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Benevolent Childhood Experiences and Childhood Maltreatment History: Examining Their Roles in Depressive Symptoms Across the Peripartum Period

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Abstract

Peripartum depressive symptoms are associated with a range of adverse outcomes for offspring and mothers. Childhood experiences, both negative and positive, may impact peripartum depression risk. Longitudinal studies are needed to examine trajectories of change in depression across the peripartum and predictors of symptoms across time. We examined the associations between women's reports of specific childhood experiences and trajectories of depressive symptoms across the peripartum period. Participants were 208 pregnant women (Mage $= 30.31$, $SD = 5.45$, range $= 20$–45 years) at the prenatal session. Participants completed follow-up sessions approximately 1 month and 6 months postpartum. At baseline, participants completed questionnaire measures of benevolent childhood experiences, childhood maltreatment, and depressive symptoms. Greater benevolent childhood experiences were associated with lower depressive symptoms across the peripartum period. The association with postpartum symptoms remained significant even when covarying antepartum depressive symptoms, indicating that benevolent childhood experiences may protect against postpartum depressive symptoms even after accounting for earlier symptoms. We did not find significant associations between childhood maltreatment and depressive symptoms. These findings extend previous research on benevolent childhood experiences by offering insight into unique associations with symptoms across the peripartum period.

Keywords Childhood adversity · Pregnancy · Postpartum · Depression · Resilience

Depressive symptoms during the perinatal period, including both the antepartum (i.e., during pregnancy) and postpartum (i.e., following childbirth), are prevalent (Yim et al., 2015). Depression during the antepartum period is associated with a range of adverse outcomes for offspring (e.g., low birth weight, poorer cognitive performance) and mothers (e.g., preterm delivery; postpartum depression) (Beck, 2001; Schaffir, 2018). In addition, depression during the postpartum period in mothers is also associated with adverse outcomes for offspring (e.g., cognitive and

emotional development impairments) and mothers (e.g., mother–infant relationship disturbances) (Howard et al., 2014; Vesga-Lopez et al., 2008). Even subclinical levels of depressive symptoms during the peripartum period are associated with adverse outcomes (Piallini et al., 2016). The development of prevention and intervention efforts to reduce the risk for depression and its adverse outcomes during the perinatal period requires the identification of early risk and protective factors.

Childhood experiences, both negative and positive, have been linked to depression across development (Crandall et al., 2019; Hughes et al., 2017), including depression in the peripartum period (Chung et al., 2008). Negative experiences, such as childhood maltreatment (e.g., emotional and physical abuse, emotional and physical neglect), affect many children (Finkelhor et al., 2015). Further, childhood maltreatment has been linked with elevated risk for depression in childhood (LeMoult et al., 2020; Negriff et al., 2020) through adulthood (Humphreys et al., 2020; Skinner et al., 2016). Childhood maltreatment is also associated with

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depression risk in the antepartum period (Benedict et al., 1999; Lang et al., 2006; Mezey et al., 2005; Nelson et al., 2010). In contrast, positive childhood experiences (also known as benevolent childhood experiences, including safe and loving caregivers, close friends, educational resources, social clubs, and hobbies) are linked with reduced risk for depression in adulthood (Bethell et al., 2019; Crandall et al., 2019). Specifically, women who report a greater number of benevolent childhood experiences have lower depressive symptoms (Crandall et al., 2019). In addition, there is evidence of an association between benevolent childhood experiences and depression in the antepartum period (Chung et al., 2008). For example, retrospectively reported benevolent childhood experiences were associated with fewer depressive symptoms during the antepartum period (Chung et al., 2008).

Although childhood experiences have implications for depression across the lifespan, there is reason to believe these experiences may be particularly relevant in the peripartum period for women. First, the experience of becoming a parent involves neurobiological changes (e.g., increased neural reactivity to threat stimuli) that may in turn result in different vulnerabilities and opportunities for latent risk factors of depression to become apparent (Cárdenas et al., 2020; Roos et al., 2011). Second, experiences during the peripartum period are associated with a host of stressors that may be specific to or more salient during pregnancy (e.g., fear about childbirth, pregnancy complications, unfavorable employment conditions, strain in intimate relationships) (Dunkel Schetter & Tanner, 2012). Third, the effect of early-life stressors, in line with the stress sensitization model, may become a stronger predictor of depressive symptoms in the context of increases in current stress (Harkness et al., 2015). Finally, the experience of pregnancy and subsequent caring for a new child on the part of women may be associated with a greater degree of self-reflection on their own positive and negative childhood experiences (Deave et al., 2008). Therefore, researchers should consider conducting additional research on the potential effects of childhood experiences on women's psychopathology across the lifespan and specifically the peripartum period.

Longitudinal designs that sample pregnant people across the peripartum period can give us greater insight into the continuity in risk and protective factors from the antepartum to postpartum period (Hutchens & Kearney, 2020; Robertson et al., 2004). Risk factors for depression in the antepartum relative to postpartum period may be somewhat distinct. For example, researchers using a community sample in a prospective study on the prevalence of peripartum depression found that past history of psychopathology, family history of psychopathology, and adverse life events were associated with depressive symptoms in the antepartum period (Gulseren et al., 2006). In contrast, while adverse life events

continued to be associated with depressive symptoms in the postpartum period, low-income status and partner relationship difficulties emerged as meaningful risk factors only during postpartum period. Taken together, these examples suggest that childhood experiences play a role in maternal mental health from the antepartum to postpartum period. Though there is evidence that childhood maltreatment is associated with depressive symptoms during pregnancy (Chung et al., 2008), few researchers have investigated how these experiences impact trajectories of symptoms across pregnancy and the postpartum period. Further, no study has been conducted to assess the association between benevolent childhood experiences and depressive symptoms across pregnancy and the postpartum period.

In the current study, we aimed to examine women's childhood experiences (i.e., childhood maltreatment severity, benevolent childhood experiences) in relation to depressive symptoms across the antepartum and postpartum periods. First, based on prior evidence linking childhood maltreatment with greater depressive symptoms during the antepartum period (Benedict et al., 1999; Lang et al., 2006) and benevolent childhood experiences with less depressive symptoms during the antepartum period (Chung et al., 2008; Narayan, Ippen, et al., 2017; Narayan, Thomas, et al., 2017), we hypothesized that similar associations would be observed in a sample of pregnant women. Second, based on prior evidence linking childhood maltreatment with greater depressive symptoms during the postpartum period (Mezey et al., 2005), we hypothesized that associations between childhood experiences and depressive symptoms would extend into the postpartum period. Last, one of the strongest predictors of postpartum depressive symptoms is antepartum depressive symptoms (Schaffir, 2018), so we tested whether the effects of early experiences were associated with postpartum depressive symptoms over and above antepartum depressive symptoms.

Methods

Participants

Participants were drawn from an ongoing longitudinal study. Two hundred eight participants completed the initial prenatal session (age range = 20–45 years, $M = 30.31$, $SD = 5.45$, 82% White, 10% Black/African American, 5% multiracial/other, 2% Asian, 1% Native Hawaiian or Pacific Islander, and 9% Hispanic). The majority of participants were married (84% married, 13% single, and 3% divorced), employed for wages (87% employed for wages, 5% homemaker, 3% student, 3% out of work looking for work, 1% self-employed, 1% other), and earning an annual household income greater than $60,000 per year (1% $0–5,000, 2%

$5,001–30,000, 4% $15,001–30,000, 21% $30,001–60,000, 24% $60,001–90,000, 29% $90,001–150,000, 19% greater than $150,000) and were first time parents (62% no children, 26% one child, 5% two children, 2% three children, 1% four children). Again, the current sample is from a larger ongoing longitudinal study. Of the 208 participants at baseline (i.e., prenatal visit), 159 participants (76%) completed an initial postpartum session when their infants were newborns (approximately age 1 month) at the time of analyses. Finally, 114 participants (55%) completed a second postpartum visit (at approximately age 6 months) at the time of analyses. Not all participants from the baseline session were eligible for the newborn session (e.g., miscarriage or still birth, preterm infant). Not all participants from the baseline session were eligible for the newborn session (e.g., miscarriage or still birth, preterm infant). Recruitment of participants occurred at local obstetric clinics and the Vanderbilt University Medical Center outpatient clinic as well as through community postings. Eligibility requirements for participants included (a) US citizenship or permanent residence, (b) 18 years of age, (c) English as primary language, and (d) between 16 and 32 weeks gestation. All recruitment and study procedures performed were in accordance with the prevailing ethical standards. The Vanderbilt University Institutional Review Board approved the study, and all participants provided informed consent prior to participating.

Procedures

Participants completed questionnaires to measure depressive symptoms, childhood maltreatment severity, and benevolent childhood experiences at an initial session during the second or third trimester of pregnancy (M weeks gestation = 23.16, SD = 5.91). At the postpartum sessions (newborn session [M weeks postpartum = 5.55, SD = 4.65]; 6 months postpartum [M weeks postpartum = 27.86, SD = 3.82]), participants completed follow-up questionnaires to measure depressive symptoms.

Measures

Childhood Maltreatment Severity We administered the Childhood Trauma Questionnaire–Short Form (CTQ-SF) to measure childhood maltreatment severity at the initial interview session (Thombs et al., 2007). The CTQ-SF is a 28-item self-report questionnaire assessing five dimensions of childhood maltreatment: (a) physical abuse, (b) emotional abuse, (c) sexual abuse, (d) physical neglect, and (e) emotional neglect. There are five items on each scale and an additional three-item minimization/denial scale. Responses are on a five-point Likert scale ranging from 0 (never true) to 4 (very often true). Responses to the 25 items are summed.

Scores on the questionnaire can range from 0 to 100. Higher scores indicate greater childhood maltreatment severity.

Benevolent Childhood Experiences We administered the benevolent childhood experiences scale to measure positive early-life experiences (Narayan et al., 2018). The benevolent childhood experiences scale is a 10-item self-report instrument to quantify positive early-life experiences by measuring (a) aspects of positive and predictable qualities of life (e.g., "Did you have opportunities to have a good time?"), (b) security and support (e.g., "Did you have at least one teacher who cared about you?"), (c) internal perceived safety (e.g., "Did you have beliefs that gave you comfort?"), and (d) external perceived safety (e.g., "Did you have at least one caregiver with whom you felt safe?"). The responses were scored on a binary scale (yes = 1, no = 0) and summed with a range from 0 to 10. Higher scores indicate more positive early-life experiences. Approximately 66% (n = 137) of the participants who completed the prenatal session endorsed all 10 benevolent childhood experiences (Fig. 1).

Antepartum Depressive Symptoms We administered the Edinburgh Postnatal Depression Scale (EPDS) to measure participants' depressive symptoms during the prenatal session (Cox et al., 1987). The EPDS is a 10-item checklist commonly used to screen for peripartum depression and validated for use in pregnancy (Bergink et al., 2011; Levis et al., 2020). The scale assesses how the participant felt during the previous week. Responses are on a four-point Likert scale ranged from 0 to 3. Responses to the 10 items are summed to create a final score that can range from 0 to 30. Higher scores indicate more depressive symptoms. Cronbach's alpha for the 10-item EPDS was 0.87 for the participants that completed the prenatal session (n = 208). Approximately 15% (n = 32) of the participants that completed the prenatal session endorsed EPDS scores above the clinical cut-off of 11 or higher (Lagerberg et al., 2011) during the prenatal session (Fig. 2).

Postpartum Depressive Symptoms We administered the Center for Epidemiological Studies Depression Scale (CES-D) to measure depressive symptoms at the newborn and 6 months postpartum sessions (Radloff, 1977). We administered the CES-D, rather than EPDS, in order to use the same scale at each of these assessments. The CES-D includes twenty items relating to multiple aspects of depressive symptoms, such as depressed mood, feelings of guilt and worthlessness, feelings of hopelessness, psychomotor retardation, loss of appetite, and sleep disturbance. Each question asks participants about the frequency of feelings and behaviors within the past week. Responses are measured on a four-point Likert scale ranging from 0 (rarely or none of the time [less than 1 day]) to 3 (most or all of the

Fig. 1 Associations between childhood maltreatment severity and depressive symptoms at the antepartum, newborn, and 6 months postpartum sessions. *Note:* depressive symptoms were standardized because different measures of depressive symptoms were used for antepartum and postpartum visits (i.e., EPDS and CES-D, respectively)
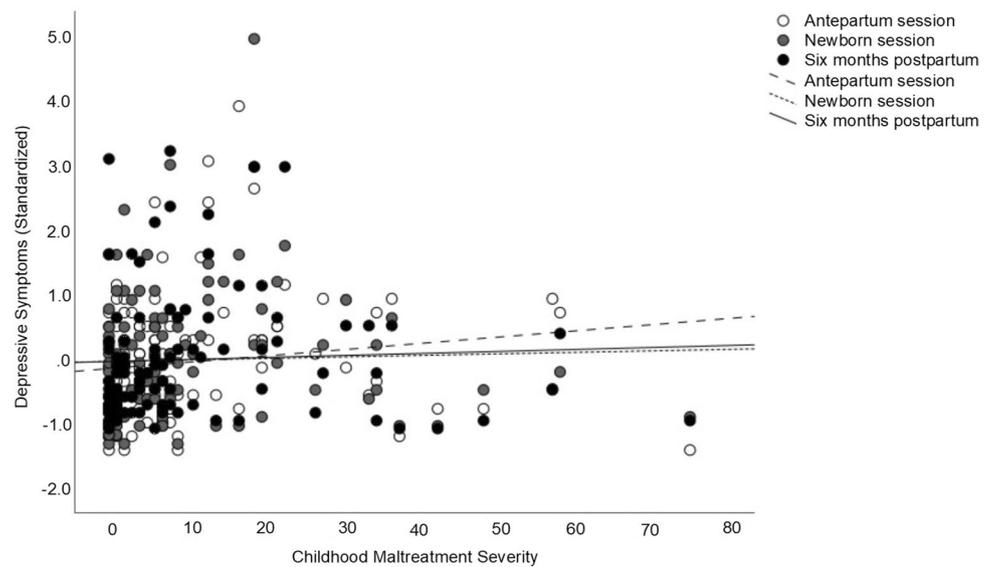
Fig. 2 Associations between benevolent childhood experiences and depressive symptoms at the antepartum, newborn, and 6 months postpartum sessions. *Note:* depressive symptoms were standardized because different measures of depressive symptoms were used for antepartum and postpartum visits (i.e., EPDS and CES-D, respectively)
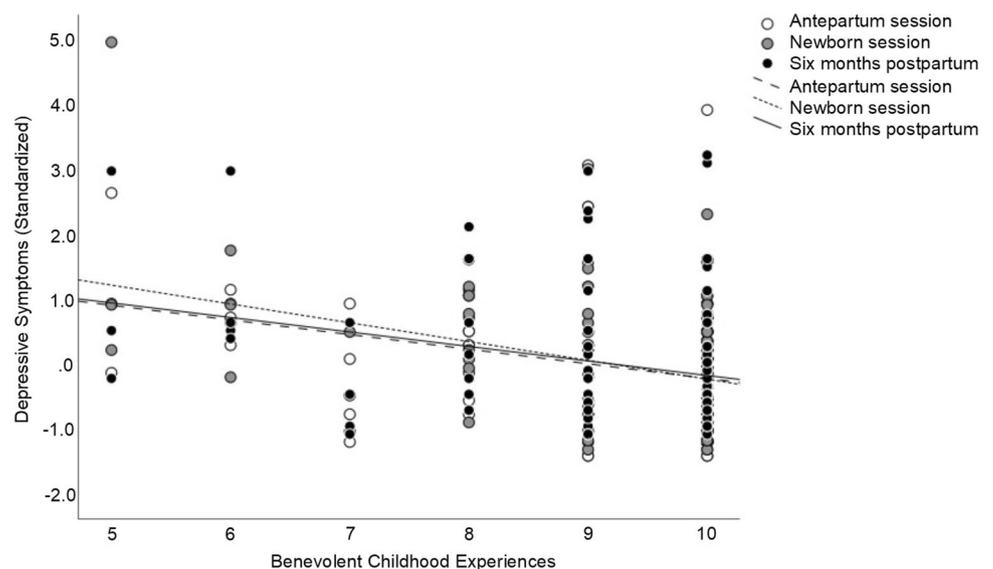
time [5–7 days]). The responses when summed range from 0 to 60. Higher scores indicate the presence of more symptomatology. For the initial postpartum session, Cronbach's alpha for the 20-item CES-D was 0.86. Approximately 17% ($n=27$) of the participants that completed the initial postpartum session endorsed CES-D scores above the clinical cutoff of 16. For the 6 months postpartum session, Cronbach's alpha for the 20-item CES-D was 0.89. Approximately 13% ($n=15$) of the sample endorsed CES-D scores above the clinical cut-off of 16 during the 6 months postpartum session (Radloff, 1977).

Data Analysis

All analyses were conducted using SPSS v. 27 (IBM Corp., Armonk, NY). First, bivariate associations between variables were examined. Second, given the nested nature of the data (repeated reports of depressive symptoms across time nested within individuals), we conducted multilevel modeling analyses using restricted maximum likelihood. Multilevel modeling is a statistical approach that can incorporate observations from the same individual over time as well as accommodate missing data. We sought to test the relationship of childhood

experience (i.e., childhood maltreatment severity, benevolent childhood experiences) with depressive symptoms collapsed across time (model 1), trajectories of depressive symptoms from pregnancy through 6 months postpartum (model 2), and postpartum depressive symptoms over and above antepartum depressive symptoms (model 3). Separate models were run for childhood maltreatment severity and benevolent childhood experiences. Because different measures of depressive symptoms were used for antepartum and postpartum study visits (i.e., EPDS and CES-D, respectively), we standardized all variables in the models. Standardizing variables facilitates the interpretation of the estimated coefficients when variables in a model have different units of measurement (Schielzeth, 2010). Time was coded from 1 (i.e., antepartum depressive symptoms) to 3 (i.e., 6 months postpartum depressive symptoms) for all models. For model 1 (see Eq. 1), we were interested in assessing the associations between childhood experiences (i.e., childhood maltreatment severity, benevolent childhood experiences) and depressive symptoms collapsed across time. The multilevel model was as follows:

$$\text{Depressive symptoms}_{ij} = \beta_0 + \beta_{1j}(\text{time}_{ij}) + \beta_{2j}(\text{childhood experiences}) + r_{ij} \tag{1}$$

where β_0 was the estimated level of antepartum depressive symptoms; β_{1j} was the main effect of time or the estimated slope of depressive symptoms across time; β_{2j} was the main effect of childhood experiences; and r_{ij} is the random effect of subject intercept. The intercept was specified as random with variance components. The time variable and childhood experience (i.e., childhood maltreatment severity, benevolent childhood experiences) were specified as fixed.

For model 2 (see Eq. 2), we were interested in assessing the associations between childhood experiences and trajectories of depressive symptoms from pregnancy to 6 months postpartum. The multilevel model was as follows:

$$\text{Depressive symptoms}_{ij} = \beta_0 + \beta_{1j}(\text{time}_{ij}) + \beta_{2j}(\text{childhood experiences}) + \beta_{3j}(\text{time}_{ij} \times \text{childhood experiences}_i) + r_{ij} \tag{2}$$

where B_{3j} is the interactive effect of time and childhood experience. A significant interaction between time and childhood experience indicates that change in depressive symptoms from pregnancy to 6 months postpartum depends on their exposure to childhood experiences (i.e., childhood maltreatment severity, benevolent childhood experiences). Time was a categorical variable (i.e., antepartum session, newborn session, 6 months postpartum session), with the antepartum session as the reference group. Along with the time variable and childhood experiences (i.e., childhood maltreatment severity, benevolent childhood experiences), the interaction was specified as fixed.

Finally, for model 3 (see Eq. 3), we examined whether the associations between childhood experiences (i.e., childhood maltreatment severity, benevolent childhood experiences)

and depressive symptoms collapsed across time held when antepartum depressive symptoms were included in the model. The multilevel model was as follows:

$$\text{Depressive symptoms}_{ij} = \beta_0 + \beta_{1j}(\text{time}_{ij}) + \beta_{2j}(\text{childhood experiences}_i) + \beta_{3j}(\text{antepartum depressive symptoms}) + r_{ij} \tag{3}$$

where β_{3j} was the main effect of antepartum depressive symptoms on postpartum depressive symptoms. For time, only time points 2 (i.e., depressive symptoms at newborn session) and 3 (i.e., depressive symptoms 6 months postpartum) were included in this model. For all models, we explored results with gestational age at the first assessment and education status (e.g., bachelor's degree or higher) included as covariates.

Results

Descriptive Statistics

Descriptive statistics are presented in Table 1. Bivariate correlations are presented in Table 2. Benevolent childhood experiences were negatively associated with childhood maltreatment severity. Benevolent childhood experiences were also negatively associated with depressive symptoms at each assessment. As expected, depressive symptoms at each time point were positively correlated with one another (Table 1).

Childhood Experiences and Depressive Symptoms

Next, we examined the associations between childhood experiences and depressive symptoms collapsed across time. Childhood maltreatment severity was not significantly associated with depressive symptoms (see Table 3, model 1). However, benevolent childhood experiences were significantly associated with depressive symptoms, such that

Table 1 Means, standard deviations, and range for study variables

Variable	M	SD	Range
Childhood maltreatment severity	9.72	13.59	76
Emotional abuse	3.36	3.98	20
Physical abuse	1.42	3.11	19
Sexual abuse	1.28	3.54	20
Emotional neglect	2.86	4.42	20
Physical neglect	1.04	2.34	15
Benevolent childhood experiences	9.27	1.34	10
Antepartum depressive symptoms	6.63	4.69	25
Depressive symptoms at newborn session	9.45	7.17	45
Depressive symptoms 6 months postpartum	8.80	8.14	35

$N = 208$

Table 2 Correlations for study variables

Variable	1	2	3	4	5
1. Childhood maltreatment severity	-				
2. Benevolent childhood experiences	− .53**	-			
3. Antepartum depressive symptoms	.11	− .21**	-		
4. Depressive symptoms at newborn session	.08	− .26**	.58**	-	
5. Depressive symptoms 6 months postpartum	.05	− .27**	.41**	.65**	-

$N = 208$ for childhood maltreatment severity, benevolent childhood experiences, and antepartum depressive symptoms. $N = 145$ for depressive symptoms at the newborn session. $N = 94$ for depressive symptoms at 6 months. Correlation is significant at the .05 level (2-tailed). **Correlation is significant at the .01 level (2-tailed)

Table 3 Multilevel models of the relationship between childhood maltreatment severity and depressive symptoms

Variable	b	SE	t	df	p
Model 1					
Intercept	<0.01	0.07	<0.01	325.70	1.00
Newborn session	<0.01	0.07	0.11	294.67	.912
Six months postpartum session	0.03	0.08	0.36	303.17	.718
Childhood maltreatment severity	0.10	0.06	1.64	194.40	.102
Model 2					
Intercept	<0.01	0.07	<0.01	326.25	1.00
Newborn session	<0.01	0.07	0.11	292.80	.915
Six months postpartum session	0.03	0.08	0.37	301.27	.713
Childhood maltreatment severity	0.11	0.07	1.56	326.25	.120
Newborn session × childhood maltreatment severity	< −0.01	0.07	−0.03	284.77	.978
Six months postpartum session × childhood maltreatment severity	−0.04	0.08	−0.51	296.62	.610

The antepartum session is the reference group. Model 1 = trajectories of depressive symptoms collapsed across pregnancy. Model 2 = trajectories of depressive symptoms from pregnancy through 6 months postpartum. Model 3 = postpartum depressive symptoms over and above antepartum depressive symptoms. All variables are standardized. [a]$p < .05$. [b]$p < .01$. [c]$p < .001$

greater benevolent childhood experiences were associated with lower depressive symptoms (see Table 4, model 1).

Childhood Experiences and Trajectories of Depressive Symptoms

We examined the associations between childhood experiences and trajectories of depressive symptoms from pregnancy to 6 months postpartum. We ran separate models for childhood maltreatment severity and benevolent childhood experiences. Time point of the measurement of depressive symptoms was entered as a categorical variable (i.e., antepartum session, newborn session, 6 months postpartum session), with the antepartum session as the reference group. The association between childhood maltreatment severity and depressive symptoms did not vary meaningfully as a function of time (see Table 3, model 2). The association between benevolent childhood and depressive symptoms also did not vary meaningfully as a function of time (see Table 4, model 2). These results indicate that the association

between childhood experiences and depressive symptoms was not moderated by peripartum stage.

Childhood Experiences and Depressive Symptoms Holding for Postpartum Depressive Symptoms

Because our analyses did not yield a main effect of childhood maltreatment severity on depressive symptoms, additional analyses focused on benevolent childhood experiences. Specifically, we tested if the association between benevolent childhood experiences and postpartum depressive symptoms collapsed across time held when antepartum depressive symptoms were included in the model. Our analyses yielded a main effect of benevolent childhood experiences, such that greater benevolent childhood experiences were associated with lower postpartum depressive symptoms after covarying for antepartum depressive symptoms (see Table 4, model 3), indicating that the potential protective effect of benevolent childhood experiences in the postpartum period is not fully explained by the associations with depressive symptoms prior to birth. For

Table 4 Multilevel models of the relationship between benevolent childhood experiences and depressive symptoms

Variable	b	SE	t	df	p
Model 1					
Intercept	< .01	0.07	< .01	331.88	1.00
Newborn session	< .01	0.07	0.13	293.52	.896
Six months postpartum session	0.03	0.08	0.36	302.85	.719
Benevolent childhood experiences[c]	− 0.23	0.06	− 3.82	206.47	< .001
Model 2					
Intercept	< .01	0.07	< .01	331.72	1.00
Newborn session	< .01	0.07	0.14	291.31	.893
Six months postpartum session	0.03	0.08	0.36	300.62	.717
Benevolent childhood experiences[b]	− 0.21	0.07	− 3.11	331.72	.002
Newborn session × benevolent childhood experiences	− 0.06	0.08	− 0.78	300.05	.438
Six months postpartum session × benevolent childhood experiences	< − .01	0.09	− 0.04	308.97	.969
Model 3					
Intercept	< .01	0.05	< .01	464.69	1.00
Newborn session	< .01	0.07	0.14	341.85	.886
Six months postpartum session	0.04	0.08	0.58	367.94	.561
Antepartum depressive symptoms[c]	0.73	0.04	20.23	225.80	< .001
Benevolent childhood experiences[b]	− 0.08	0.04	− 2.09	233.28	.038

The antepartum session is the reference groups. Model 1 = trajectories of depressive symptoms collapsed across pregnancy. Model 2 = trajectories of depressive symptoms from pregnancy through 6 months postpartum. Model 3 = postpartum depressive symptoms over and above antepartum depressive symptoms. All variables are standardized. [a]$p < .05$. [b]$p < .01$, [c]$p < .00$

all models, we explored the possibility of gestational age and education status (i.e., bachelor's degree or higher) as covariates. No substantive changes in results were observed when covarying for gestational age and education. However, the association between benevolent childhood experiences and depressive symptoms holding for antepartum depressive symptoms was no longer statistically significant with the addition of these covariates, but the effect size was similar in magnitude (BCE without covariates $\beta = -0.08$; BCE with covariates $\beta = -0.06$).

Discussion

In the present study, we examined the associations between women's childhood experiences (i.e., childhood maltreatment severity, benevolent childhood experiences) and trajectories of depressive symptoms across the peripartum period. We also examined whether the association between benevolent childhood experiences and postpartum depressive symptoms held when covarying for antepartum depressive symptoms. Consistent with prior research (Chung et al., 2008), we found that benevolent childhood experiences were associated with lower depressive symptoms collapsed across peripartum period. The association between benevolent childhood experiences and depressive symptoms remained even when covarying antepartum depressive symptoms, indicating that greater benevolent childhood experiences may be protective of postpartum depressive symptoms even after accounting for antepartum depressive symptoms. These findings extend previous research on benevolent childhood experiences by assessing the possibility of unique associations with antepartum and postpartum depressive symptoms. Contrary to prior evidence linking childhood maltreatment with greater depressive symptoms during the antepartum (Benedict et al., 1999; Lang et al., 2006) and postpartum periods (Dennis & Ross, 2006; Mezey et al., 2005), we did not find significant positive associations between childhood maltreatment and depressive symptoms in the peripartum period.

In the current study, we replicated and extended work demonstrating associations between greater benevolent childhood experiences and lower antepartum depressive symptoms (Chung et al., 2008) into the postpartum period. Previous studies show that greater retrospective reports of benevolent childhood experiences are linked with lower depressive symptoms in adulthood in general (Crandall et al., 2019) as well as specifically during the antepartum period (Chung et al., 2008; Narayan, Ippen, et al., 2017; Narayan, Thomas, et al., 2017). No prior work has tested if the association between greater benevolent childhood experiences and less depressive symptoms extends from the

antepartum to the postpartum period. The continuity of these associations raises the possibility that benevolent childhood experiences may have a protective effect against depressive symptoms throughout the entire peripartum period.

Another key finding from the current study is that benevolent childhood experiences predicted postpartum depressive symptoms over and above antepartum depressive symptoms. This suggests that benevolent childhood experiences may have a unique effect on women's depressive symptoms in the postpartum period. Previous literature shows that women reflect on their childhood experiences of love and support, or lack thereof, with the arrival of their own child (Chamberlain et al., 2019; Narayan, Ippen, et al., 2017; Narayan, Thomas, et al., 2017). In line with this literature, our study finds unique effects of benevolent childhood experiences on postpartum outcomes, suggesting that early positive experiences have enduring effects on the well-being of women during the peripartum period. Another explanation for the unique association between benevolent childhood experiences and lower postpartum depressive symptoms is that positive experiences in childhood may be a proxy for current resources regarding support women may have access to following childbirth. Specifically, the benevolent childhood experiences items pertain to the availability of positive, safe, and secure interpersonal relationships at various levels (i.e., parents/primary caregivers, peers, teachers, neighbors). People who endorse having strong interpersonal relationships during childhood may be more likely to have these relationships carry into their adulthood (Poole et al., 2018; Pro et al., 2020) and may serve as additional support during the challenging postpartum months. The unique predictive nature of benevolent childhood experiences, above and beyond antepartum depressive symptoms, highlights the potential utility of probing benevolent childhood experiences prenatally to better identify which individuals may need additional support in the postpartum period.

In the current study, childhood maltreatment was not significantly associated with peripartum depressive symptoms. Though the effect was in the expected direction, the magnitude was small (i.e., $\beta = 0.11$). There is the possibility that a limited range of endorsed childhood maltreatment in this sample may have limited the ability to determine bivariate relationships in our sample (Salkind, 2010). For example, a recent study using archival data from 24 multinational samples with a total of 19,652 participants found the sample mean exposure was slightly higher than our sample mean exposure (MacDonald et al., 2016). Although common, childhood maltreatment is not uniformly distributed across racial, ethnic, and SES groups (Child Welfare Information Gateway, 2021). Therefore, the demographic distribution of our sample (i.e., 82% White and 79% with an education attainment level of bachelor's degree or higher) may partly explain why the common occurrence of childhood maltreatment was relatively low compared to other samples (e.g., Chung et al., 2008).

There are several limitations to this study. First, retrospective reports of objective life events may lead some participants to view early experiences as more negative or positive.

Second, a relatively small sample with limited racial/ethnic diversity does not allow us to assess the mental health impacts of racism and discrimination. This precludes us from considering early adversity from a broader perspective (e.g., neighborhood violence, school quality, experiences of institutional, and interpersonal racism). Further, low levels of childhood maltreatment experiences and high positive experiences were endorsed in the sample overall. Women generally endorsed a high number of positive childhood experiences (i.e., $M = 9.27$, $SD = 1.34$) and approximately 66% ($n = 137$) of the participants who completed the prenatal session endorsed all 10 benevolent childhood experiences. In contrast, the sample in the BCE pilot study endorsed 1.5 fewer benevolent childhood experiences on average (i.e., mean exposure of benevolent childhood experiences = 7.84) than our sample (Narayan et al., 2018). In addition, approximately two thirds of our sample endorsed all 10 benevolent childhood experiences, whereas fewer than one third of the BCE pilot study endorsed benevolent childhood experiences score of 10. The field would benefit from future work examining these associations in population-representative samples as well as specifically with groups at higher risk for PPD given elevated exposure to childhood maltreatment and other forms of early adversity. Third, different measures of depressive symptoms were used for antepartum and postpartum study visits (i.e., EPDS and CES-D, respectively). Using different depression scales makes the within-person changes across the longitudinal study difficult to synthesize. To try and address this limitation, we standardized all variables to facilitate the interpretation of the estimated coefficients with different units of measurement (Schielzeth, 2010).

This study offers insight into the importance of translational research to support women during pregnancy and the postpartum period. The benevolent childhood experience scale aggregates several specific interpersonal relationships and experiences into a single score. Although this score provides a holistic understanding of exposure to positive early experiences, the score fails to provide insight into how specific experiences in isolation relate to enduring outcomes. Future studies with larger samples could allow for item-level analyses to clarify which specific interpersonal relationships and early experiences have the most enduring effect on women's well-being in the peripartum period. Clarifying the relationship between these specific experiences and outcomes may provide insight on how to better support women in the peripartum period.

Conclusion

Given the prevalence of depressive symptoms during the antepartum and postpartum period (Yim et al., 2015), and their associations with a range of adverse outcomes for offspring and mothers alike (Howard et al., 2014; Schaffir, 2018; Vesga-Lopez et al., 2008), a critical need exists to refine our understanding of continuity in risk and protective factors from the antepartum to postpartum periods for pregnant individuals. Our research sheds light on the link between women's positive childhood experiences with both lower antepartum and postpartum depressive symptoms. These findings have intergenerational importance beyond the context of pregnancy. The BCE scale captures positive early-life experiences for individuals (e.g., children) that extend beyond their family, including other trusted members (e.g., teachers, neighbors, friends) of community support systems. Enhancing community programs in efforts to increase the number of positive early experiences for children represents one possible implication of our findings. Further, the antepartum period is a unique time for women with increased neurobiological changes and pregnancy specific stressors (Cárdenas et al., 2020; Roos et al., 2011) that may sensitize women to earlier life experiences (Harkness et al., 2015). Findings from our study support the importance of informed screening for postpartum depression risk, another potential implication. Similar to routine screenings for negative childhood experiences, it may be helpful to account for women's positive childhood experiences, or lack thereof, in routine prenatal peripartum depression risk screenings. Taken together, these findings emphasize the importance of childhood experiences on women's well-being across the peripartum period.

Data Availability Available by request.

Code Availability Available by request.

Declarations

Ethics Approval The authors complied with ethical standards in the treatment of participants. The study was approved by the Vanderbilt University Institutional Review Board, and all procedures were in accordance with the ethical standards of the 1964 Helsinki Declaration and its later amendments.

Consent to Participate Written consent was obtained from all participants. The material reported in this manuscript is original, not previously published, and not under concurrent consideration elsewhere.

The authors have no conflicts of interest to disclose with regard to the submitted work.

Consent for Publication Not applicable.

Conflict of Interest The authors declare no competing interests.

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