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Maternal Stress and Infant Outcomes:
The Impact of Perinatal Anxiety on Pregnancy and Delivery Outcomes

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Abstract

Maternal depression is a debilitating disorder that places mothers and infants at an increased risk for physical and emotional delays and difficulties. The current study utilizes two samples of pregnant women, a screening sample of 2,030 and an interviewed sample of 152 who were screened for the presence or absence of psychopathology symptoms, with aims to determine if anxiety measures during gestation predict similar risks to depression. Based on data from Edinburg Postnatal Depression Scale (EPDS) and Structured Clinical Interview for DSM-IV (SCID) anxiety screening measures, the study supports the presence of an increased risk for demographically high-risk women, as well as those with higher anxiety EPDS scores and positive responses to the SCID anxiety screening. Findings suggest that anxiety can predict difficulties with pregnancy and delivery including increased infant respiratory distress, shorter gestational periods, lower Apgar scores, and other complications. These important findings must be further researched to find the effects of maternal anxiety on infant's neurological and physical problems, its ability to inhibit child development, as well as potentially increase the infant's susceptibility to psychopathology throughout the lifespan. Prevention and early action plans must also be implemented to create and sustain healthy moms and infants.

Maternal Stress and Infant Outcomes:

The Impact of Perinatal Anxiety on Pregnancy and Delivery Outcomes

The transition into motherhood can be a challenging time for many women; however, many women are faced with the added difficulty of maternal depression. Maternal depression has been studied for decades and has been proposed to have several factors that negatively alter the pregnancy and delivery experience for both mother and baby. These women may experience signs of increased anxiety that either co-occur or are separate from depression. The effect of maternal stress and anxiety on infant outcomes has not been as widely studied as the effects of depression. Therefore, it is important for studies to include measures of anxiety in examining effects on maternal and infant outcomes.

Research suggests that depression in mothers affects parent-child relationships, interactions and the emotional and behavioral reactions in children. Sutter-Dallay, Giaccone-Marcasche, Glatigny-Dallay, & Verdoux(2004) found that the presence of anxiety symptoms and stress during pregnancy increased the likelihood of high scores on the Edinburgh Postnatal Depression Scale (EPDS). Other studies have found that prenatal anxiety is the strongest predictor of postnatal depression symptoms (Vythilingum, 2008). To better understand the connection between maternal anxiety and atypical pregnancy and delivery complications, perinatal anxiety and stress must remain a focus of scientific literature and studies. Current literature indicates that there may be a difference in the risk factors of mothers with antepartum anxiety and depression as compared to women with postpartum anxiety and depression (O'Connor, 2005). Understanding these differences is important in determining the timing of effective interventions. In addition, once a woman experiences a depressive episode, her likelihood of having another episode greatly increases due to her increased vulnerability

(O'Hara, 1997).

The influence of perinatal stress and anxiety symptoms on infant behavioral outcomes

The relationship of anxiety and stress with infant outcomes such as increased prematurity, lower infant birth weight and length, head circumference, and Apgar scores have gained recent research attention. Findings have shown that such mental health symptoms during pregnancy may put infants and children at greater risk for developmental delays as well as an increased threat for development of psychopathology.

Studies that have explored the impacts of maternal anxiety and stress on infant factors at birth have yielded some consistent findings. Specifically, low birth rate, shorter delivery length and shorter gestational length have all been found to be more likely among women with chronic stress symptoms and increased scores of state trait anxiety. For example, one study found that infants of mothers with elevated stress and anxiety had significantly decreased gestational lengths and had infants who were smaller overall in size (Hosseini, 2007). Similar findings with correlations between anxiety and stress and gestational length and preterm birth were found in several other studies examining women during pregnancy (Rini, Schetter, Wadhwa & Sandman, 1999; Glynn, Schetter, Hobel, & Sandman, 2008)

Another study examined the implications of antenatal depression and anxiety on obstetric experiences with a focus on risk and prevalence of delivery complications. Along with reporting increased physical discomfort throughout the pregnancy, women with elevated anxiety scores were found to have more pregnancy concerns including an overall higher number of obstetric visits to alleviate fear of birth and misinterpreted contractions than control subjects (Andersson, Sundström-Poromaa, Wulff, Aström, & Bixo, 2004). Most interesting, however, were the differences in delivery procedures. Women experiencing high levels of stress and anxiety

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throughout gestation showed increased use of, or perhaps need for, epidurals during the labor process. These women were also found to have significantly higher likelihood of having cesarean sections (Andersson, Sundström-Poromaa, Wulff, Aström, & Bixo, 2004). Findings were consistent with the several other assessments in the literature, and included measures of maternal stress and anxiety directly. In this study, it was seen that women who were given epidurals were also more likely to deliver through surgical, rather than vaginal means (Saunders, Lobel, Veleso, & Meyer, 2006).

Another infant outcome that has been linked to anxiety during pregnancy is lower Apgar scores (Sopajaree, 2000), which are gross measures of infant functioning one and five minutes after birth. For example, a study by Berle et al. (2005), regarding neonatal outcomes with anxiety and depression in pregnancy found no association between birth weight and premature birth and anxiety scores, but the study did find a negative correlation with Apgar scores. It is important to note that such variability in birth weight findings may be attributed to cultural differences with a bias of "healthy women" in the sample, as the study was conducted in Norway where nutrition and health are highly emphasized. A study looking at psychiatric illness as a whole included women with depressive and anxiety disorders, schizophrenia, and other diagnoses in their sample to compare pregnancy outcomes. Results indicated that there was a negative correlation between psychiatric illness and infant Apgar score, where women with diagnoses or increased maladaptive psychiatric symptoms birthed infants with lower Apgar scores (Schneid-Kofman, Sheiner, & Levy, 2007). Another study showed that perceived stress of life-events, depression, and anxiety all predicted Apgar scores lower than the average, healthy infants (Marcus, 2009). A study conducted with a more focused research sample included women with high-risk pregnancies. Here, the relationship of maternal anxiety for these women and their infant

outcomes was looked at more specifically. There may have been both mediating and moderating factors, such as other medical variables that originally placed women within a high-risk group. However, findings suggest a significant negative correlation between anxiety and Apgar scores for women with pregestational and gestational diabetes, and no difference for control participants. These findings were only significant for anxiety within the second trimester (Sopajaree, 2000).

Anxiety, Stress and Maternal Demographic Characteristics

Based on several studies, lower socioeconomic status is correlated with higher levels of maternal anxiety (Hosseini, 2007). Rini, Schetter, Wadhwa and Sandman (1999) examined connections between personal resources, stress, socio-cultural support and birth outcomes. The study concluded that the stronger a mother's resources, the higher the infant birth weight. As one would expect, better socioeconomic resources correlated with lower anxiety and stress scores. However, when controlling for the general difference in resources, the findings remained statistically significant, suggesting that resources alone may not be predictive of anxiety, and that there may be additional factors influencing anxiety symptoms (Rini, Schetter, Wadhwa & Sandman, 1999). For example, research suggests that there is a negative correlation between level of education of the mother and likelihood of anxiety (Langan, 1997). Other research examining the impact of stress and other factors on birth weight and infant growth measures evaluated mothers' co-occurring smoking habits. In a study by Lou et al. (1995), women experiencing high levels of stress while concurrently smoking cigarettes delivered infants with significantly lower birth weights and smaller head circumferences. The head measurements were found statistically significant for infants of anxious mothers even after controlling for an abnormally lower infant weight. Comparable findings were seen regarding lower birth weight,

smaller head circumference and decreased gestational length in other studies as well (Marcus, 2009).

Generally, research in this area has primarily focused on the relationship between perinatal depression and pregnancy and infant outcomes, with an under-emphasis in anxiety. Because of the prevalence of anxiety in childbearing aged women, this is an important area of research. The studies reviewed here primarily have relied on anxiety symptom measures, to the exclusion of psychiatric diagnosis. Therefore, the purpose of the present study was to add to the literature on the association of elevated maternal anxiety on obstetrical outcomes in both a general prenatal care sample of women, as well as a group of women selected based on psychiatric diagnosis.

The current study had two hypotheses. First, it was predicted that women who scored higher on a measure of anxiety (the EPDS anxiety subscale) would show greater pregnancy and delivery complications, specifically as it is reflected in the existing literature on infant birth weight, lower Apgar scores at one and five minutes, decreased gestational length, and smaller head circumference. Second, it was hypothesized that women with any clinical diagnosis of a mood or anxiety disorder, or scoring a positive response to any SCID anxiety screening measures would similarly show increased complications in pregnancy and delivery to outcomes found with the EPDS. Information on the impact of anxiety, defined as both elevated symptomatology and clinical diagnosis, on obstetrical complications, while controlling for key demographic factors, will add to our understanding of optimal ways to prevent infant risk.

Method

Participants

Obstetric clinic clerks provided study forms to women with obstetric visit appointments

in three University of Michigan Health System (UMHS) clinics. Research Assistants (including the author) then approached these women to provide any additional information and answer any inquiries regarding the study forms. Two thousand and thirty women completed the clinic survey. Interested women then signed informed consent documents. Inclusion Criteria for pregnant women is comprised of the following: English-speaking, 21 years of age or older, gestational age at screening less than 26 weeks, no adoption plan, no plan to move more than sixty miles from the UMHS area for two years, no past or present substance dependency or abuse, eating disorder. Women with the following medical conditions were excluded: polycystic ovarian syndrome, congenital adrenal hyperplasia or other medical conditions affecting the endocrine system at the Principal Investigator's discretion, as well as no use of any type of oral steroid medications for any conditions (asthma, allergies, lupus, etc.) including steroid nasal sprays on a regular basis or other medication affecting the endocrine system. Infants were excluded if any of the following criteria were met: chronic physical health problem, severe acute illness or respiratory distress, major congenital anomaly, premature (less than 35 weeks gestation), birth weight is equal to or less than two standard deviations below the mean for gestational age or does not have intrauterine growth retardation.

Procedure

Two thousand and thirty women filled out the abovementioned surveys, from which 300 were eligible and consented to participate in the Perinatal Infant-Mother Attachment Study (PIMACS). These 300 women completed a baseline interview consisting of the Structured Clinical Interview for DSM-IV (SCID). The participants were categorized into three groups by depression risk based on evaluations that met, or did not meet, criteria for diagnoses according to the SCID. Low-risk (LR) subjects were those who presented no signs of past or current

depression, anxiety or eating disorder. High-risk (HR) participants showed a diagnosis of past depression or eating disorder, and a past and/or present anxiety disorder. The last group contained women currently meeting criteria the diagnostic category of Major Depressive Disorder (MDD) according to SCID criteria. Of the 300 participants, the current study with use interview material from the 152 women who were given no SCID diagnosis, or a diagnosis for anxiety or depression.

Women meeting criteria for current MDD were then referred for treatment and, provided participants gave consent, women were divided into six groups postpartum based on level of risk and treatment provided. Once enrolled in the study, woman from all groups met several times for interviews and surveys. Her first visit was at 28 weeks gestation where she participated in a voluntary interview involving general and mental health questions and surveys consisting of various self-report scales that are given at each of the subsequent observations.

Measures

The EPDS is a ten-question instrument used in clinical practice to detect the presence of depressive symptoms (Cox, Holden, & Sagovsky, 1987). The survey asked women to indicate how much each item represented their emotions, thoughts and behaviors within the prior seven days including the day evaluated. Each question ranged from zero to three, with the total possible score reaching thirty. Higher scores indicate higher depressive symptoms. Research has found that women with scores above the threshold of twelve or thirteen were categorized as higher risk for major depressive disorder (Cox, Holden, & Sagovsky, 1987). The EPDS scale is available for reference in Appendix A. The items of interest are those in regard to unnecessary self-blame, anxiety or worry, and feeling panicked and scared and can be found in both and italics in Appendix B. Previous research studies have been found reliable using this measure for overall

depression and the specific anxiety subscale with Chronbach's alphas of $\alpha=.80$ and $\alpha=.60$ respectively.

The baseline assessment of eligible women (n=300) evaluated the presence of current or past psychiatric symptoms and disorders. A SCID semi-structured interview holds moderate reliability ($r = 0.51$) and distinguishes between patient and non-patient groups. Women were interviewed for a presence or absence of diagnosis and to examine whether these women would respond positively to anxiety screening items used later in the analysis. The anxiety screening items used to define a correlation between SCID anxiety measures and infant outcomes are presented in the Appendix B. Such items are comprised of the most pronounced anxiety symptoms of DSM-IV anxiety disorders.

Infant scales and questionnaires included demographic information, general health of infant, temperament, feeding and sleeping, crying and soothing measure, feeding scale, crying scale, sleep habits, infant behavior questionnaire, and other physical measures. The main focus of the present analysis will be placed on the physiological and general health outcomes of the infant. Infant measures were evaluated within the broad categories of General Function Characteristics, Physical Health, Maternal-infant interactions and hormonal status with LHPA axis biological measures of mom and child.

The Apgar measures are given to infants at one and five minutes after birth to evaluate the health of the infant on five levels: appearance of skin, pulse rate, grimace or reflex irritability, activity or muscle tone and respiration or strength of breathing. The measure is scored from zero to two points for each section, with scores including or below three as critically low, from four to six as fairly low and from seven to ten as normal (Finster & Wood, 2005).

Data Plan

Data analyses proceeded in two parts. The first set of analyses is based on the screening sample (n=2,030) and examined the association between maternal EPDS anxiety subscale scores with demographics that have been examined in the literature including income and education levels, as well as infant outcomes that place children at higher risk for developmental and physiological delays. It is proposed that these same women and their infants will be placed in greater danger throughout pregnancy and delivery, where highly anxious or stressed mothers are more likely to have shorter gestational periods, increased pregnancy and delivery complications, lower Apgar scores at both one and five minutes, and infants of lower weight, smaller head circumference and shorter length

Prior to analyses using the EPDS anxiety subscale score, the internal consistency was calculated using Chronbach's alpha. First, overall rates of elevated anxiety are described based on total scores of the EPDS anxiety subscale. Second, bivariate correlations between the anxiety subscale and key demographic and health behavior variables were conducted. Specifically, Pearson correlation coefficients were calculated for the relationship between anxiety subscale scores and age, race, smoking, gestational length, if it was the woman's first baby, total children, number of drinks a woman can hold (tolerance), lifetime depression, marital status, living with others or alone, education of both mother and father, working status, insurance coverage, and income. Third, the bivariate relationships between anxiety subscale scores and key child outcomes including age, cigarette smoking, weeks gestation, presence of pregnancy complications, induction, augmentation, or epidural, delivery type, delivery complications, live born, gender of infant, birth and discharge weight of infant, birth length and head circumference of infant Apgar scores at one and five minute intervals, and feeding status, using t-tests (for continuous) and chi-square for dichotomous variables.

The second phase of data analyses were based on the interviewed sample (n=152). First, the prevalence of any positive anxiety screening scores based on the SCID will be presented. Second, the relationship between SCID anxiety items and key child outcomes were examined using t-tests for continuous child outcomes and Chi-square for dichotomous child outcomes. The co-occurrence of anxiety and depression disorders was also examined by way of a SCID-DSM-IV diagnosis. Therefore, we examined the relationship between positive anxiety items and a diagnosis of depression based on the SCID. Additionally, it is hypothesized that women with positive anxiety screen items for panic, social, and obsessive compulsive symptoms, and generalized anxiety would have overall more negative impacts on infant outcomes.

Results

Based on the screening sample (n=2,030) the calculated internal consistency of the EPDS was total scale high ($\alpha=.88$). The EPDS anxiety subscale, comprised of items regarding feeling panicky or scared, worry and self-blame, was found to be $\alpha=.77$. Of the sample (n=2,030), the mean EPDS anxiety subscale support was 3.22 ($SD = 2.13$).

Pearson correlation coefficients were calculated between the anxiety subscale of the EPDS and mother's demographic and health status and, as hypothesized, found strong and significant correlations for several variables. Specifically, correlations between EPDS anxiety and age was $r = -.09$, $p < .001$, where younger mothers reported more anxiety. A correlation between EPDS anxiety subscale and cigarette smoking during pregnancy was found, $r = .18$, $p < .001$, where more tobacco smoking implied more anxiety. Additionally there was a correlation with alcohol tolerance, where mothers with elevated anxiety subscale EPDS scores reported being able to hold a greater number of alcoholic drinks, $r = .09$, $p < .001$. A history of depression had a significant correlation with high EPDS anxiety, $r = .32$, $p < .001$. As expected, both marital

status and living alone had strong correlations with anxiety scales where unmarried mothers, and mothers living alone showed higher anxiety subscale scores with correlations of $r = .15$, $p < .001$ and $r = .08$, $p < .001$ respectively. While mothers' education was not significantly related to anxiety scores, fathers' educational background increasing maternal participants' anxiety subscale scores, $r = -.09$, $p < .001$. Similarly, employed mothers, and those with lower incomes, reported higher maternal EPDS anxiety, with $r = -.18$, $p < .001$ and $r = .08$, $p < .001$ respectively. This information is summarized in Table 1.

Bivariate correlations between the anxiety subscale of the EPDS and obstetric and birth outcomes were found to be statistically significant only for gestational length, Apgar score at one minute, and Apgar score at five minutes after delivery. Concurrent with the hypothesis, significant Pearson Correlations were found between high EPDS anxiety subscale scores and shorter gestational length where $r = -.21$, $p < .001$. Additionally, increased EPDS anxiety scores correlated negatively with Apgar scores at both one and five minutes, resulting in lower, more deleterious Apgar scores. These correlations were seen as $r = -.26$, $p < .001$ and $r = -.20$, $p < .001$ respectively.

For the second phase of analyses, the data were based on the interviewed sample ($n=152$). A total of 133 of the one hundred and fifty-two participants (88%) reported positively to at least one anxiety diagnosis symptom. Women experienced a mean of 2.1 symptoms ($SD = 1.4$). The prevalence of women with positive responses, indicating the presence of anxiety disorder symptoms, for each item is presented in Table 2. Additionally, 33 out of 152 (22%) enrolled participants had a SCID diagnosis. Of those, sixteen (49%) met criteria for an anxiety or depressive disorders according to the DSM-IV criteria. A Pearson Correlation found a statistically significant association between women with a positive SCID diagnosis with having

infants with increased respiratory distress at delivery as $r = .23$ $p < .05$.

A relationship between positive SCID anxiety symptom items and a diagnosis of Major Depressive Disorder was only found to be significant for two symptom items, (panic and obsessive-compulsive symptoms). Women with positive scores for SCID panic symptoms showed overall shorter gestational length. Additionally, women who reported positively for the OCD item had higher rates of labor complications.

Discussion

Results of the first part of this study replicated previously found associations between elevated anxiety symptom scores and key obstetrical risk outcomes such as Apgar scores at one and five minutes as well as shorter gestational length. The use of the Edinburgh Postnatal Depression Scale as an assessment of anxiety suggests that such a scale may be a helpful tool for a more inclusive screening, as it is seen as a reliable measure for recognizing both depressive and anxiety symptoms of women. Additionally, the EPDS may indicate risk of pregnancy and delivery complications for women with higher scores on the total and anxiety subscale measures. This study found higher reliability for both the EPDS overall and the anxiety subscale than has been previously found (Brouwers, van Baar, & Pop, 2001). The associations between mother's demographic and health characteristics and EPDS anxiety levels were consistent with existing literature on the subject regarding class, educational background, income, and other maternal traits. This implies that particular populations of women may be at higher risk for developing anxiety symptoms in pregnancy, and therefore may require closer monitoring to prevent problematic obstetrical outcomes. An intervention of this type could be implemented within psychological research in order to adjust available mental health resources the administration of psychotherapy, and the methods of prevention to focus more specifically on the population of

interest. The proposed study would learn about the needs and concerns of each group so new methods of outreach may be constructed and addressed in the most appropriate manner for the population. By targeting the unique traits of such groups, women will be taught particular coping mechanisms to adjust to the traits placing them at increased risk. Some studies have attempted this recently. For example, one research intervention aimed to mitigate maternal stress after birth by focusing on increasing the mother's ability to better manage stressors. The goal of the intervention was to redirect a mother's attention to the infant, and increase her ability to decipher the infant's needs and establish a healthier attachment to foster good psychological health of the infant. This is done to decrease the likelihood of the child developing mental pathologies (Bialy, 2006). Studies such as this teach women, and provide them an opportunity to exercise their new skills that could potentially decrease the risk of their infant developing psychopathology. A current study, *Enhancing Care and Health Outcomes*, interviews participants to find the specific needs of pregnant women from several demographic groups and then implements these findings into a modified Cognitive Behavioral Psychotherapy intervention focused on the pregnancy transition. This study aims to compare the adapted approach to referred treatment as usual to see whether a modified personal treatment is more effective. Alternatively, a community psychology-based approach may also be proposed to eradicate, or at least reduce, the environmental and systemic barriers and risks that initially place these women in stressful circumstances. For example, educating young women that they are increasing their risk for pregnancy complications by smoking cigarettes may help promote health awareness and therefore reduce the risk before it even impacts the pregnancy.

Though there is not currently a vast amount of literature that addresses the implications of future development for an infant with atypical physiological birth outcomes resulting from a

prenatally stressed or anxious mother, the fields of psychology and psychiatry have recently turned to how these maternal factors and infant outcomes are inhibiting child development and increasing the risk for the his or her development of psychopathology (Field et al., 2001; Hosseini, 2007; Jones, 2007; Prior et al., 2008). Future studies should look to maternal-infant attachment relationships to see if maternally distressed mothers form less secure bonds with their children, and whether abnormal pregnancy and infant outcomes of anxious mothers correlate with attachment styles different from controls. Additional variables such as feedings behaviors and crying responses may also be of interest to see if breast- or bottle-fed infants or children with differing temperament levels vary in mother-infant attachment styles.

When using the EPDS anxiety subscale to correlate with infant outcomes directly, only gestational length and Apgar scores at one and five minutes were statistically significant. These findings are particularly important because shorter gestational length and decreased Apgar scores are highly predictive of delayed developmental and physical growth (Berle et al., 2005). Examining the specific risks to infants may promote the need for prevention and early action plans that aim at delivering healthy babies and assisting those who are struggling. Though these three statistically significant variables are in agreement with the current literature, additional delivery factors that were hypothesized to correlate with EPDS anxiety subscale were not found to be significant, including birth weight and head circumference. The failure to find such results may be due to methodological issues..

The findings should be considered in light of several methodological limitations. For one, the study recruited its participants from the Ann Arbor area of the state of Michigan. This geographic area is a predominately European-American population of higher socioeconomic status (SES), as seen in the demographic reports of Table 1. Because these women are of higher

SES and seeking medical care, they may have been receiving comprehensive pregnancy support services (such as nutritional counseling). For this reason, the current study may not have found significantly low birth weights of infants, as mothers may have been receiving the proper amount of calories and nutrients for fetal weight gain. This was seen as a possibility in a study with healthy women in Norway (Berle et al., 2005). Another limitation related to recruitment from obstetric and gynecology clinics is that women who cannot afford health care, those who are unable to access care for other reasons, and those not making attempts to receive prenatal care were not sampled. Therefore, study results cannot be generalized to women not receiving prenatal care. In addition, our sample of women with an anxiety diagnosis was relatively small, possibly limiting statistical power to detect hypothesized relationships with other infant outcomes.

When examining the last hypothesis regarding the correlations between a SCID diagnosis of anxiety or depression and key infant outcomes, the only statistically significant finding in this study is seen with respiratory distress of the infant. Research on the topic explains that findings may partly be due to the low birth weight of infants (Thórarinsdóttir, Georgsdóttir, Jóhannsson, & Dagbjartsson, 2009). This finding places the study in query because, as a whole, infants of anxious or stressed participants were not found to have statistically significant low birth weights, and therefore another factor must be mediating these results. Another possibility considers the impact of premature delivery because prematurity and birth weight often co-occur. Problems that are unable to be examined as mutually exclusive are seen in the present study as well, particularly in women who are high on the EPDS anxiety subscale who had shorter gestational periods, and in women with a SCID diagnoses who had an increased risk of delivering an infant with respiratory distress. Future studies should longitudinally evaluate the implications of such

respiratory distress on the infant's development. Little research has been done on infant respiratory distress in the long term and it is therefore necessary for the field to better understand what this finding may imply in regard to psychological health.

It is clear that maternal anxiety and stress do impact pregnancy and infant outcomes. Therefore, the findings of the current study place importance on prioritizing interventions including preventative methods, assistance during gestation, and postpartum support with a specific focus on the specialized concerns of the population. By implementing the proposed supportive resources for women during this sizeable life transition, psychology and its related fields will promote a change toward healthier mothers and children.

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Appendix A

The anxiety subscale items are denoted by the bold and italics as well as asterisks.

1. I have been able to laugh and see the funny side of things

0 As much as I always could

1 Not quite so much now

2 Definitely not so much now

3 Not at all

2. I have looked forward with enjoyment to things

0 As much as I ever did

1 Rather less than I used to

2 Definitely Less than I used to

3 Hardly at all

3. I have blamed myself unnecessarily when things went wrong

3 Yes, most of the time

2 Yes, some of the time

1 Not very often

0 No, never

4. I have been anxious or worried for no good reason

0 No, not at all

1 Hardly ever

2 Yes, sometimes

3 Yes, very often

5. I have felt scared or panicky for no very good reason

3 Yes, quite a lot

2 Yes, sometimes

1 No, not much

0 No, not at all

**** 6. Things have been getting on top of me***

3 Yes, most of the time I haven't been able to cope at all

2 Yes, sometimes I haven't been coping as well as usual

1 No, most of the time I have coped quite well

0 No, I have been coping as well as ever

7. I have been so unhappy that I have had difficulty sleeping

3 Yes, most of the time

2 Yes, sometimes

1 Not very often

0 No, not at all

8. I have felt sad or miserable

3 Yes, most of the time

2 Yes, quite often

1 Not very often

0 No, not at all

9. I have been so unhappy that I have been crying

3 Yes, most of the time

2 Yes, quite often

1 Only occasionally

0 No, never

10. The thought of harming myself has occurred to me

3 Yes, quite often

2 Sometimes

1 Hardly ever

0 Never

Appendix B

SCID Screening Items for Anxiety Symptoms

SCID Q 4 [PANIC]: Have you ever had a panic attack, when you suddenly felt frightened or anxious or suddenly developed a lot of physical symptoms?

SCID Q 5 [AGORAPHOBIA]: Were you ever afraid of going out of the house alone, being in crowds, standing in a line, or traveling on buses or trains?

SCID Q 6 [SOCIAL]: Is there anything that you have been afraid to do or felt uncomfortable doing in front of other people, like speaking, eating, or writing?

SCID Q 7 [SPECIFIC PHOBIA]: Are there any other things that you have been especially afraid of, like flying, seeing blood, getting a shot, heights, closed places, or certain kinds of animals or insects?

SCID Q 9 [OBSESSIVE COMPULSIVE]: Was there ever anything that you had to do over and over again and couldn't resist doing, like washing your hands again and again, counting up to a certain number, or checking something several times to make sure that you'd done it right?

SCID Q 10 [GENERALIZED ANXIETY]: In the last six months, have you been particularly nervous or anxious?

Author Note

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Table 1

Demographic and Obstetrical Variables of the Sample

<i>Variable</i>	<i>Mean (SD)</i>	<i>% (n)</i>
Demographic Items		
Age	30.59 (4.96)	
Number of custodial children		
0		45.7 (69)
1		33.1 (50)
2-3		19.2 (29)
4 or more		2 (3)
Race		
Caucasian		75.5 (114)
African American		9.3 (14)
Asian American/Pacific		6.6 (10)
Islander		
Latina/Hispanic		4.6 (7)
American Indian		0 (0)
Other race		4 (6)
Education of mother		
High school graduate or less		10 (15)
Some college/Associates		22.7 (34)
Degree/Vocational or Technical Degree		

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Bachelor's Degree	27.3 (41)
Graduate Level Degree	32.7 (52)
Current Student	4.7 (11)
Other	.7 (1)
Insurance coverage	
Yes	98.0 (148)
No	2.0 (3)
Household Income (in dollars)	
Less than 24,999	25.6 (18)
25, 000- 54,999	23.1 (34)
55,000-99,999	29.9 (44)
100,000 or greater	31.3 (46)
<u>Obstetrical Items</u>	
Weeks gestation	36.8 (5.42)
Apgar 1 minute	7.71 (1.56)
Apgar 5 minutes	8.72 (.87)
Birth weight (kg)	3.3 (.67)

Note. Descriptive information on the sample (n =2,030) including demographic characteristics, substance use and obstetrical variables (n=152) of mother.

Table 2

SCID Anxiety Screening Prevalence Rates

<i>SCID Screening Item for Specific Anxiety Symptoms</i>	<i>% (n)</i>
SCID 4- Panic	37.5 (57)
SCID 5- Agoraphobia	19.1 (29)
SCID 6- Social Phobia	40.1 (61)
SCID 7- Specific Phobia	49.3 (75)
SCID 9- Obsessive Compulsive	13.8 (21)
SCID 10- Generalized Anxiety	28.9 (44)

Note. The prevalence of positive responses to SCID anxiety screening items for the interviewed sample (n=152). See Appendix B for the phrasing of the screening questions.