	-.23	.00	—							
8. Recalled NER (pre)	-.00	.05	.03	.00	-.09	.03	.07	—						
9. Emo-reg diff (pre)	.13	-.10	.13	-.07	-.10	-.02	.15	.26	—					
10. Emo-reg diff (6 M)	.02	-.04	.05	-.05	-.01	.15	.16	.17	.60	—				
11. Dep symptoms (pre)	-.19	-.14	.25	-.19	-.29	-.03	.21	.30	.49	.34	—			
12. Dep symptoms (6 M)	-.18	-.22	.27	-.16	-.26	-.15	.19	.15	.38	.56	.46	—		
13. Rel satisfaction (pre)	.31	.14	-.42	.26	.23	.09	-.16	-.26	-.31	-.35	-.47	-.40	—	
14. Rel satisfaction (6 M)	.24	.09	-.31	.13	.19	.06	-.19	-.21	-.27	-.44	-.33	-.49	.69	—
<i>M</i> ^d	56.60	25.66	50.50	3.97	3.14	5.45	3.43	2.86	1.87	1.70	12.83	9.18	5.48	5.32
<i>SD</i>		5.66		3.15	2.13	1.46	.95	.86	.41	.43	7.97	7.97	1.10	1.20

Note. n ranges from 156 to 196 and represents the number of participants for each pair of zero-order correlations, given missing data for some variables. Bold indicates significance at $p < .05$, $.01$, or $.001$, whereas italics indicates significance at $.05 < p < .10$. pre = prenatal (data collected at the prenatal phase); rel = relationship; ITN = income-to-needs; AAI CoM = AAI = Adult Attachment Interview—Coherence of Mind rating; neg = negative; NER = nonsupportive emotional responses (referring to mothers' recalled childhood experience); 6 M = 6 months (data collected when the focal child was 6 months old); emo-reg diff = emotion-regulation difficulties; dep = depressive.

^a Coded as 1 (European American Mothers) and 0 (African American Mothers). ^b Measured in years. ^c Coded as 1 (Married and Living Together Couples), 2 (Non-Married but Living Together Couples), and 3 (Non-Married and not Living Together Couples). ^d The means for maternal race and couple-relationship status reflect the percentage of European American mothers and the percentage of mothers who were in a married relationship, respectively.

The directionality of the interrelations among mothers' adaptation in different domains was tested in the right half of the model. Instead of reciprocal associations, three unidirectional pathways emerged: (a) Mothers' prenatal emotion-regulation difficulties were positively associated with their depressive symptoms at 6 months postpartum ($b = 3.883$, $SE = 1.581$, $\beta = .201$, $p < .05$), controlling for their prenatal depressive symptoms; (b) mothers' prenatal couple-relationship satisfaction was negatively associated with their depressive symptoms at 6 months postpartum ($b = -1.541$, $SE = .610$, $\beta = -.196$, $p < .05$), controlling for their prenatal depressive symptoms; and (c) mothers' prenatal relationship satisfaction was negatively associated with their emotion-regulation difficulties at 6 months postpartum ($b = -.088$, $SE = .030$, $\beta = -.209$, $p < .01$), controlling for their prenatal emotion-regulation difficulties.

As reported in Table 2, bootstrapping analyses indicated, in addition to the three autoregressive, stability indirect pathways, three indirect pathways showing how mothers' recalled childhood maternal nonsupportive emotion socialization affected their adaptation in a given domain at 6 months postpartum via its effects on mothers' adaptation in the other domains at the prenatal wave. Two indirect pathways were significant in relation to depressive symptoms at 6 months postpartum: Mothers' recalled childhood maternal nonsupportive emotion socialization was positively associated with their depressive symptoms via its positive association with mothers' prenatal emotion-regulation difficulties ($b = .430$, $SE = .303$, 95% CI [.041, 1.297], $\beta = .047$) and via its negative association with mothers' prenatal relationship satisfaction ($b = .431$, $SE = .270$, 95% CI [.055, 1.104], $\beta = .047$). One indirect pathway was significant in relation to emotion-regulation difficulties at 6 months postpartum: Mothers' recalled maternal nonsupportive emotion socialization was positively associated with their emotion-regulation difficulties through

its negative association with mothers' prenatal relationship satisfaction ($b = .025$, $SE = .016$, 95% CI [.003, .065], $\beta = .050$). In terms of effect sizes, standardized indirect effects around .01 were interpreted as "small," effects around .09 as "medium," and effects around .25 as "large" (Kenny, 2012).

Table 2
Specific Indirect Effects for Indirect Pathways Based on Bias-Corrected Bootstrapped Estimates

Specific indirect pathway tested	Bootstrapped estimates for indirect effects			
	<i>b</i>	<i>SE</i>	95% CI	β
Recalled maternal nonsupportive emotional responses (pre) → couple relationship satisfaction (6 M)				
Specific indirect pathways via				
Emotion-regulation difficulties (pre)	-.020	.029	[-.098, .027]	-.015
Depressive symptoms (pre)	.007	.035	[-.061, .084]	.005
Couple-relationship satisfaction (pre)	-.211	.077	[-.399, -.084]	-.154
Recalled maternal nonsupportive emotional responses (pre) → depressive symptoms (6 M)				
Specific indirect pathways via				
Emotion-regulation difficulties (pre)	.430	.303	 [.041, 1.297]	.047
Couple-relationship satisfaction (pre)	.431	.270	 [.055, 1.104]	.047
Depressive Symptoms (Pre)	.568	.309	 [.102, 1.358]	.062
Recalled maternal nonsupportive emotional responses (pre) → emotional-regulation difficulties (6 M)				
Specific indirect pathways via				
Couple-relationship satisfaction (pre)	.025	.016	 [.003, .065]	.050
Depressive symptoms (pre)	.001	.015	[-.029, .030]	.001
Emotion-regulation difficulties (pre)	.065	.028	 [.020, .128]	.132

Note. Bold indirect pathways are significant based on the bias-corrected bootstrapped 95% confidence interval (CI). pre = prenatal; 6 M = 6 months.

Discussion

The central goals of the present study were to examine the temporal dynamics of the interrelations among maternal adaptation in different domains across the transition to parenthood and also their associations with new mothers' recalled childhood experiences of maternal nonsupportive emotion socialization. The results demonstrated that (a) mothers' adaptation in different domains had shared roots in their recalled childhood experiences of maternal nonsupportive emotion socialization; (b) maternal adaptation in different domains were interrelated with each other rather than independent of each other, and such associations were unidirectional rather than reciprocal; and (c) mothers' adaptation in a given domain served as the mechanism through which their childhood experiences of maternal nonsupportive emotion socialization shaped mothers' adaptation in the other domains.

The Role of Childhood Maternal Nonsupportive Emotion Socialization

We found mothers' recalled childhood maternal nonsupportive emotion socialization was positively associated with their emotion-regulation difficulties and depressive symptoms and negatively associated with their couple-relationship satisfaction at both the prenatal wave and 6 months postpartum. In general, this finding adds to a notable body of research indicating that early parent-child interactive processes have critical implications for children's long-term

social–emotional adjustment (Morris et al., 2007). In particular, the present study extends prior research by considering various maternal adaptation domains simultaneously and contextualizing such associations in the transition to parenthood. Our findings also suggest that the influences of childhood maternal nonsupportive emotion socialization on children’s social–emotional adjustment in adulthood are not only *far-reaching* but also *comprehensive*. Given that mothers’ adaptation over the transition to parenthood likely sets in motion cascades of processes that ultimately shape their own subsequent life course trajectories (Umberson, Pudrovska, & Reczek, 2010), as well as parenting practices and offsprings’ adjustment (Feldman et al., 2009; Zhou et al., 2017), our findings also highlight the necessity to pay attention to new mothers experiencing higher levels of maternal nonsupportive emotional responses in childhood.

Interrelations Among Different Domains of Maternal Adaptation

Using a cross-lagged analysis, the present study provided evidence that may help clarify the directionality of the interrelations among couple-relationship satisfaction, emotion-regulation difficulties, and depressive symptoms. Three unidirectional associations were identified. The identified unidirectional associations from emotion-regulation difficulties and couple-relationship satisfaction to depressive symptoms (a) add to existing evidence supporting the individual susceptibility or marital discord models for the etiology of depressive symptoms (Rehman et al., 2008) and also (b) suggest that intrapersonal and interpersonal factors can account for unique variance in new mothers’ depressive symptoms over the transition to parenthood above and beyond each other. The unidirectional association from relationship satisfaction to emotion regulation is theoretically provocative. Although prior research has been primarily guided by the notion that emotional regulation capacity plays a critical role in shaping relationship satisfaction (Bloch et al., 2014), the present study provides evidence supporting the proposition that emotion-regulation capacity evolves well into adulthood and that couple-relationship satisfaction is among the factors contributing to the development of emotion regulation in adulthood (English et al., 2013).

Regardless of the directionality of the aforementioned associations, considering maternal adaptation in different domains across the transition to parenthood *simultaneously in a single model*, the present study suggests that these domains *may not be independent of* each other but actually *interrelated with* each other. However, because the present study represents one of the first steps in examining the temporal dynamics of the associations among different domains of maternal adaptation over the transition to parenthood, our findings await future replication, and data gathered across more time points may generate a more accurate delineation of how these adaptation domains may interrelate with each other over time during the transition to parenthood.

Indirect Effects of Childhood Emotion Socialization via Adaptation in Other Domains

The present study found that maternal adaptation in a given domain was among the mechanisms via which early maternal emotion socialization shaped maternal adaptation in the other domains. Some of our findings add to an emerging body of evidence demonstrating that parental emotion socialization was associated with adolescent or adult children’s depressive symptoms indirectly by influencing their emotion-regulation capacity (Krause et al., 2003; Yap et al., 2007). Moreover, the present study also extends prior studies by identifying couple-relationship

satisfaction as another mechanism explaining why parental emotion socialization was associated with adult children's depressive symptoms above and beyond the mediating effects of children's emotion regulation. In contrast to the indirect effects in prior research from childhood emotional maltreatment or emotional climate in the family of origin to adult children's romantic relationship outcomes via children's emotion regulation (Bradbury & Shaffer, 2012; Hardy et al., 2015), our findings suggest that adult children's couple-relationship satisfaction can also mediate the association between parental emotion socialization and adult children's emotion regulation. This inconsistency highlights the necessity of testing cross-lagged models to obtain a more nuanced understanding of all possible indirect paths explaining the association between parental emotion socialization and children's adjustment.

The Salient Role of Couple-Relationship Satisfaction in Shaping New Mothers' Adjustment

It is interesting that, considering all identified significant associations among different adaptation outcomes, mothers' prenatal couple-relationship satisfaction predicted their postpartum adaptation in all three studied domains, which was not the case for emotion-regulation difficulties or depressive symptoms. It seems that couple-relationship satisfaction plays a salient role in shaping mothers' adjustment over the transition to parenthood. Intimate partners' global, subjective evaluation of the degree to which they feel satisfied in the relationship may serve as an overarching context that sets the tone for how partners adjust themselves and interact with each other to cope with the challenges involved in the transition to parenthood. For example, relationship distress is likely to not only drain resources (e.g., time and energy) that partners may otherwise devote to regulating their emotional state but also decrease the positive interactions between partners in parenthood (e.g., spousal support). These processes may partly account for why couple-relationship satisfaction has such a comprehensive implication for mothers' adjustment in different domains over the transition to parenthood.

The Unique Importance of Childhood Emotion Socialization for Couple Functioning

Whereas both postpartum emotion-regulation difficulties and depressive symptoms had predictors other than the relevant autoregressive pathways, the only predictor of mothers' postpartum relationship satisfaction was the indirect effect from their recalled childhood experiences of maternal nonsupportive emotion socialization via their prenatal couple-relationship satisfaction. This highlights the importance of negative parenting experiences in the family of origin for adult children's relationship satisfaction over the transition to parenthood. As the vulnerability–stress–adaptation model of marriage (Karney & Bradbury, 1995) proposed, the enduring vulnerabilities spouses bring into marriage are among factors that may exert far-reaching influences on marital outcomes, because such enduring vulnerabilities not only contribute to the stressful events that couples may encounter but also have implications for spouses' ability to adapt to the challenges they face. As Cowan and Cowan (2000) stated, partners whose childhood was clouded with painful parenting experiences tend to have more difficulties in couple relationships when beginning the journey from partners to parents, because their negative experiences likely set in motion maladaptive processes increasing the risk for relationship distress when navigating the challenges in parenthood (e.g., division of childcare).

Practical Implications

First, our findings highlight the necessity to pay special attention to new mothers who experienced higher levels of maternal nonsupportive emotional responses in childhood. This echoes the call by Cowan and Cowan (1995) that it is important to identify individuals at elevated risk for later maladaptation based on assessment conducted before the arrival of the infant. Research of this type may facilitate more targeted and effective intervention efforts.

Second, our findings indicate that mothers' adaptation over the transition to parenthood is multifaceted and that their adaptation in different domains are interrelated. However, the majority of existing interventions focus on new parents' adaptation in only a single, specific domain, with few targeting adaptations in different domains and their interrelations simultaneously. Considering the debate on the effectiveness of existing intervention programs (Pinquart & Teubert, 2010), our findings suggest that developing a more *comprehensive* and *integrative* model of intervention addressing adaptation in different domains at the same time may be one of the potential avenues for more successfully assisting new mothers.

Last, because new mothers' childhood experiences cannot be rewritten, identifying mechanisms in adulthood explaining the far-reaching effects of such experiences on later adaptation provides insights about how to minimize or even offset such effects via interventions targeting adult experiences. For example, because we found that new mothers' maternal nonsupportive emotion socialization contributed to their subsequent elevated depressive symptoms or emotion-regulation difficulties via decreasing their couple-relationship satisfaction, helping new parents build a strong and nurturing couple relationship may hold promise for diminishing or preventing the potential deleterious influences of early nonsupportive parenting experiences. Also, as Feinberg and colleagues' work has demonstrated (e.g., Feinberg & Kan, 2008), the coparenting relationship is a malleable intervention target that may influence parental adjustment, parenting, and child outcomes during the transition to parenthood.

Limitations of the Present Study and Directions for Future Research

First, this was a nonrepresentative, community sample, and the sample size was modest (yet moderately large in comparison to the samples used in prior research in this area). In a related vein, when deriving the analytic sample, we excluded women whose relationship status was single, divorced, separated, or widowed at the prenatal wave or at the 6 months postpartum wave. Thus, compared to mothers included in the current sample (who were in a relatively stable relationship), the excluded mothers may be at higher risk. Efforts should be made to determine whether similar results would emerge for mothers in less stable relationships and be replicated with larger and more representative samples. Second, shared method and informant variance may inflate the associations found in the present study, because the independent variable and the three adaptation outcome variables were assessed with self-report questionnaires completed by mothers. Future research will benefit from using multi-informant and multimethod designs.

Third, mothers recalled their childhood experiences of maternal emotion socialization. Prior research on the implications of adults' childhood experiences has predominately relied on retrospective reports, which is likely due to the scarcity of longitudinal data extending from early

childhood to adulthood. The validity of retrospective measures has been questioned (Hardt & Rutter, 2004) because “memories may be subject to distortion, and events may be selectively recalled; early experiences may be forgotten, and perceptions of childhood events may be shaped by subsequent experiences” (Tajima, Herrenkohl, Huang, & Whitney, 2004, p. 424). For example, new mothers’ postpartum compromised emotional well-being might cause them to recall childhood experiences more negatively, although a review of research on psychopathology and retrospective early experience indicated little evidence supporting the claim that the recall of childhood experiences is seriously distorted by depressive mood (Brewin, Andrews, & Gotlib, 1993). In addition, adult children’s recall of parental nonsupportive emotion socialization might reflect the global quality of relationship with mothers. That is, a more generalized halo effect might be operating, raising concerns about what was actually assessed by this measure. Nevertheless, prior research has also demonstrated that adults’ reports of childhood parenting are highly stable over time and correlate significantly, albeit modestly, with their parents’ reports, and more strongly with their siblings’ reports of parenting, which lends support to the validity of this approach (Brewin et al., 1993; Harlaar et al., 2008; Tajima et al., 2004).

Fourth, some alternative hypotheses cannot be ruled out. Because data on new mothers’ emotional regulation and their childhood emotion-socialization experience were collected concurrently, the direction of this effect is unclear. It is possible that dysregulated children elicit more nonsupportive emotion socialization. Last, this study is also limited by exclusively focusing on new *mothers’* recall of *maternal* emotion socialization. Future research will benefit from (a) examining whether the tested model also applies to *new fathers*, (b) investigating how *paternal* emotion socialization in childhood may shape adult children’s socioemotional development over the transition to parenthood, and (c) ultimately testing a more comprehensive model in which both *paternal* and *maternal* emotion socialization in childhood and both *new mothers’* and *new fathers’* adaptation during the transition to parenthood are considered.

Conclusion

In conclusion, our results suggest that the seeds of new mothers’ individual and relational adaptation across the transition to parenthood may be partly sown by their childhood experiences of maternal nonsupportive emotion socialization and that new mothers’ adaptation in different domains may be interrelated with each other across the transition to parenthood, which greatly contributes to the complexity inherent within maternal adjustment over this transition. As such, our findings highlight several potential avenues for interventions aimed at promoting mothers’ successful navigation of challenges over the transition to parenthood and the cultivation of a “healthy” family environment during children’s first few years of life.

Acknowledgement: Hongjian Cao and Nan Zhou contributed equally to the preparation of this article. This project was supported by National Institutes of Health Grant R01HD058578. The contents of this article are the sole responsibility of the authors and do not necessarily reflect the views of the Eunice Kennedy Shriver National Institute for Child Health and Human Development. Preparation of this article was also supported by a start-up seed grant (27000503163) for newly introduced young scholars from Guangzhou University to Hongjian Cao.

Hongjian Cao

Institute of Developmental Psychology, Beijing Normal University, and School of Education, Guangzhou University;

Nan Zhou

Institute of Developmental Psychology, Beijing Normal University

Esther M. Leerkes

Human Development and Family Studies, University of North Carolina at Greensboro

Jin Qu

Department of Psychology, Pennsylvania State University

References

Baumeister, R. F., & Heatherton, T. F. (1996). Self-regulation failure: An overview. *Psychological Inquiry*, 7, 1–15. 10.1207/s15327965pli0701_1

Berking, M., Orth, U., Wupperman, P., Meier, L. L., & Caspar, F. (2008). Prospective effects of emotion-regulation skills on emotional adjustment. *Journal of Counseling Psychology*, 55, 485–494. 10.1037/a0013589

Berking, M., & Wupperman, P. (2012). Emotion regulation and mental health: Recent findings, current challenges, and future directions. *Current Opinion in Psychiatry*, 25, 128–134. 10.1097/YCO.0b013e3283503669

Bloch, L., Haase, C. M., & Levenson, R. W. (2014). Emotion regulation predicts marital satisfaction: More than a wives' tale. *Emotion*, 14, 130–144. 10.1037/a0034272

Bosquet, M., & Egeland, B. (2001). Associations among maternal depressive symptomatology, state of mind and parent and child behaviors: Implications for attachment-based interventions. *Attachment & Human Development*, 3, 173–199. 10.1080/14616730010058007

Bradbury, L. L., & Shaffer, A. (2012). Emotion dysregulation mediates the link between childhood emotional maltreatment and young adult romantic relationship satisfaction. *Journal of Aggression, Maltreatment & Trauma*, 21, 497–515. 10.1080/10926771.2012.678466

Brewin, C. R., Andrews, B., & Gotlib, I. H. (1993). Psychopathology and early experience: A reappraisal of retrospective reports. *Psychological Bulletin*, 113, 82–98. 10.1037/0033-2909.113.1.82

Choi, E. (2016). Marital satisfaction and maternal depressive symptoms among Korean mothers transitioning to parenthood. *Journal of Family Psychology*, 30, 516–521. 10.1037/fam0000178

Cowan, C. P., & Cowan, P. A. (1995). Interventions to ease the transition to parenthood: Why they are needed and what they can do. *Family Relations*, 44, 412–423. 10.2307/584997

Cowan, C. P., & Cowan, P. A. (2000). *When partners become parents: The big life change for couples*. Mahwah, NJ: Erlbaum.

- Doss, B. D., & Rhoades, G. K. (2017). The transition to parenthood: Impact on couples' romantic relationships. *Current Opinion in Psychology*, *13*, 25–28. 10.1016/j.copsy.2016.04.003
- Eisenberg, N., Cumberland, A., & Spinrad, T. L. (1998). Parental socialization of emotion. *Psychological Inquiry*, *9*, 241–273. 10.1207/s15327965pli0904_1
- English, T., John, O. P., & Gross, J. J. (2013). Emotion regulation in close relationships. In J. A. Simpson & L. Campbell (Eds.), *The Oxford handbook of close relationships* (pp. 500–513). New York, NY: Oxford University Press.
- Fabes, R. A., Poulin, R. E., Eisenberg, N., & Madden-Derdich, D. A. (2002). The Coping with Children's Negative Emotions Scale (CCNES): Psychometric properties and relations with children's emotional competence. *Marriage & Family Review*, *34*, 285–310. 10.1300/J002v34n03_05
- Feinberg, M. E., & Kan, M. L. (2008). Establishing family foundations: Intervention effects on coparenting, parent/infant well-being, and parent-child relations. *Journal of Family Psychology*, *22*, 253–263. 10.1037/0893-3200.22.2.253
- Feldman, R., Granat, A., Pariente, C., Kanety, H., Kuint, J., & Gilboa-Schechtman, E. (2009). Maternal depression and anxiety across the postpartum year and infant social engagement, fear regulation, and stress reactivity. *Journal of the American Academy of Child & Adolescent Psychiatry*, *48*, 919–927. 10.1097/CHI.0b013e3181b21651
- George, C., Kaplan, N., & Main, M. (1984–1996). *Adult Attachment Interview protocol* (3rd ed.). Unpublished manuscript, University of California, Berkeley, California.
- Gratz, K. L., & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the difficulties in emotion regulation scale. *Journal of Psychopathology and Behavioral Assessment*, *26*, 41–54. 10.1023/B:JOBA.0000007455.08539.94
- Gross, J. J., & Muñoz, R. F. (1995). Emotion regulation and mental health. *Clinical Psychology: Science and Practice*, *2*, 151–164. 10.1111/j.1468-2850.1995.tb00036.x
- Hardt, J., & Rutter, M. (2004). Validity of adult retrospective reports of adverse childhood experiences: Review of the evidence. *Journal of Child Psychology and Psychiatry*, *45*, 260–273. 10.1111/j.1469-7610.2004.00218.x
- Hardy, N. R., Soloski, K. L., Ratcliffe, G. C., Anderson, J. R., & Willoughby, B. J. (2015). Associations between family of origin climate, relationship self-regulation, and marital outcomes. *Journal of Marital and Family Therapy*, *41*, 508–521. 10.1111/jmft.12090

Harlaar, N., Santtila, P., Björklund, J., Alanko, K., Jern, P., Varjonen, M., . . . Sandnabba, K. (2008). Retrospective reports of parental physical affection and parenting style: A study of Finnish twins. *Journal of Family Psychology*, *22*, 605–613. 10.1037/0893-3200.22.3.605

Hock, E., Schirtzinger, M. B., Lutz, M. B., & Widaman, K. (1995). Maternal depressive symptomatology over the transition to parenthood: Assessing the influence of marital satisfaction and marital sex role traditionalism. *Journal of Family Psychology*, *9*, 79–88. 10.1037/0893-3200.9.1.79

Huston, T., McHale, S., & Crouter, A. (1986). When the honeymoon is over: Changes in the marriage relationship over the first year. In R. Gilmour & S. W. Duck (Eds.), *The emerging field of personal relationships* (pp. 109–132). Hillsdale, NJ: Erlbaum.

John, O. P., & Gross, J. J. (2004). Healthy and unhealthy emotion regulation: Personality processes, individual differences, and life span development. *Journal of Personality*, *72*, 1301–1334. 10.1111/j.1467-6494.2004.00298.x

Karney, B. R., & Bradbury, T. N. (1995). The longitudinal course of marital quality and stability: A review of theory, method, and research. *Psychological Bulletin*, *118*, 3–34. 10.1037/0033-2909.118.1.3

Keeton, C. P., Perry-Jenkins, M., & Sayer, A. G. (2008). Sense of control predicts depressive and anxious symptoms across the transition to parenthood. *Journal of Family Psychology*, *22*, 212–221. 10.1037/0893-3200.22.2.212

Kenny, D. A. (2012). *Mediation*. Retrieved from <http://davidakenny.net/cm/mediate.htm>

Kluwer, E. S., & Johnson, M. D. (2007). Conflict frequency and relationship quality across the transition to parenthood. *Journal of Marriage and Family*, *69*, 1089–1106. 10.1111/j.1741-3737.2007.00434.x

Krause, E. D., Mendelson, T., & Lynch, T. R. (2003). Childhood emotional invalidation and adult psychological distress: The mediating role of emotional inhibition. *Child Abuse & Neglect*, *27*, 199–213. 10.1016/S0145-2134(02)00536-7

Leerkes, E. M., Su, J., Calkins, S. D., Supple, A. J., & O'Brien, M. (2016). Pathways by which mothers' physiological arousal and regulation while caregiving predict sensitivity to infant distress. *Journal of Family Psychology*, *30*, 769–779. 10.1037/fam0000185

Leerkes, E. M., Supple, A. J., Su, J., & Cavanaugh, A. M. (2015). Links between remembered childhood emotion socialization and adult adjustment: Similarities and differences between European American and African American women. *Journal of Family Issues*, *36*, 1854–1877. 10.1177/0192513X13505567

- Levenson, R. W., Haase, C. M., Bloch, L., Holley, S. R., & Seider, B. H. (2014). Emotion regulation in couples. In J. J. Gross (Ed.), *Handbook of emotion regulation* (pp. 267–283). New York, NY: Guilford Press.
- Loutzenhiser, L., McAuslan, P., & Sharpe, D. P. (2015). The trajectory of maternal and paternal fatigue and factors associated with fatigue across the transition to parenthood. *Clinical Psychologist, 19*, 15–27. 10.1111/cp.12048
- Matthey, S., Barnett, B., Ungerer, J., & Waters, B. (2000). Paternal and maternal depressed mood during the transition to parenthood. *Journal of Affective Disorders, 60*, 75–85. 10.1016/S0165-0327(99)00159-7
- Meade, A. W., Johnson, E. C., & Braddy, P. W. (2008). Power and sensitivity of alternative fit indices in tests of measurement invariance. *Journal of Applied Psychology, 93*, 568–592. 10.1037/0021-9010.93.3.568
- Mehall, K. G., Spinrad, T. L., Eisenberg, N., & Gaertner, B. M. (2009). Examining the relations of infant temperament and couples' marital satisfaction to mother and father involvement: A longitudinal study. *Fathering, 7*, 23–48. 10.3149/fth.0701.23
- Mitnick, D. M., Heyman, R. E., & Smith Slep, A. M. (2009). Changes in relationship satisfaction across the transition to parenthood: A meta-analysis. *Journal of Family Psychology, 23*, 848–852. 10.1037/a0017004
- Morris, A. S., Silk, J. S., Steinberg, L., Myers, S. S., & Robinson, L. R. (2007). The role of the family context in the development of emotion regulation. *Social Development, 16*, 361–388. 10.1111/j.1467-9507.2007.00389.x
- Muthén, L. K., & Muthén, B. O. (1998–2015). *Mplus user's guide* (7th ed.). Los Angeles, CA: Author.
- Nelson, S. K., Kushlev, K., & Lyubomirsky, S. (2014). The pains and pleasures of parenting: When, why, and how is parenthood associated with more or less well-being? *Psychological Bulletin, 140*, 846–895. 10.1037/a0035444
- Nolen-Hoeksema, S., Stice, E., Wade, E., & Bohon, C. (2007). Reciprocal relations between rumination and bulimic, substance abuse, and depressive symptoms in female adolescents. *Journal of Abnormal Psychology, 116*, 198–207. 10.1037/0021-843X.116.1.198
- Parade, S. H., Blankson, A. N., Leerkes, E. M., Crockenberg, S. C., & Faldowski, R. (2014). Close relationships predict curvilinear trajectories of maternal depressive symptoms over the transition to parenthood. *Family Relations, 63*, 206–218. 10.1111/fare.12065
- Pinquart, M., & Teubert, D. (2010). A meta-analytic study of couple interventions during the transition to parenthood. *Family Relations, 59*, 221–231. 10.1111/j.1741-3729.2010.00597.x

- Putnam, S. P., Helbig, A. L., Gartstein, M. A., Rothbart, M. K., & Leerkes, E. (2014). Development and assessment of short and very short forms of the Infant Behavior Questionnaire-Revised. *Journal of Personality Assessment*, *96*, 445–458. 10.1080/00223891.2013.841171
- Radloff, L. S. (1977). The CES-D Scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, *1*, 385–401. 10.1177/014662167700100306
- Rehman, U. S., Gollan, J., & Mortimer, A. R. (2008). The marital context of depression: Research, limitations, and new directions. *Clinical Psychology Review*, *28*, 179–198. 10.1016/j.cpr.2007.04.007
- Rutherford, H. J., Wallace, N. S., Laurent, H. K., & Mayes, L. C. (2015). Emotion regulation in parenthood. *Developmental Review*, *36*, 1–14. 10.1016/j.dr.2014.12.008
- Tajima, E. A., Herrenkohl, T. I., Huang, B., & Whitney, S. D. (2004). Measuring child maltreatment: A comparison of prospective parent reports and retrospective adolescent reports. *American Journal of Orthopsychiatry*, *74*, 424–435. 10.1037/0002-9432.74.4.424
- Talbot, J. A., Baker, J. K., & McHale, J. P. (2009). Sharing the love: Prebirth adult attachment status and coparenting adjustment during early infancy. *Parenting: Science and Practice*, *9*, 56–77. 10.1080/15295190802656760
- Trillingsgaard, T., Baucom, K. W., & Heyman, R. E. (2014). Predictors of change in relationship satisfaction during the transition to parenthood. *Family Relations*, *63*, 667–679. 10.1111/fare.12089
- Umberson, D., Pudrovska, T., & Reczek, C. (2010). Parenthood, childlessness, and well-being: A life course perspective. *Journal of Marriage and Family*, *72*, 612–629. 10.1111/j.1741-3737.2010.00721.x
- Yap, M. B., Allen, N. B., & Sheeber, L. (2007). Using an emotion regulation framework to understand the role of temperament and family processes in risk for adolescent depressive disorders. *Clinical Child and Family Psychology Review*, *10*, 180–196. 10.1007/s10567-006-0014-0
- Zhou, N., Cao, H., & Leerkes, E. M. (2017). Interparental conflict and infants' behavior problems: The mediating role of maternal sensitivity. *Journal of Family Psychology*, *31*, 464–474. 10.1037/fam0000288

APPENDICES

APPENDIX A: The Missingness of Fathers' Data

First, Little's missing completely at random test indicated that the fathers' data were not missing completely at random, $\chi^2(104, N = 196) = 147.56, p < .01$. Second, we classified mothers into

two groups based on whether their fathers' data were missing and then compared the two groups in terms of variables used in the present study utilizing independent-samples *t* tests (for continuous variables) and chi-square tests (for categorical variables). A series of differences emerged: (a) More African American women ($n = 19$) were missing fathers' data than were European American women ($n = 10$), $\chi^2(1, N = 196) = 6.80, p < .01$; (b) more women in nonmarried couples ($n = 23$) were missing fathers' data than were women in married couples ($n = 6$), $\chi^2(1, N = 196) = 12.11, p < .01$; (c) the family income-to-needs ratio values for women whose fathers' data were missing ($M = 2.29, SD = 2.08$) were lower than those for women whose fathers' data were complete ($M = 3.28, SD = 2.12$), $t(185) = -2.26, p < .05$; (d) women whose fathers' data were missing ($M = 5.026, SD = 1.218$) had lower levels of relationship satisfaction than did women whose fathers' data were complete ($M = 5.56, SD = .96$), $t(34.30) = -2.23, p < .05$; and (e) women whose fathers' data were missing ($M = 4.86, SD = 1.22$) had lower levels of attachment security than did women whose fathers' data were complete ($M = 5.56, SD = 1.48$), $t(194) = -2.39, p < .05$.

APPENDIX B: Measurement Invariance Analyses

To establish the measurement invariance of the variables across the prenatal and 6 months waves, we estimated and compared two models. The first model allowed the loadings to vary across waves (i.e., the baseline model). The second model constrained the loadings of a given construct as equal across the prenatal wave and the 6 months wave (i.e., the constrained model). Given that chi-square is sensitive to sample size (Meade, Johnson, & Braddy, 2008), we employed root-mean-square error of approximation (RMSEA) as the index to evaluate the measurement invariance of these constructs across waves. A change of no more than .01 in the RMSEA values between the two models indicates that constraining the loadings of a given construct as equal across waves does not significantly change the model fit.

As displayed in Table B1, the baseline models for depression, emotion-regulation difficulties, and couple-relationship satisfaction all fit well to data, indicating the achievement of structural invariance across the prenatal and 6 months waves. Moreover, changes in RMSEA for each construct were not larger than .01, indicating measurement equivalence for these constructs across waves (i.e., scalar invariance) and thus validating the appropriateness of utilizing the cross-lagged model in the present study.

Table B1
Measurement Invariance of Key Model Constructs Across Prenatal Wave and 6 Months Wave

Construct	Baseline models	Constrained models	Δ RMSEA
Depression	$\chi^2(343, N = 196) = 567.981, p < .001$; CFI = .905, RMSEA = .060, 90% CI [.051, .069]	$\chi^2(363, N = 196) = 599.419, p < .001$; CFI = .900, RMSEA = .060, 90% CI [.051, .068]	.000
Emotion-regulation difficulties	$\chi^2(20, N = 196) = 43.684, p = .002$; CFI = .965, RMSEA = .081, 90% CI [.048, .113]	$\chi^2(26, N = 196) = 56.567, p < .001$; CFI = .954, RMSEA = .080, 90% CI [.052, .109]	.001
Couple-relationship satisfaction	$\chi^2(47, N = 196) = 74.584, p = .01$; CFI = .976, RMSEA = .057, 90% CI [.031, .081]	$\chi^2(55, N = 196) = 82.372, p = .01$; CFI = .977, RMSEA = .053, 90% CI [.026, .075]	.004

Note. RMSEA = root-mean-square error of approximation; CFI = comparative fit index; CI = confidence interval.

APPENDIX C: Model Results for Covariates

Covariates were included in the model as exogenous variables predicting maternal adaptation in the three domains at 6 months postpartum and also correlating with maternal adaptation in the three domains at the prenatal wave. Model results for correlation lines and prediction paths involving covariates are reported in Table C1.

Table C1
Model Results for Correlation Lines and Prediction Paths Involving Covariates

Covariates	Correlation lines			Prediction paths		
	Depressive symptoms (pre)	Couple-relationship satisfaction (pre)	Emotion-regulation difficulties (pre)	Depressive symptoms (6 M)	Couple-relationship satisfaction (6 M)	Emotion-regulation difficulties (6 M)
Maternal race ^a (pre)	-.156*	.282***	.170*	.000	.066	-.091
Maternal age ^b (pre)	-.135†	.131†	-.095	-.102	.008	-.045
Income-to-needs ratio (pre)	-.277***	.227**	-.117	-.108	.024	.020
Couple-relationship status ^c (pre)	.257***	-.425***	.123†	-.016	-.020	-.142
Couple-relationship length ^b (pre)	-.180*	.255***	-.070	.045	-.073	-.020
Adult attachment (pre)	-.019	.074	-.026	-.084	-.014	.155*
Infant negative affect (6 M)	—	—	—	.037	-.048	.031

Note. pre = prenatal (data collected at the prenatal phase); 6 M = 6 months (data collected when the focal child was 6 months old).
^a Coded as 1 (European American Mothers) and 0 (African American Mothers). ^b Measured in years. ^c Coded as 1 (*Married and Living Together Couples*), 2 (*Non-Married but Living Together Couples*), and 3 (*Non-Married and not Living Together Couples*).
† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.