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The Moderating Role of Resilience Resources in the Association between Stressful Life Events and Symptoms of Postpartum Depression

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Abstract

Background: One in seven women experience postpartum depression, posing a serious public health concern. One of the most robust predictors of elevated postpartum depressive symptoms is major stressful life events that occur during pregnancy. Having greater *resilience resources* that promote successful adaptation to stressful demands may be protective in the face of stress during pregnancy. The current study tested whether three resilience resources— mastery, dispositional optimism, and spirituality— each predicted early symptoms of postpartum depression and moderated the hypothesized association between experiencing stressful life events during pregnancy and symptoms of postpartum depression.

Methods: The sample included 233 women who participated in a prospective longitudinal study from pregnancy through postpartum. Depressive symptoms were assessed at approximately 4 to 8 weeks after birth, whereas resilience resources and stressful life events were measured in pregnancy. Multiple linear regressions were used to test hypotheses.

Results: Stressful life events predicted greater symptoms of depression postpartum. Mastery and optimism predicted fewer symptoms of depression postpartum. Mastery moderated the

association between stressful life events and symptoms of depression when controlling for previous psychiatric history, $t(231) = -1.97$, $p=.0497$.

Limitations: There was some attrition among study participants across timepoints, which was accounted for in analyses with multiple imputation.

Conclusions: These findings point to the protective nature of a mother's sense of mastery in the face of major life stressors during pregnancy and suggest this is an important construct to target in interventions addressing postpartum depression.

Women are at elevated risk of depressive symptoms within the first year after giving birth, and an estimated 22% of women meet diagnostic criteria for postpartum depression (PPD; Wisner et al., 2013), defined as experiencing a major depressive episode with onset in the first four weeks after birth (American Psychiatric Association, 2013). PPD can have deleterious effects on mothers, babies, and families in both the short and long term, posing a serious public health concern (Field, 2010; Goodman, 2004; Slomian et al., 2019). Much of pregnancy and postpartum mental health research has focused on identifying risk factors for the development of PPD. However, in the face of similar risks, some women develop elevated depressive symptoms or clinical depression in the postpartum period whereas others remain resilient and do not experience poor mental health outcomes. Thus, understanding factors associated with resilience in the face of identified risks during this period is valuable.

Resilience: Definition and Resources

Resilience refers to the capacity of a system or individual to adapt successfully to challenges that threaten functioning, survival, or development (Masten, 2018). Factors that promote resilience are referred to as *resilience resources* (Dunkel Schetter & Dolbier, 2011). Dispositional optimism, mastery, and spirituality are three specific resilience resources that have been particularly associated with better maternal mental health outcomes (Cheadle et al., 2018; Cheadle et al., 2015; Grote & Bledsoe, 2007) and birth outcomes (Lobel et al., 2000; Rini et al., 1999). *Dispositional optimism* is defined as the degree to which a person perceives their future as being favorable (Scheier et al., 1994). *Mastery* refers to an individual's sense of whether they are able to control their environment and life circumstances (Pearlin & Schooler, 1978). *Spirituality* refers to experiences and beliefs related to the transcendent and sacred reality (Cheadle et al., 2015).

Investigating the topic of postpartum depressive symptoms through a resilience framework is valuable because specific resilience resources may moderate associations between established risks and elevated depressive symptoms, mitigating the negative impact of stress during this vulnerable period. Additionally, some resilience resources may be more malleable and possible to target through interventions than are uncontrollable risk factors, such as socioeconomic status and previous psychiatric history. For example, increasing one's level of optimism or mastery can be targeted through cognitive behavioral therapy techniques, such as restructuring negative thought patterns to be more positive (Segerstrom, 2011) and reorganizing thoughts and behaviors associated with helplessness (Gallagher et al., 2014). Additionally, although spirituality tends to be a more elusive construct, reconnecting with a pre-existing spiritual beliefs or exploring new avenues for connection

with the transcendent can increase one's sense of well-being (Margolin et al., 2006). Thus, a better understanding of which resilience resources are most salient in the promotion of better outcomes can have significant implications for the development of effective preventive interventions for postpartum mood disorders.

Stressful Life Events and Postpartum Depressive Symptoms

Meta-analyses and systematic reviews have shown that the strongest psychosocial predictors of PPD and elevated symptoms are a previous psychiatric history, antenatal depression and anxiety, low levels of social support, chronic strain, and experiencing stressful life events during pregnancy or shortly after birth (Beck, 2001; O'Hara & Swain, 1996; Robertson et al., 2004; Yim et al., 2015). Among these risk factors, stressful life events experienced during pregnancy are especially important to consider when exploring the development of postpartum depressive symptoms from a resilience perspective for several reasons. First, stressful life events during pregnancy have consistently been shown to strongly predict symptoms of depression across the first postpartum year (Beck, 2001; O'Hara & Swain, 1996; Robertson et al., 2004). An estimated 58 – 70% of women experience a stressful life event such as a death in the family, car accident, significant financial difficulty or interpersonal relationship problems, in the year before their child's birth, making stressful life events during pregnancy common (Salm Ward et al., 2017). Additionally, resilience resources can play a particularly important role in the context of stress because some specific resilience resources may contribute to the coping skills that aid in withstanding and adapting to adversity (Taylor & Stanton, 2007). For example, individuals high in dispositional optimism may be more likely to use positive reframing as a coping strategy in the face of a negative life event than those who are more pessimistic.

Research on Resilience Resources and Postpartum Depressive Symptoms

Several studies have explored the moderating role of specific resilience resources in the association between acute stressors and poor mental health outcomes in the general population (Gibson et al., 2011; Grote et al., 2007; Kim & Seidlitz, 2002). Despite the growing research on resilience in the context of mental health in general (Davydov et al., 2010), there has been limited research on resilience resources in the context of PPD. However, some research has found that some specific resilience resources can be protective against poor outcomes during this time (Cheadle et al., 2018; Cheadle et al., 2015; Grote et al., 2007; Lobel et al., 2000; Rini et al., 1999). Only one existing published study has tested the moderating role of a resilience resource (optimism) on the association between stressful life events and postpartum depressive symptoms. Grote and Bledsoe (2007) found that among women who experienced financial, spousal, or physical stress during pregnancy, those who were high in dispositional optimism experienced fewer depressive symptoms at six and twelve months postpartum compared to those who were less optimistic. Given the limited research on the role of specific resilience resources in the development of postpartum depressive symptoms, additional exploration of the specific resources and processes underlying resilience in the context of PPD is warranted (Yim et al., 2015).

The Current Study

The current study explores the development of postpartum depressive symptoms from a resilience perspective. The purpose was to examine the moderating roles of three resilience resources (mastery, dispositional optimism, and spirituality) on the association between stressful life events during pregnancy and symptoms of depression early in the postpartum period (between 4–8 weeks). Research suggests that the majority of depressive symptoms occur in the early postpartum period (Goodman, 2004). We hypothesized that experiencing more stressful life events during pregnancy would be associated with higher levels of symptoms of depression early in the postpartum period. Further, we hypothesized that this association would be moderated by each of the resilience resources tested individually, such that the hypothesized effect of stressful events on symptoms of depression would be weaker for those who have higher levels of each resilience resource.

Methods

Participants

To be included in the original study, women had to be 18 years of age or older, 16 or less gestational weeks at study onset, have a singleton pregnancy, and be English or Spanish speaking. Additionally, women were excluded from the original study if they were currently enrolled in a methadone treatment, homeless, had symptoms or a diagnosis of psychosis or bipolar disorder, were HIV positive, or using oral steroids daily. In the original study, a total of 233 women completed at least one interview. The sample participants (N=233) were 45% non-Latina White (n=105), 37% Hispanic/Latina (n=86), 9% African American/Black (n=20), 7% Asian (n=17), and 2% biracial (n=5). Of the total sample, 63% (n=147) were married and 69% (n=161) were living with their partner. A little over half of the sample (54%; n=127) were pregnant with their first child. The mean annual household income was $58,106.61 ($SD$=47,029.95) and on average, women completed 15.51 (SD=3.38) years of education, which is just short of a college degree. The mean age was 30.35 (SD=5.96) years old and ranged from 18 to 45 years old. Differences by site on each of these variables is presented in Table 1. Additionally, 19% (n=45) of women reported having ever been diagnosed with a psychiatric disorder, including, but not limited to, major depression, generalized anxiety disorder, and panic disorder. At recruitment, 5% (n=13) of women were taking psychotropic medications, such as anti-depressants. At recruitment, women completed the Patient Health Questionnaire-9 (PHQ-9; Kroenke et al., 2001) in order to screen for clinically elevated symptoms of depression for diagnostic evaluation. In the study, 25% (n=58) of women reported a score of 10 or higher on this screener, representing moderate depressive symptoms or more.

Procedure

Data for the current study were collected as part of the Healthy Babies Before Birth (HB3) study (R01 HD073491), a longitudinal study comprised of 233 women that examined several biological, psychological, obstetric, and developmental predictors and outcomes among women and their babies throughout pregnancy and up to one year postpartum. Pregnant women between 1 and 16 gestational weeks were recruited from two large urban

hospitals in Los Angeles, CA and Denver, CO. The original study was focused on the effects of affective disorders during pregnancy; therefore, women with mood and anxiety disorders or elevated symptoms of depression or anxiety were over-recruited. Study participants engaged in two-hour study visits at their respective site in each trimester of pregnancy (T1, T2, T3) and postpartum at 4–8 weeks (P1), 5–7 months (P2), and 11–13 months (P3), for a total of six study visits. The current study used measures given at the T1 and T2 (resilience resources), P1(postnatal depression), and P2 (stressful life events occurring during pregnancy) interviews. The retention rates for each visit were as follows: T1 (100%, *n*=233); T2 (90%, *n*=209); T3 (85%, *n*=197); P1 (70%, *n*=162); P2 (59%, *n*=138); P3 (55%, *n*=128). Trained research staff conducted extensive psychosocial interviews at all six timepoints. Participants were paid $25 in cash and were given parking validation for each study visit. All interview questions were administered by trained interviewers in English or Spanish.

Measures

Demographic Information.—Participants reported their race and ethnicity, age, marital status, level of education, and household income in the first trimester (T1) interview.

Stressful Life Events During Pregnancy.—At the second postpartum interview (P2), stressful life events (SLEs) occurring from the beginning of pregnancy through the time of the present interview (5–7 months post birth) were assessed with a 20-item questionnaire adapted from a Life Events Survey used in other studies on pregnancy (Dominguez et al., 2008; Glynn et al., 2004; Golding 1989). Participants were asked whether or not they experienced 20 different SLEs since being pregnant, including events such as a loss of a loved one, problems with drugs or alcohol, car crashes, and others. For each event experienced, the participant was specifically asked to "please tell me whether any of the following things happened to you during your pregnancy or since your baby was born." If the participant answered yes, they were then asked to report the month(s) and year(s) in which the event occurred. In the current study, only SLEs that occurred during pregnancy were considered in the analyses.

Resilience Resources.—Resilience resources included mastery, dispositional optimism, and spirituality and were all assessed with standard scales in interviews taking place during pregnancy.

Mastery.: Mastery was assessed using the Pearlin Mastery Scale (Pearlin & Schooler, 1978) in the first trimester visit (T1). This 7-item instrument measures the extent to which an individual regards their life circumstances as being under their own control rather than fatalistically ruled. Responses ranged from *disagree strongly* to *agree strongly* on a 4-point Likert scale. The five negatively worded items were reverse-coded and all items were summed to create a total mastery score whereby higher scores reflect greater mastery. Possible total scores range from 7 to 28. Cronbach's alpha coefficient for this scale was 0.74 in the current sample.

Dispositional Optimism.: Dispositional optimism was assessed in the second trimester interview (T2) using the 6 core items from the 10-item Life Orientation Test (LOT-R; Scheier et al., 1994). The 4 unscored filler items in the original scale were not included in the administered measure. Responses ranged from *disagree a lot* to *agree a lot* on a 5-point Likert scale. The three negatively worded items (*If something can go wrong for me, it will; I hardly ever expect things to go my way; I rarely count on good things happening to me*) were reverse coded, and all items were summed to create a total dispositional optimism score whereby higher scores reflect greater levels of dispositional optimism. Possible total scores range from 0 to 24. Cronbach's alpha coefficient for this scale was 0.71 in the current sample.

Spirituality.: Spirituality was measured using 10 items adapted from the 16-item Daily Spiritual Experiences Scale (DSES; Underwood & Teresi, 2002). The DSES is a self-report measure of the ways in which spiritual experiences are a part of an individual's ordinary or everyday life. Responses ranged from *definitely not true* to *definitely true of me* on a 5-point Likert scale. The one negatively worded item was reverse coded, and all items were summed to create a total spirituality score with possible total scores ranging from 10 to 50. Cronbach's alpha coefficient for this scale was 0.94 in the current sample.

Symptoms of Early Postpartum Depression.—The Edinburgh Postnatal Depression Scale (EPDS; Cox et al., 1987) was used to assess depressive symptoms at P1. The EPDS is a widely used measure in studies investigating PPD (Levis et al., 2020). This 10-item instrument measures the severity of common depressive symptoms with item language and reported symptoms tailored to the postpartum period. Respondents chose one of four responses that best described how they had been feeling over the past 7 days. The two positively worded items were reverse-coded and all items were summed to create a total PPD symptoms score ranging from 0 to 30, with higher scores indicating greater postpartum depressive symptom severity. Scores above the cut-off of 12, indicate higher risk for postpartum depression. In the current sample, the Cronbach's alpha coefficient for the scale is 0.85.

Psychiatric History.—At the first trimester visit (T1), participants reported any past diagnosis of any psychiatric disorder in response to a question on whether they had ever been diagnosed with a mental illness such as major depression, bipolar disorder, panic disorder, or other conditions. A psychiatric history index categorized participants as either having a previous psychiatric history or not.

Overview of Data Analyses—Data were analyzed using SAS software. Descriptive analyses were conducted to establish means and standard deviations of primary study variables. Correlational analyses were conducted to explore bivariate Pearson's correlation coefficients between primary study variables. Multiple linear regression was used to test moderation models for each of the resilience resources separately, controlling for previous psychiatric history.

Missing Data.—There were 110 participants who completed all current study measures at T1, T2, P1 and P2. Independent samples t-tests were run to determine whether there

were significant differences in the current study's independent, moderator, and dependent variables for those that did or did not complete all interviews at T1, T2, P1, and P2. There were no significant differences between those with missing and not-missing data on mastery, dispositional optimism, spirituality, SLEs, or postpartum depressive symptoms. Additionally, independent samples t-tests and chi-squared tests of independence were run to determine whether there were significant differences in age, income, education, marital status, or race/ethnicity for those who had missing data versus those who did not. Results indicated that, on average, participants with missing data were younger, had lower household incomes, and were less educated than those that were included. Further, participants who identified as Hispanic or Latina or who were unmarried were more likely to have missing data than those who were not Hispanic or Latina or were married, respectively. Based on these analyses, the missing data are determined to be missing at random (MAR; Kang, 2013). To account for the missing data, all regression analyses were conducted with multiple imputation utilizing multivariate normal distribution (MVN; Kang, 2013; Kropko et al., 2014). Using this method in SAS, 10 imputed datasets were created. Variables included in all imputation models were mastery, dispositional optimism, spirituality, SLEs, psychiatric history, and symptoms of postpartum depression. Additionally, auxiliary variables included in all imputation models were race, years of education, and age, given these variables were accounted for in all participants in the study.

Results

Descriptive Analyses

Means and standard deviations of primary study variables are reported in Table 2. Approximately 10% (n=16) of the sample who completed the EPDS at P1 scored above the cut-off score of 12, indicating clinically significant levels of postpartum depressive symptoms. Of the women who completed the life events measure, 41% (n=55) experienced at least one stressful life event during pregnancy. The frequencies of number and type of stressful life events experienced are reported in Table 3.

We conducted one-way ANOVAs to examine whether there were differences between the racial/ethnic groups on the primary variables of interest and found there were no significant differences in postpartum depressive symptoms, psychiatric history, mastery, dispositional optimism, or SLEs. There were significant differences between racial/ethnic groups on spirituality [F(4,196)=5.22, p<.001] such that Hispanic/Latina (M=39.03, SD=9.28) and African American/Black women (M=43.25, SD=5.60) had significantly higher scores than non-Latina White women (M= 34.10, SD=11.07). There were no significant differences between racial/ethnic groups or marital and cohabitation status in symptoms of depression. Additionally, there was no significant associations between symptoms of postpartum depression and age, education, or household income.

Bivariate Correlations

Bivariate correlations between the primary study variables are reported in Table 2. As predicted, SLEs were significantly positively associated and dispositional optimism and

mastery were significantly negatively associated with postpartum depressive symptoms. Spirituality was not significantly related to depressive symptoms.

Simple Regression Analyses

Results of the simple linear regression analyses using multiple imputation predicting the effect of the primary study variables on depressive symptoms after controlling for psychiatric history[1] are reported in Table 4. Results indicated independent significant effects of SLEs, mastery, and dispositional optimism on depressive symptoms in the expected direction, such that higher scores on mastery and dispositional optimism predicted fewer postpartum depressive symptoms and more SLEs predicted greater postpartum depressive symptoms, controlling for previous psychiatric history. There was no significant effect of spirituality on depressive symptoms.

Moderation Analyses

Moderation analyses using multiple imputation were conducted to determine the moderating effects of mastery, dispositional optimism, and spirituality on the association between life events and postpartum depressive symptoms while controlling for psychiatric history. The first model, which tested the moderating effects of mastery, revealed a significant interaction between mastery and SLEs, $t(231) = -1.97$, $p=.0497$. This interaction is depicted in Figure 1. The second and third models testing the moderating effects of dispositional optimism and spirituality, respectively, did not indicate a significant interaction between these variables and SLEs. Results of all moderation analyses are reported in Table 4.

Discussion

The current study's aims were to assess whether three specific resilience resources (mastery, dispositional optimism, and spirituality) predicted symptoms of depression at approximately 6 weeks postpartum and moderated effects of stressful life events during pregnancy on those symptoms. Results indicated that greater stressful life events was related to greater depression symptoms at approximately 6 weeks postpartum. This is consistent with our hypotheses and the existing literature which suggests stressful life events during pregnancy are a strong predictor of postpartum depression (Beck, 2001; O'Hara & Swain, 1996; Robertson et al., 2004; Yim et al., 2015). Higher levels of dispositional optimism and mastery were each significantly associated with fewer symptoms of depression at approximately 6 weeks postpartum whereas spirituality was not associated with depressive symptoms. Mastery was the only resilience resource of the three that moderated the relationship between number of stressful life events and postpartum depressive symptoms with a small effect size.

The finding that mastery acted as a moderator suggests that a woman's belief that she has control over what happens in her life can be protective from developing depressive symptoms following birth in the face of experiencing one or more stressful life events during pregnancy. This is in line with research suggesting that the relationship between coping and

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[1]We also ran all regression analyses without controlling for psychiatric history and the results were similar.

well-being is mediated by perceived control in the general population (Dijkstra & Homan, 2016). Those who believe they can solve their problems or are able to make constructive changes to their lives as a result may be less affected emotionally over time by a stressful event. Additionally, women who feel in control may be more likely to use problem focused coping strategies (Carroll, 2013) to address both problems and emotions that are present during this period, such as seeking informational and emotional support from others or obtaining counseling. The feeling that a person has control over their circumstances may be particularly protective during pregnancy because it is not only the own woman's life she feels she can control, but the life of her baby as well. This sense of confidence and certainty can be important during a time when there may be a number of unknown outcomes as a result of stressful events that occurred.

The results indicating that dispositional optimism was associated with fewer symptoms of depression but did not significantly act as a modifier of the association between stressful life events and symptoms of depression is somewhat in contrast to Grote and Bledsoe's (2007) finding that women who were more optimistic in general in the presence of a range of stressors during pregnancy experienced fewer depressive symptoms at six and twelve months postpartum compared to those who were less optimistic. It is possible that dispositional optimism has a moderating effect later in the postpartum period than tested in the current study, which examined an earlier period of time when there are more drastic and acute changes in a woman's life due to having a new child in the home.

There are several strengths of the current study. First, the use of a prospective longitudinal design assessing women from the first trimester of pregnancy thorough the first year postpartum is relatively rare in the literature. Second, all study data were collected through in-person interviews by trained staff providing more complete and potentially more valid data than in questionnaire studies in pregnancy. Third, the study was conducted in two urban areas, and yielded a socioeconomically, racially and ethnically diverse sample. There were also some limitations. Due to participant attrition in the postpartum period, some women did not complete the life events measure given at the 6-month interview. Attrition across the postpartum period is always a challenge in this type of research, although it was relatively low in the current study compared to other studies and was accounted for statistically with multiple imputation.

Clinical Implications

This study's findings have implications that can inform potential interventions with women during the perinatal period. It shows that empowering women to feel as though they can recover from and control the outcome of major life stressors when they happen may be helpful. Specifically, perinatal mental health interventions can focus on building coping skills that enhance mastery through a treatment framework that aims to foster a greater sense of perceived control in the aftermath of stressors. This may also be done through a prevention framework, with interventions focusing on promoting a woman's sense of mastery and coping skills earlier in life as a means of preparing women for healthier lives later on, including during their pregnancies and after.

These findings also suggest that it may be important to target populations who are more likely to experience major life stressors during pregnancy. For example, racial and ethnic minority women experience a myriad of additional risk factors as a result of racial disparities in health care and economics (Williams & Rucker, 2000). These health disparities are especially problematic for Black women during the perinatal period, who experience poorer clinical outcomes such as infant mortality, preterm delivery, and low birthweight compared to other groups (Dominguez, 2008). The problems that result from racial health and economic disparities can directly and indirectly contribute to additional stressful life events occurring during pregnancy. Additionally, women in low-income households are at higher risk of experiencing stressful life events due to financial hardship, such as loss of a car. A community-based prevention intervention aimed at enhancing resilience capacity would be a useful program to implement in order to target the intersecting and specific needs of women who may be at higher risk of experiencing stressful life events (Dunkel Schetter et al., 2013). Some existing perinatal depression prevention interventions have been particularly effective in low-income populations. For example, the evidence-based Mothers and Babies Course (Le et al., 2015, US Preventive Services Task Force et al., 2019) focuses on increasing women's perceptions of their abilities to manage their life's circumstances through a Cognitive Behavioral Therapy (CBT) framework. Future evidence-based interventions that focus on resilience resources most protective for the specific communities they are targeting will be most useful (Lau, 2006).

Future Directions

There are several directions for future research examining postpartum depression from a resilience framework. First, it could be valuable to continue research on the interaction between life stress and resilience resources in the development of postpartum depression and other maternal outcomes. Future research should further examine the moderating role of mastery in particular but other additional resilience resources that are known to be important across a range of situations that require successful adaptation should also be investigated. For example, family support is a critical resilience resource (Kamen et al., 2011), particularly during the perinatal period, when both practical and emotional support from and feeling close with family members is often needed. Further, research suggests that family support is extremely important for those whose cultures tend to place a high importance on family values or familism, such as Latino populations (Campos et al., 2014; Valdivieso-Mora et al., 2016). Other resilience resources that may moderate the association between stressful life events and postpartum depression are self-esteem, purpose in life, and perceived social support, which have all been related to resilience in other populations experiencing high levels of stress (Bartrés-Faz et al., 2018; Kidd et al., 2008; Julian et al., 2020). Additionally, research suggests that there may be common underlying personality factors that could contribute to both levels of resilience resources and experiencing stressful events (Clarke et al., 2019). Future studies might examine other common personal factors contributing to both higher stressful life events and optimism or mastery, such as neuroticism.

Future research might take a more ecological approach to studying perinatal stress and depression from a resilience framework. Given the multimodal method of data collection

in this study (i.e. both psychosocial and physiological/biological data) and the value of an integrated biobehavioral approach to stress research in general (Stainton et al., 2019) and perinatal populations (Yim et al., 2015), the interaction between resilience resources and physiological markers of stress may also be an important area of future research.

In summary, the current research findings can inform mental health interventions during pregnancy and they demonstrate the importance of a woman's resilience resources, particularly mastery, during the perinatal period. It will be important to study the dynamic role and impact of additional resilience resources in future studies of pregnant and postpartum women to improve the well-being of these women and their families.

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Highlights

- Prenatal stressful events positively associated with postnatal depressive symptoms

- Optimism and mastery were negatively associated with postnatal depressive symptoms

- Mastery moderated effect of stressful events on postnatal depressive symptoms
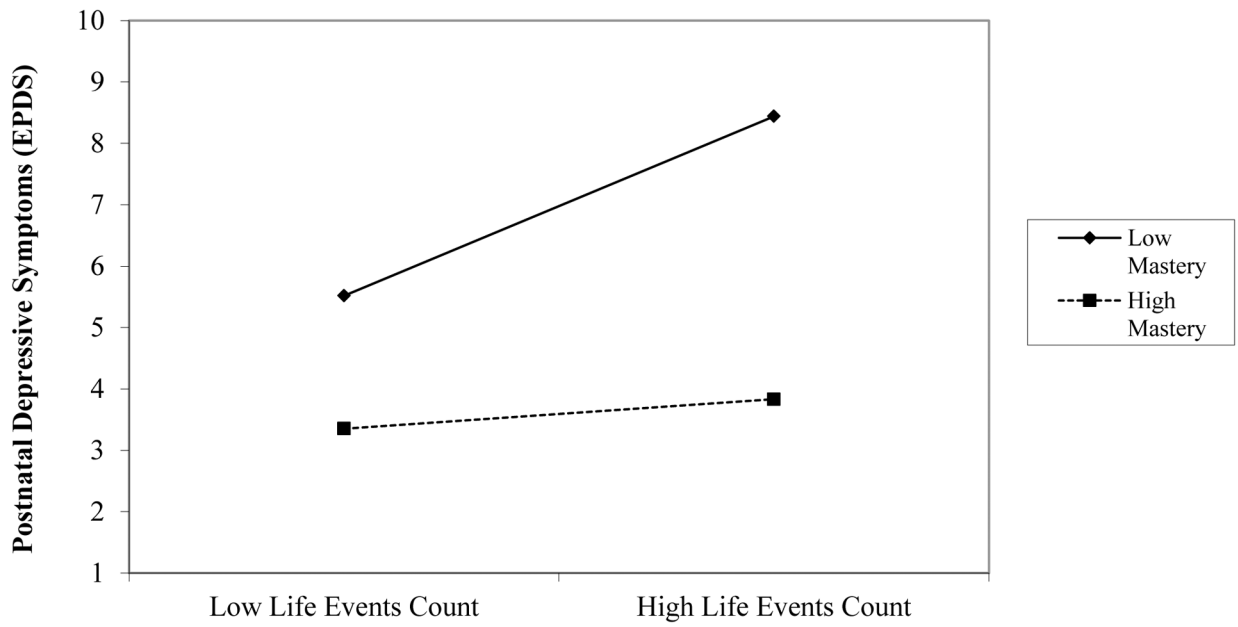
Figure 1. Mastery moderates the association between frequency of stressful life events and postpartum depressive symptoms.

Note: High and Low Mastery and Life Events Count depicted in the figure are each based on mean splits.

Table 1

Descriptive differences between Los Angeles and Denver study sites

		Denver (N=117)	Los Angeles (N=116)	Total (N=233)	χ^2	p
Ethnicity	Latina	54	32	86 (36.9%)		
	Non-Latina	62	83	145(62.2%)	8.67	0.004
	Missing	1	1	2 (0.90%)		
Marital Status	Married	53	94	147 (63%)	31.94	<.001
	Not Married	64	22	86 (37%)		
	Cohabiting	65	71	161 (69%)	37.79	<.001
	Not Cohabiting	52	45	72 (31%)		
Cohabitation Status	Hispanic/Latina	54	32	86 (36.9%)		
	Black/African-American	12	8	20 (8.6%)		
	Asian	2	15	17 (7.3%)		
Race/Ethnicity	White	48	57	105 (45.1%)	18.94	0.001
	Biracial	1	4	5 (2.1%)		
		M (SD)	M (SD)	M (SD)	t	p
Annual Household Income ($)		50510.84 (50,396.28)	65428.65 (42,493.05)	58106.61 (47,029.95)	2.13	0.04
Education (Years)		13.87 (3.21)	17.13 (2.7)	15.51 (3.38)	8.33	<.01
Age		27.38 (5.62)	33.37 (4.64)	30.35 (5.96)	8.86	<.01

Table 2

Means, Standard Deviations, and Correlations of Primary Study Variables

Measure	*M*	*SD*	1	2	3	4
1 Life Events Count	0.90	1.52	_			
2 Mastery	22.87	2.88	−0.27*	_		
3 Dispositional Optimism	18.05	4.18	−0.32*	0.46*	_	
4 Spirituality	36.87	10.54	−0.06	0.07	0.08*	_
5 EPDS	5.34	4.99	0.34*	−0.45*	−0.29*	0.07

Note:

*
p<.01

Table 3

Frequency of Stressful Life Events During Pregnancy

Life Events Count	Frequency (*N*=134)	%
0	79	59%
1	24	18%
2	17	13%
3	5	3%
4	4	3%
5–9	5	3%
Types of Stressful Life Events Experienced (*N*=55)		
Chronic	37	67%
Example: *you had extra-heavy home or family responsibilities; you or someone close to you has had nervous or emotional problems*		
Loss	35	64%
Example: *someone important to you moved away; you lost your apartment, home, car, or something else you value*		
Interpersonal	27	49%
Example: *you lived apart from your partner for a period of time; you had serious arguments several times with any one person*		
Catastrophic	2	4%
Example: *you have been in a serious motor vehicle accident; you were a victim of a violent crime, mugged, or personally attacked by a stranger*		

Table 4

Simple and Multiple Linear Regressions Testing the Direct and Interaction Effects of Primary Study Variables on PPD Symptoms

	b	SE	p
Simple Linear Regressions (Direct Effects)			
Stressful Life Events	0.92	0.32	.008
Mastery	−0.71	0.14	.00001
Dispositional Optimism	−0.30	0.08	.0004
Spirituality	0.05	0.18	.15
Moderation Models using Multiple Linear Regression (Interaction Effects)			
Stressful Life Events*Mastery	−0.12	0.06	.05
Stressful Life Events*Dispositional Optimism	−0.01	0.05	.84
Stressful Life Events*Spirituality	−0.01	0.02	.74