THE PRICE OF EARLY ABUSE: EFFECTS OF SEXUAL AND PHYSICAL ABUSE ON
PERINATAL DEPRESSION AND ANXIETY

BY

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THESIS

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ABSTRACT

Purpose: Childhood abuse is a major public health concern and a risk factor for poor maternal mental health. This study of 197 racially diverse, low-income women explored the associations between childhood sexual and physical abuse depression and anxiety in pregnancy, 6 weeks postpartum, and 12 weeks postpartum.

Methods: Women were recruited from a local public health clinic during pregnancy. Data on depressive and anxiety symptoms were gathered in pregnancy, 6 weeks postpartum, and 12 weeks postpartum while sociodemographic data were collected at enrollment. Childhood sexual and physical abuse histories were gathered at the 12-week postpartum period. Kruskal-Wallis tests and multiple linear regression analyses were used to assess the association between childhood abuse and perinatal depression and anxiety.

Results: There was a significant association between childhood abuse and prenatal depressive symptoms; childhood sexual abuse: [b= 2.41, p=0.009], childhood physical abuse; [b= 3.36, p=0.027] and experiencing both forms of abuse [b =3.12, p=0.028]. Childhood sexual abuse and childhood physical abuse remained significant at 12-weeks postpartum, [b =3.48, $p < 0.001$] and [b =2.91, p=0.026] respectively. Childhood sexual abuse was also significantly associated with anxiety symptoms throughout the perinatal period; in pregnancy, [b =6.08, $p = 0.001$], and at 6 weeks and 12-weeks postpartum respectively, [b =3.97, $p = 0.027$] and [b =5.31, $p = 0.002$].

Conclusions: The results from this study highlights the importance in assessing the unique associations of abuse type with perinatal depression, which can help inform the development of interventions.

Keywords: childhood abuse, sexual abuse, physical abuse, perinatal depression, perinatal anxiety

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CHAPTER 1: INTRODUCTION

PERINATAL DEPRESSION AND ANXIETY: PREVALENCE AND SIGNIFICANCE

Perinatal depression (PND) is a depression that occurs during pregnancy that extends into the postpartum period or depression that occurs within one year post-delivery (Wosu, Gelaye, & Williams, 2015). It is the most common mental health condition in this population, with a prevalence of about 10-15% (Meltzer-Brody, 2011). Anxiety has also been associated with depression during the perinatal period, with rates ranging from 13% to 17% (Fairbrother, Young, Janssen, Antony, & Tucker, 2015). Depression in pregnancy is linked to increased anxiety, maternal preeclampsia, increased surgical delivery interventions, low birth weight, smaller head circumferences, higher rates of admissions to the neonatal intensive care unit and increased risk of premature delivery (Chung, Lau, Yip, Chiu, & Lee, 2001), postpartum pain (Fahey, 2017) and maternal suicide (Meltzer-Brody, 2011). Anxiety disorders during the perinatal period are also associated with complicated pregnancy outcomes and negative behavior towards the infant (Fairbrother et al., 2015). Mothers with PND are more likely to be less sensitive to their child's needs and are less cautious about childhood safety, increasing the child at risk of injury (Alvarez-Segura et al., 2014). Adverse childhood events (e.g., sexual and physical abuse), household dysfunction (Polmanteer, Brownstein-Evans, & Keefe, 2018; Racine et al., 2018), poor social support, and low socioeconomic status (Yonkers et al., 2001) are risk factors for perinatal depression and anxiety.

CHILDHOOD ABUSE: PREVALENCE AND SIGNIFICANCE

Childhood abuse is a global phenomenon and a public health concern that affects about one-third of the population (Kessler et al., 2010; Xie et al., 2018). Sixty percent of children are exposed to a

form of childhood abuse by their 16th birthday, with more than 30% experiencing more than one form of childhood abuse (Copeland et al., 2018). A recent study determined the global prevalence rate for childhood sexual and physical abuse at 18% and 22%, respectively (Stoltenborgh, Bakermans-Kranenburg, Alink, & Ijzendoorn, 2015). About 20% of female children will be sexually assaulted before the age of 13 usually by someone they know or a family member (Finkelhor, 2009). Women with a history of childhood sexual abuse are at increased risk of becoming victims of rape, teen pregnancy, and dropping out of school (Barrios et al., 2015). Children who have been physically abused may display low self-esteem, be withdrawn, and have lower IQs compared to non-victimized children (Gross & Keller, 1992; Leserman et al., 1997). Exposure to childhood abuse also has negative psychological and physical health outcomes in adulthood. Childhood sexual and physical abuse has been linked to psychiatric disorders, thyroid dysfunction (Plaza et al., 2012), substance abuse, suicide and aggressive behavior (Islam, Broidy, Mazerolle, & Baird, 2018) as well as unfavorable pregnancy outcomes, such as premature labor contractions and miscarriages (Alvarez-Segura et al., 2014).

CHILDHOOD ABUSE: EFFECT ON THE PERINATAL PERIOD

Despite what is known about the effects of childhood abuse in adulthood, few studies have examined the impact of childhood sexual and physical abuse on the perinatal wellbeing (Islam et al., 2018; Racine et al., 2018). Women who have experienced childhood sexual and physical abuse are at risk of experiencing anxiety, depression, posttraumatic stress disorder, and other mental health problems in pregnancy and the postpartum period (Kendall-Tackett, 2007). Women with childhood abuse histories also have a higher risk of experiencing pregnancy complications, such as preterm births, pre-eclampsia, and gestational diabetes than woman without a history of abuse (Racine et al., 2018). Grote et al. (2012) showed that women who reported several childhood

traumatic events such as, sexual, physical and emotional abuse were more likely to report depressive symptoms during the perinatal period than women who did not report similar histories. Pregnant women with a history of childhood physical and sexual abuse are also known to have higher levels of anxiety and they may also develop Posttraumatic Stress Disorder (PTSD) as a result of giving birth (Lev-Wiesel, Daphna-Tekoah, & Hallak, 2009).

RESEARCH OBJECTIVES

There is consistent evidence in literature that supports the increasing association of childhood trauma and mental disorders, including depression during adulthood (Alvarez-Segura et al., 2014; Wosu et al., 2015). Extensive literature also exists on the associations between childhood abuse and perinatal depression, but fewer studies focus on exploring the differences observed based on the multiple types of childhood abuse (Edwards, Galletly, Semmler-Booth, & Dekker, 2008; Lang et al., 2006) and the relationship between different stages of the perinatal period (Bonacquisti, Geller, & Aaron, 2014; Robertson-Blackmore et al., 2013).

The primary objective of this study was to assess the association between childhood sexual abuse and physical abuse and depression and anxiety in pregnancy and the postpartum period in a racially and ethnically diverse sample of low-income women. We also sought to determine if there were any differences in the rates of depressive and anxiety symptoms at all three perinatal stages. This study was guided by the following research questions: (1) Are there any associations between childhood abuse histories and perinatal depression and anxiety at all three perinatal stages (during pregnancy, at 6 weeks postpartum and at 12 weeks postpartum) (2) Are there any differences by abuse types (sexual abuse, physical abuse and both sexual and physical abuse) on perinatal depression and anxiety. It is hypothesized that sexual and physical abuse histories will be significantly and positively associated with increased depressive and anxiety symptoms across the

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perinatal period (pregnancy through 12 weeks postpartum) We further hypothesize that sexual abuse will be more robust than physical abuse.

CHAPTER 2: METHODS

STUDY SETTING AND PARTICIPANTS

The data for this study are part of a larger study conducted in Raleigh, North Carolina on thyroid function in mothers, who were assessed between July 2008 and August 2012. The parent study included 325 women recruited from a local public health clinic who were screened and recruited between 31 – 33 weeks of pregnancy (Pedersen et al., 2016). Women were assessed at three time points via home visits: 35–36 weeks of pregnancy, 6 and 12 weeks postpartum. Of the 325 women who were eligible to participate, 216 completed all assessments. Of the 216, 197 had complete data on childhood abuse and perinatal depression and anxiety. Women were included in the parent study if they were between 18- 45 years of age and were excluded if they had a lifetime history of Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) psychotic, bipolar, cyclothymic, somatoform or dissociative disorder, a body mass index (BMI) >35 or <18, had chronic or acute serious medical illness or pregnancy complication, and if they could not speak or write English or Spanish. Informed consent was obtained from all individual participants included in the study. Demographic data, such as race, years of education, marital status, annual income and age were also self-reported at enrollment and collected via a survey.

MEASURES

Depressive symptoms. At each home visit, participants were asked to complete the Edinburgh Postnatal Depression Scale (EPDS) (Cox, Holden, & Sagovsky, 1987) to assess depressive symptoms. The EPDS has also been used and validated in previous studies with low-income women, Spanish-speaking Latinas, and African-American women (Lara-Cinisomo, Zhu, et al., 2018; Tandon, Cluxton-Keller, Leis, Huynh-Nhu, & Perry, 2012). Each of the ten items on

the EPDS are scored with either 0, 1, 2, or 3 and reflect the patient's experience in the past 7 days. The scores of the EPDS screener range from 0 to 30 with a ≥ 10 cutoff for possible depression (Cox et al., 1987). The EPDS is the most common measure for depression during the postpartum period (Sit & Wisner, 2009) and has been shown to be a valid and reliable screening tool for depression during the prenatal period with an alpha co-efficient of 0.88 and validity of 0.85 (Dolbier, Rush, Sahadeo, Shaffer, & Thorp, 2013). Scores range from 0 to 23 were considered as continuous data for depressive symptoms in the sample, with higher scores indicative of higher depressive symptoms. A score of 10 or higher was used to estimate number of women at risk of depression.

Anxiety symptoms. Women also completed the 20-item trait portion of the State-Trait Anxiety Inventory (STAI), which is widely used to assess anxiety symptoms (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983), The trait portion of the STAI was used to determine anxiety in this sample since it measures feelings of anxiety on a daily basis (Kimport & Hartzell, 2015). The trait portion of the STAI has also been used in previous studies for low-income Spanish-speaking Latinas and African-American women (Lara-Cinisomo, D'Anna-Hernandez, Fujimoto, & Pedersen, 2018) . The STAI has been shown to be a valid and reliable screening tool for depression during the perinatal period with an alpha coefficient of 0.86 and validity of 0.83 (Julian, 2011). It includes twenty item questions such as "I feel pleasant", "I feel nervous and restless" which participants were asked to rate on a 4-point scale of 1) almost never, 2) sometimes, 3) often, and 4) almost always. The STAI trait scores range from 20 – 80 with higher scores indicating higher anxiety (Spielberger et al., 1983), as a result, the STAI-Trait scores of the sample from a range of 20-70 were considered as continuous data for anxiety symptoms in the sample. Participants were also categorized into low and high anxiety groups based on a cut-off score of 40 (Julian, 2011).

Childhood Sexual Abuse. At the 12-week postpartum visit, participants were administered the Structured Trauma Interview (STI) questionnaire (Leserman et al., 1996; Leserman et al., 2007) by trained research assistants to determine exposure to physical and sexual abuse in childhood. The STI has demonstrated acceptable levels of reliability and validity of 0.81 and 0.77 and has been used in a sample of low-income Latina women (Lara-Cinisomo, Zhu, et al., 2018; Leserman, Drossman, & Li, 1995). Childhood sexual abuse was defined as any sexual incidences that involved an adult touching sexual part such as the breasts, vagina, pubic area or anus of the child or an adult forcefully making the child touch their sexual parts or the adult having forceful vaginal and/or anal sexual intercourse with the child before the age of 13 (Leserman et al., 2007). Participants responded with yes or no responses to specific questions. Sexual abuse was determined if the respondent endorsed any of three questions regarding forced touching of the child, of the adult, or forced sexual intercourse before the age of 13. The average age at first sexual abuse is age 13 (Leserman et al., 1997), hence the classification of childhood abuse as abuse aged 13 and under.

Childhood Physical Abuse. Using the STI (Leserman et al., 1996), women also reported whether they experienced childhood physical abuse. Childhood physical abuse was assessed separately from childhood sexual abuse as experiences that included any physical attack from another person with the intent to kill or injure, or being beaten, bitten, hit, kicked, or even burned by another person. This definition excluded experiences of spanking or childhood play fighting (Leserman et al., 2007). Participants responded with binary yes/no responses to two questions. One question addressed the experience of a physical attack with the intention to kill or injure by someone else. Another question addressed the experience of being beaten, hit, burned, beaten or even kicked. Women also provided their age the first time they experienced these forms of abuse,

which was used to determine exposure prior to their 13th birthday. One variable was created to capture whether women experienced either or both forms of abuse, which means a woman would be coded as having experienced physical abuse if they responded yes to either or both questions about physical abuse before the age of 13.

To capture women's abuse histories, sexual and physical abuse were coded as follows: 1) those who did not experience any form of abuse; 2) those who experienced only sexual abuse; 3) those who experienced only physical abuse; and 4) those who experienced both sexual and physical abuse.

STATISTICAL ANALYSES

First, the data were reviewed for normality and any outliers. The total sample was then described using descriptive statistics, such as the mean and standard deviation for continuous variables and percentages for categorical variables. Because the outcome data were not normally distributed, nonparametric tests were used. Kruskal Wallis tests were used to determine whether there was a significant difference in depressive and anxiety symptoms at each perinatal period (i.e., prenatal, 6 weeks postpartum, and 12 weeks postpartum) by childhood abuse. To answer our research questions, multiple linear regression analyses were performed while controlling for demographic variables such as age, race, etc. First, associations between childhood abuse and depressive symptoms at each perinatal period were examined using separate regression model. Second, using STAI scores, associations between childhood abuse and anxiety symptoms were assessed separately for each perinatal period. All analyses were performed using STATA15.0 (StataCorp, 2017) using a significance level of 0.05.

CHAPTER 3: RESULTS

SAMPLE CHARACTERISTICS

Table 1 shows the descriptive statistics of the 197 women included in this study. The mean age of the sample was 25.87 (SD = 5.52). The mean years of education was 10.77 (SD = 3.01). About 70% of the women were married or living with a partner. Most of the women in the sample self-identified as Hispanic 115 (60%), others were White, 41 (20%) and Black, 41 (20%). Approximately 80% of the women reported that they earned below $30,000 per year. About fifteen percent of women reported a history of childhood sexual abuse before the age of 13 and 5.08% reported childhood physical abuse before the age of 13. About 6% reported experiencing both physical and sexual abuse before their 13th birthday.

Mean EPDS scores during pregnancy, 6 weeks postpartum and 12 weeks postpartum are reported in Table 1, which shows that the average score was below the cutoff for the risk of depression. However, based on the cutoff point of 10, 24.37% were at risk for depression during pregnancy, 17.77% at 6 weeks postpartum, and 13.71% at 12 weeks postpartum. About 19% of the women were depressed at only one wave, and 10.15% were depressed at two waves while 5.58% remained depressed from pregnancy until the 12-week postpartum visit. Mean scores of the STAI Trait Anxiety measure are also reported in Table 1. Based on the cutoff score of 40, 33.50%, 23.35% and 19.29%% of women had high anxiety during pregnancy, at 6 weeks postpartum and at 12 weeks postpartum, respectively. About 21% had high levels of anxiety at only one wave; 13.20% had high levels of anxiety at two waves, and 9.64% had persistent high anxiety from pregnancy to 12 weeks postpartum.

PERINATAL DEPRESSION (PND)

Table 2 shows mean EPDS and STAI scores of the sample by childhood abuse type. During pregnancy, compared to those with no history of childhood sexual abuse ($M= 5.89$, $SD = 4.40$) the mean scores of the EPDS were higher among those with a history of childhood sexual abuse ($M= 8.00$, $SD = 5.26$), those with a history of childhood physical abuse ($M=9.80$, $SD= 4.61$) and those who experienced both forms of abuse ($M=8.36$, $SD= 5.60$). Significant associations were observed between depressive symptoms and the abuse categories during pregnancy; (Chi square $= 11.3$, $p = 0.0102$, df $= 3$). At 6 weeks, the mean EPDS scores for those who experienced childhood sexual abuse ($M= 7.13$ $SD=5.72$) and childhood physical abuse ($M= 7.30$ $SD=4.83$) was also higher than that of those who did not ($M= 4.87$, $SD = 4.17$) and those who experienced both forms of childhood abuse (($M= 6.00$, $SD = 3.54$). Significant associations were not observed between childhood abuse and depressive symptoms during this perinatal period. At 12 weeks postpartum, those who experienced childhood sexual abuse had the mean EPDS scores ($M= 7.37$ $SD=4.33$). Significant associations were observed between depressive symptoms and childhood abuse during this perinatal period; (Chi square $= 21.4$, $p =0.0001$, df $= 3$).

ANXIETY

During pregnancy, the mean STAI scores of those who experienced childhood sexual abuse ($M= 39.63$, $SD = 9.22$) and childhood physical abuse ($M= 39.00$, $SD = 8.57$) was higher and closer to the cut-off of 40 than that of those who did not ($M= 34.21$, $SD = 8.93$) and those who experienced both forms of childhood abuse ($M= 36.28$, $SD = 9.31$). Although higher mean scores were also observed with those who experienced childhood sexual abuse ($M= 35.50$, $SD = 9.90$) and childhood physical abuse ($M= 34.30$, $SD = 8.44$) at the 6-week postpartum period, no significant

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associations were found. (See Table 2). Significant associations were only observed between high anxiety symptoms and childhood abuse during pregnancy; (Chi square = 10.6, p =0.0138, df = 3). and at 12-weeks (Chi square = 11.8, p =0.0078 df = 3), with the highest mean scores for those who experienced childhood physical abuse (M= 36.40, SD = 10.49).

MULTIVARIATE ANALYSES

The results from the regression analysis indicated that the model explained 16% of the variance in depressive symptoms during pregnancy (R^2=0.16, F (9,187) =4.01, p=0.0001). (See Table 3). During pregnancy, compared to those who did not experience sexual abuse, those who did had levels of depressive symptoms that were 2.41 units higher while those who experienced physical abuse had depressive symptoms that were 3.36 units higher. In those who experienced both sexual and physical abuse compared to those who did not, depressive symptoms increased by 3.12 units. The results of the analyses at 6 weeks postpartum was not significant based on the model (R^2=0.08, F (9,187) =1.88, p=0.0574). The model explained a significant proportion of the variance in depressive symptoms at 12 weeks postpartum, (R^2=0.15, F (9,187) =3.85, p=0.0002). Mother's age was significantly associated with depressive symptoms at 12 weeks postpartum (p =0.044). Race was also marginally significantly associated with depressive symptoms with Black women having depressive symptoms 2.05 units higher than that of their White counterparts (p =0.05). Childhood sexual abuse was associated with depressive symptoms during pregnancy (p =0.009) and at 12 weeks (p <0.001). Childhood physical abuse (p =0.027) was significantly associated with prenatal depressive symptoms. The results also showed that having experienced both forms of abuse was associated with higher antenatal depressive symptoms (p =0.028) (Table 3).

Childhood physical abuse was also significantly associated with depressive symptoms at 12 weeks postpartum (p =0.026) (See Table 3).

In the second linear regression model, we investigated the association between anxiety symptoms and childhood abuse categories at each perinatal period. We also controlled for race, age, education, marital status and income. (See Table 4). The model also explained a significant proportion of the variance in anxiety symptoms at all three perinatal periods, during pregnancy, (R^2=0.12, F (9,187) =2.86, p=0.0035), at 6 weeks postpartum (R^2=0.08, F (9,187) =1.95, p=0.0472), and at 12 weeks postpartum (R^2=0.10, F (9,187) =2.50, p=0.0101). During pregnancy, those who experienced sexual abuse had anxiety symptoms that were 6.08 units higher compared to those who did not experience sexual abuse. At 6 weeks postpartum, those with sexual abuse experience had anxiety symptoms 3.97 units more than those without sexual abuse. At 12 weeks postpartum, in anxiety symptoms were 5.31 units higher in those who experienced sexual abuse compared to those who did not. Based on the model, mother's age was significantly associated with anxiety symptoms at 6 weeks postpartum (p =0.01). Race was also significantly associated with depressive symptoms with Black women having anxiety symptoms 4.78 units higher than that of their White counterparts (p =0.022). Childhood sexual abuse was associated with anxiety at all three time points: pregnancy (p =0.001), 6 weeks postpartum (p =0.027) and at 12 weeks postpartum (p =0.002). No other significant associations were observed. (See Table 4).

CHAPTER 4: DISCUSSION

The main findings in this study show an association between sexual childhood abuse and depressive and anxiety symptoms during the perinatal period (pregnancy to postpartum). Childhood physical abuse and the experience of both childhood sexual and physical abuse was associated with depressive symptoms during pregnancy. This finding support previous studies (Bonacquisti et al., 2014; Lang et al., 2006; Robertson-Blackmore et al., 2013) showing that childhood sexual abuse was significantly associated with depression in pregnancy. Although childhood sexual abuse is associated with depressive and anxiety symptoms during the perinatal stages, we can also conclude that the associations between sexual and physical childhood abuse are more significant during pregnancy than the postpartum period suggesting that depression during pregnancy has a temporal effect on postpartum depression (Satyanarayana, Lukose, & Srinivasan, 2011). These findings should prompt more investigation into the detection and treatment of perinatal depression, especially in women who have experienced childhood abuse and more especially since PPD is also linked with the normal physical symptoms of pregnancy and can be easily misdiagnosed and misconstrued as a normality (Evagorou, Arvaniti, & Samakouri, 2016). We recommend that routine prenatal care should include an assessment of childhood abuse exposure to improve detection and treatment of depression in this group. In general, the sample can be described as a resilient and a high-risk group especially during the prenatal stage since most of the women with exposure to forms of childhood abuse have higher EPDS and STAI scores even if they do not meet the cut-off scores of 10 and 40 respectively for depression and high anxiety. In addition, being Black was associated with depressive and anxiety symptoms during the prenatal period. Studies have shown that being a minority female is a risk factor for perinatal depression and increased anxiety (Prady et al., 2013). In addition, childhood sexual abuse in Black women

leads to an increase in high risk sexual behavior such as prostitution and poor mental and physical health (Lestrade, Talbot, Ward, & Cort, 2013). Similarly, the mother's age was associated with anxiety symptoms at 6 weeks postpartum.

Our findings also show that exposure to childhood sexual abuse is associated with anxiety symptoms throughout the three perinatal stages. During pregnancy, compared to those who did not experience sexual abuse, those who did had levels of depressive symptoms that were 2.41 units higher while at 12 weeks postpartum, depressive symptoms were 3.48 times higher for those experienced sexual abuse. In those who experienced childhood sexual abuse, anxiety levels were 6.08 units higher during pregnancy, while at 6 weeks anxiety symptoms were 3.97 units higher compared to those who did not. At 12 weeks postpartum, anxiety levels were observed to be 5.31 units higher. These results are also consistent with that of Benedict, Paine, Paine, Brandt, and Stallings (1999) and Lang et al. (2006) who also found that childhood sexual abuse was associated with higher depressive symptoms and high anxiety scores during the postpartum period. Another study by (Zeoli, Rivera, Sullivan, & Kubiak, 2013), found that abused mothers worry about their child's safety; thus, increasing her anxiety levels during pregnancy and even after the child is born (Lang et al., 2006). Since depression and anxiety are highly comorbid during pregnancy and prenatal anxiety is a risk factor for antenatal depression (Fairbrother et al., 2015), early diagnoses of both depression and anxiety in abused women during pregnancy is key especially because it allows for necessary interventions to be provided in a timely manner when necessary.

The main limitations with the study pertain to the small sample size of 197 women. Also, some of the experiences of abuse happened during the women's childhood years; many years before data were collected. Studies have shown that women who are depressed tend to linger on memories of the childhood traumas and may have remembered or reported more traumas than the

respondents who were not (Barrios et al., 2015; Kendall-Tackett, 2007). This may inadvertently have affected our results. Thirdly, we did not consider the severity and frequency of childhood abuse, which may affect perinatal depression and anxiety. Studies have shown that there is a dose response linked between cumulative increase in the exposure to childhood abuse and depressive symptoms, suicide attempts and personality disorders in perinatal women (Grote et al., 2012).

This study only explored childhood sexual and physical abuse; future research should include multiple forms of childhood abuse with perinatal depression. Research has also shown that there is an association between increasing exposures to childhood abuse and poor health outcomes in adults (Grote et al., 2012) therefore further research can also explore association between the severity and frequency of childhood abuse and perinatal depression.

While emphases should be put on preventing childhood abuse, public health officials should prioritize the identification of perinatal women with a history of childhood abuse and aim to provide treatment and support with mental health issues such as depression and anxiety during the perinatal period.

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Table 1: *Descriptive statistics of the sample*

Variables	Total N=197
Age, years, mean (SD)	25.87 (5.52)
Years of education, mean (SD)	10.77 (3.01)
Marital status % (*n*)	
Single	30.46 (60)
With partner	69.54 (137)
Race % (*n*)	
White	20.81 (41)
Black	20.81 (41)
Hispanic	58.38 (115)
Income/yr. % (*n*)	
Below $30k	80.20 (158)
Above $30k	19.80 (39)
Abuse (under the age of 13) % (*n*)	
Sexual abuse only	15.23 (30)
Physical abuse only	5.08 (10)
Both Sexual and Physical abuse	5.58 (11)
Depression, EPDS score, mean (SD)	
Prenatal	6.54 (4.73)
6 weeks	5.40 (4.51)
12 weeks	4.61 (4.05)
Depression (EPDS $\geq$ 10) % (*n*)	
Prenatal	24.37 (48)
6 weeks	17.77 (35)
12 weeks	13.71 (27)
Depression (EPDS $\geq$ 10) % (*n*)	
Depressed at only 1 wave	18.78 (37)
Depressed at only 2 waves	10.15 (20)
Depressed at all 3 waves	5.58 (11)

Anxiety, STAI Trait score, mean (SD)	
Prenatal	35.40 (9.16)
6 weeks	32.23 (8.83)
12 weeks	31.63 (8.36)
Anxiety (STAI Trait ≥ 40) % (*n*)	
Prenatal	33.50 (66)
6 weeks	23.35 (46)
12 weeks	19.29 (38)
Anxiety (STAI Trait ≥ 40) % (*n*)	
High Anxiety at only 1 wave	20.81 (41)
High Anxiety at only 2 waves	13.20 (26)
High Anxiety at all 3 waves	9.64 (19)

Abbreviations: EPDS – Edinburgh Postnatal Depression Scale. STAI – State-Trait Anxiety Inventory

Table 2: *Results of the Kruskal Wallis test showing the mean EPDS and STAI scores of the sample by Abuse category before the age of 13 (N=197)*

	No Abuse 74%	Sexual Abuse only 15%	Physical abuse only 5%	Physical & Sexual Abuse 6%	
	(n=146)	(n=30)	(n=10)	(n=11)	P-value
Depressive Symptoms					
Pregnancy	5.89 (4.40)	8.00 (5.26)	9.80 (4.61)	8.36 (5.60)	0.0102
6 weeks	4.87 (4.17)	7.13 (5.72)	7.30 (4.83)	6.00 (3.54)	0.0885
12weeks	3.80 (3.70)	7.37 (4.33)	7.10 (4.30)	4.72 (3.82)	0.0001
Anxiety Symptoms					
Pregnancy	34.21 (8.93)	39.63 (9.22)	39.00 (8.57)	36.28 (9.31)	0.0138
6 weeks	31.54 (8.61)	35.50 (9.9)	34.30 (8.44)	30.67 (7.39)	0.1312
12weeks	30.60 (7.81)	35.73 (8.57)	36.40 (10.49)	29.90 (8.94)	0.0078

Abbreviations: EPDS – Edinburgh Postnatal Depression Scale. STAI – State-Trait Anxiety Inventory
Note: Standard Deviations shown in parentheses

Table 3: *Summary of Regression Analyses for Abuse categories and demographic variables predicting Depressive Symptoms (N = 197)*

	Pregnancy			6 weeks			12 weeks		
Variables	Coefficient	95% CI	P-value	Coefficient	95% CI	P-value	Coefficient	95% CI	P-value
Race									
White (ref)	1			1			1		
Black	2.05	0.00 - 4.11	0.050	1.19	-0.85 - 3.24	0.252	1.21	-0.54 - 2.98	0.175
Hispanic	-0.62	-2.38 - 1.12	0.479	0.02	-1.72 - 1.75	0.987	-0.26	-1.75 - 1.24	0.737
Age	0.07	-0.04 - 0.19	0.199	0.12	-0.01 - 241	0.040	0.10	-0.00 - 0.20	0.044
Educ. (Yrs.)	-0.11	-0.35 - 0.13	0.367	-0.05	-0.29 - 0.19	0.681	-0.02	-0.23 - 0.18	0.798
Marital Status									
Single (ref)	1			1			1		
Married	-1.08	-2.68- -0.50	0.180	-0.94	-2.53 - 0.64	0.244	-0.20	-1.57 - 1.16	0.765
Income	-0.40	-0.98 - 0.04	0.074	-0.02	-0.53 - 0.48	0.933	-0.24	-0.68 - 0.19	0.270
No abuse (ref)	1			1			1		
Sexual abuse	2.41	0.60 - 4.21	0.009	2.23	0.33-3.91	0.015	3.48	1.93 - 5.04	<0.001
Physical abuse	3.36	0.39 - 6.34	0.027	1.97	-1.00 - 4.94	0.191	2.91	0.35 - 5.46	0.026
Both abuse	3.12	0.34 - 5.89	0.028	1.42	-1.34 - 4.19	0.312	1.30	-1.08 - 3.68	0.283
R^2	0.16			0.08			0.15		
F	4.01		0.0001	1.88		0.0574	3.85		0.0002

Abbreviations: EPDS – Edinburgh Postnatal Depression Scale. STAI – State-Trait Anxiety Inventory. CI – Confidence Interval. Educ – Education

Table 4: *Summary of Regression Analyses for Abuse categories and demographic variables predicting Anxiety Symptoms (N = 197)*

Variables	Pregnancy Coefficient	Pregnancy 95% CI	Pregnancy P-value	6 weeks Coefficient	6 weeks 95% CI	6 weeks P-value	12 weeks Coefficient	12 weeks 95% CI	12 weeks P-value
Race									
White (ref)	1			1			1		
Black	4.78	0.70 - 8.85	0.022	2.74	-1.27 - 6.75	0.178	2.98	-0.76 – 6.73	0.118
Hispanic	-0.62	-4.09 - 2.83	0.721	-1.00	-4.40 - 2.41	0.564	-0.72	-3.91 - 2.45	0.652
Age	0.06	-0.16 - 0.30	0.581	0.30	-0.08 - 0.53	0.010	0.18	-0.03 - 0.39	0.102
Educ. (Yrs.)	-0.23	-0.72- -0.24	0.335	-0.14	-0.62 - 0.32	0.535	-0.25	-0.70 - 0.19	0.257
Marital Status									
Single (ref)	1			1			1		
Married	-0.62	-3.78 -2.54	0.699	-0.99	-4.10 - 2.11	0.528	-0.06	-2.96 - 2.84	0.967
Income	-0.59	-1.60 - 0.42	0.251	-0.22	-1.22 - 0.77	0.657	-0.37	-1.30 - 0.56	0.435
No abuse (ref)	1			1			1		
Sexual abuse	6.08	2.50 - 9.66	0.001	3.97	0.46 - 7.49	0.027	5.31	2.02 - 8.60	0.002
Physical abuse	4.36	-1.53 - 10.2	0.146	2.03	-3.76 – 7.83	0.489	5.15	-2.71 - 10.5	0.063
Both abuse	2.88	-2.62 - 8.38	0.303	0.03	-5.37 – 5.44	0.991	0.01	-5.04 - 5.07	0.996
R^2	0.12			0.08			0.10		
F	2.86		0.0035	1.95		0.00472	2.50		0.0101

Abbreviations: EPDS – Edinburgh Postnatal Depression Scale. STAI – State-Trait Anxiety Inventory. CI – Confidence Interval. Educ – Education