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A COMPREHENSIVE EXAMINATION OF ANXIETY AND ITS RISK FACTORS IN THE
PERINATAL PERIOD

by

Michelle L. Miller

A thesis submitted in partial fulfillment
of the requirements for the Doctor of Philosophy
degree in Psychology in the
Graduate College of
The University of Iowa

August 2018

Thesis Supervisor: Professor Michael W. O'Hara

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CERTIFICATE OF APPROVAL

PH.D. THESIS

This is to certify that the Ph.D. thesis of

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the thesis requirement for the Doctor of Philosophy degree
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ABSTRACT

The perinatal period is increasingly recognized as a vulnerable time for the development and exacerbation of psychopathology symptoms. Research has often focused on perinatal depression, with limited information on perinatal anxiety. This study examined the psychometric structure of all anxiety and depressive disorder symptoms as well as explored the relation between perinatal internalizing symptoms and sociodemographic, obstetric, and psychological risk factors. Obsessive-Compulsive Disorder (OCD) is a common perinatal anxiety disorder that is now classified with the Obsessive-Compulsive Spectrum (OCS) (hoarding, body dysmorphic, trichotillomania, and excoriation disorders). This study also aimed to determine the prevalence of clinically significant OCS symptoms and their association with postpartum adjustment.

Participants recruited from the University of Iowa Hospitals and Clinics ($N=246$) completed an online questionnaire and a structured clinical interview during pregnancy (28-32 weeks gestation) and the postpartum (6-8 weeks). Questionnaires assessed demographics, pregnancy complications, anxiety sensitivity, coping strategies, maternal attitudes and experiential avoidance. Clinical interviews dimensionally assessed all anxiety and depressive symptoms as well as past psychiatric diagnoses.

Confirmatory factor analyses identified three factors: Distress (depression, GAD, irritability, and panic); Fear (social anxiety, agoraphobia, specific phobia, and OCD); and Bipolar (mania and OCD) during pregnancy and the postpartum. During pregnancy, structural equation modeling demonstrated that past psychiatric history predicted Distress and Fear symptoms. Experiential avoidance mediated the relation between negative coping strategies and Fear symptoms. In the postpartum, negative maternal attitudes predicted Distress symptoms. Experiential avoidance mediated the relation between negative coping strategies and Fear

symptoms as well as between anxiety sensitivity and Fear symptoms. There were low rates of clinically significant OCS symptoms, except for body dysmorphic disorder symptoms.

Elevations in all OCS disorder symptoms were significantly associated with more difficulty adjusting to the postpartum.

Past psychiatric history, negative maternal attitudes, and experiential avoidance are particularly important risk factors for perinatal anxiety. Future clinical research should be aimed at identifying at-risk women and modifying experiential avoidance during the perinatal period. Elevated OCS symptoms, particularly body dysmorphic disorder symptoms, affect postpartum adjustment. Future intervention work should focus on assessing and treating perinatal body dysmorphic disorder symptoms.

PUBLIC ABSTRACT

There is limited information on anxiety disorder symptoms during pregnancy and the postpartum period. This study examined the structure and risk factors of all anxiety and depressive disorder symptoms. The Obsessive-Compulsive Spectrum (OCS) (hoarding, body dysmorphic, trichotillomania, and excoriation disorders) has not been examined in the perinatal period. The prevalence of OCS symptoms and their association with postpartum adjustment was examined. Participants completed a questionnaire and a structured clinical interview during pregnancy (28-32 weeks) and the postpartum (6-8 weeks). Questionnaires assessed sociodemographic, obstetric/medical, and psychological risk factors. Clinical interviews dimensionally assessed all anxiety and depressive symptoms as well as past psychiatric diagnoses. Confirmatory factor analyses confirmed a three-factor model, composed of Distress, Fear and Bipolar factors, as the best fitting across pregnancy and the postpartum. During pregnancy, past psychiatric history predicted Distress and Fear symptoms. In the postpartum, negative maternal attitudes predicted Distress symptoms. Experiential avoidance mediated the relation between negative coping strategies and Fear symptoms across the perinatal period as well as between anxiety sensitivity and Fear symptoms in the postpartum. Body dysmorphic disorder symptoms were the most prevalent across the perinatal period. Elevated OCS symptoms were significantly associated with more difficulty adjusting to the postpartum. Past psychiatric history, negative maternal attitudes, and experiential avoidance are important risk factors for perinatal anxiety. Elevated OCS symptoms, particularly body dysmorphic disorder symptoms, affect postpartum adjustment. Future clinical research should have the aims of identifying high-risk women, modifying experiential avoidance, and assessing body dysmorphic disorder symptoms more comprehensively during the perinatal period.

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CHAPTER ONE: INTRODUCTION

The perinatal period, which encompasses pregnancy and the first 12 months postpartum, is a vulnerable time for the development and exacerbation of psychopathology symptoms (Forray, Focseneanu, Pittman, McDougle, & Epperson, 2010; Labad et al., 2005). Postpartum depression is the most well-known disorder to occur in the perinatal period (O'Hara & McCabe, 2013). The prevalence of postpartum depression is estimated to be between 13 and 19% (Gavin et al., 2005; O'Hara & Swain, 1996). Further, maternal depression at any point in the perinatal period has demonstrated associations with a variety of negative offspring outcomes, including preterm labor (Li, Liu, & Odouli, 2009), reduced birth weight (Henrichs et al., 2010), impaired bonding between the infant and mother (Beebe et al., 2009), and emotional and behavioral problems in children (O'Donnell, Glover, Barker, & O'Connor, 2014). However, while postpartum depression is one of the most researched areas in the perinatal literature, one area that needs more thorough examination is anxiety disorders (Austin, Tully, & Parker, 2007; Coelho, Murray, Royal-Lawson, & Cooper, 2011; Marchesi et al., 2014; Prenoveau et al., 2013; Wenzel, Haugen, Jackson, & Brendle, 2005).

Anxiety disorders are more frequent than depression during pregnancy and equally frequent after delivery (Brockington, Macdonald, & Wainscott, 2006). Prenatal anxiety disorders are significant risk factors for the development of postpartum depression (Rambelli et al. 2010; Sutter-Dallay, Giaconne-Marcasche, Glatigny-Dallay, & Verdoux, 2004). The effects of perinatal anxiety can be as equally damaging as the effects of perinatal depression. Women who experience perinatal anxiety face tangible losses in work productivity and health-related quality of life (Bauer, Knapp, & Parsonage, 2016). Additionally, perinatal anxiety has been positively related to infant cognitive, behavioral, and emotional regulation problems (Van den Bergh

Mulder, Mennes, & Glover, 2005) and impaired mother-baby bonding (Abramowitz et al., 2010). For many women, the onset of anxiety disorders often occurs in their early twenties, a time when women are of reproductive age and potentially considering children (Kessler, McGonagle, Swartz, Blazer, & Nelson, 1993; Wenzel, Haugen, Jackson, & Brendle, 2005). Yet, while it is recognized that perinatal anxiety may be prevalent and connected to negative outcomes, few empirical studies have examined perinatal anxiety. To date, there has been only one study that has attempted to examine all of the anxiety disorders included in the Diagnostic and Statistical Manual, 5th Edition (*DSM-5*; American Psychiatric Association [APA], 2013; Fairbrother, Young, Janssen, Antony, & Tucker, 2015).

Perinatal anxiety has traditionally been studied as a facet of perinatal depression, even when evidence suggests separate anxiety and depression factors (Cunningham, Brown, & Page, 2014). A separate, diagnostically-sound assessment of all anxiety disorder symptoms in the perinatal period is needed to fully understand how perinatal anxiety manifests itself in this time period. Further, an examination of the structure of perinatal anxiety symptoms, including the relationship to mood disorder symptoms, would allow researchers to determine if perinatal anxiety and depression differs from current models of psychopathology in other life periods.

In addition to understanding the structure of perinatal anxiety symptoms, it is important to understand who is the most at risk. There have been limited empirical studies on antenatal risk factors and no studies on postpartum risk factors for the development/exacerbation of perinatal anxiety disorder symptoms. Understanding risk factors that predispose women to perinatal anxiety may help identify those who are at higher risk (Bloch, Rotenberg, Koren, & Klein, 2005). Identifying specific risk factors can lead to better clinical care by first informing researchers and clinicians about which risk factors they should be paying attention. There is a

growing literature demonstrating the negative effects associated with perinatal anxiety; examining factors that may directly affect clinical care in perinatal women is essential to the health of the mother and infant (Marcus, Flynn, Blow, & Barry, 2003).

Obsessive-Compulsive Disorder (OCD) is one of the more studied perinatal anxiety disorders (Goodman, Chenausky, & Freeman, 2014a). While OCD has been classified and researched as an anxiety disorder for several decades, OCD is now currently classified with the Obsessive-Compulsive Spectrum (OCS) disorders in the *DSM-5* (APA, 2013). While the diagnostic classification may have changed, it remains important to consider OCD in the study of perinatal anxiety. There appears to be a particular vulnerability to experience or develop OCD symptoms during the postpartum period (Russell, Fawcett, & Mazmanian, 2013). Moreover, there is sizable comorbidity between OCD and other anxiety disorders (70%), as well as mood disorders (61%) (Torres et al., 2016). Finally, OCD symptoms load on some of the same factors as mood and anxiety symptoms in structural analyses (Kotov, Perlman, Gámez, & Watson, 2015). However, other disorders within the Obsessive-Compulsive Spectrum (e.g., Body Dysmorphic Disorder or Hoarding Disorder) have not been studied in a perinatal-specific context before. Disorders are arranged in the *DSM* taxonomy based on shared phenomenological features (APA, 1994) and possible shared etiology (Phillips et al., 2010). If there are etiological and phenomenological similarities between OCD and other OCS disorders, the perinatal period may *also* be a vulnerable time for the development or exacerbation of symptoms. An examination of OCD and related OCS disorders could add substantially to the collective knowledge of all emotional disorders that occur in the perinatal period (APA, 2013).

This study aimed to supplement the perinatal literature by assessing women during the third trimester of pregnancy and again during the second month postpartum. This study

examined symptoms of anxiety and mood disorders to better understand their structure in the perinatal period. Confirmatory factor analysis was used to examine the structure of anxiety and mood using an existing supported structure of emotional disorders in broader populations (Kotov et al., 2015; Watson, 2005). This study also aimed to examine risk factors that may contribute to these anxiety symptoms. A mediation model was tested to determine the associations between established risk factors (i.e., sociodemographic, obstetric, and psychological factors) and anxiety disorder symptoms and to determine whether specific psychological mechanisms mediate the association between established risk factors and anxiety disorder symptoms. The model also included depressive symptoms as covariates because there is a high level of comorbidity between depression and anxiety, making it important to evaluate the model's ability to specifically predict anxiety compared to mood disorders. Lastly, the study examined the prevalence of OCD and related OCS disorders as well as the relation between OCS disorder symptoms to postpartum adjustment. Examination of all of these different domains (structure of anxiety, risk factors, and OCS disorder symptoms) allowed for a comprehensive examination of emotional disorders in a community sample of pregnant and postpartum women.

Perinatal Anxiety Disorders

Prevalence

Anxiety disorders in the DSM-5 include panic disorder (PD), agoraphobia (AG), social anxiety (SA), generalized anxiety disorder (GAD), and specific phobia (SP) (APA, 2013). There have been limited studies that have utilized diagnostic interviewing and representative samples when examining perinatal anxiety. The studies that have utilized these gold standard assessment methods have found the prevalence of anxiety disorders during pregnancy to be 13-21%, with the postpartum prevalence ranging from 11-17% (Giardinelli et al., 2012; Grant,

Moore, Shepard, & Kaplan, 2003; Reck et al., 2008; Wenzel, Haugen, Jackson, & Brendle, 2005). However, none of the published studies have examined all anxiety disorders. The available literature that has examined the prevalence of specific disorders during pregnancy suggest that prevalence is approximately 0.2% - 5.7% for panic disorder; 0.9% - 2.9% for agoraphobia; 0.4% - 6.4% for social anxiety; 0.4% - 10.5% for generalized anxiety disorder; and 3.6% -19.9% for specific phobias (Andersson et al., 2003; Fadzil et al., 2013; Farias et al., 2013; Felice, Saliba, Grech, Cox, & Calleja, 2007; Giardinelli et al., 2012; Zar, Wijma, & Wijma, 2002). The prevalence of childbirth-related phobias, separate from a posttraumatic stress disorder (PTSD) diagnosis, has been estimated at 1.5% (Zar, Wijma, & Wijma, 2002).

In regard to disorder-specific anxiety in the postpartum, the prevalence is estimated to be 1.4 -1.8% for panic disorder and agoraphobia; 8.1% for specific phobias and social anxiety; and 4.4 - 8.2% for generalized anxiety disorder (Reck et al., 2008; Ross & McLean, 2006; Wenzel, Haugen, Jackson, & Robinson, 2003; Wenzel, Haugen, Jackson, & Brendle, 2005). These prevalence estimates of perinatal anxiety disorders are generally comparable or higher than the base rate estimates in other community samples of these disorders (Hoge, Oppenheimer, & Simon, 2004; Fredrikson, Annas, Fischer, & Wik, 1996; Katerndahl, & Realini, 1993; Lépine & Lellouch, 1995). It is important to note that these prevalence rates are for *diagnosable* disorders in the perinatal period. When examining anxiety *symptoms*, the rates increase dramatically. In a large longitudinal study of over 8,000 perinatal women, Heron et al. (2004) found 14.6-15.6% of pregnant women endorsed clinical levels of anxiety in the first and third trimester, respectively. Additionally, a more recent meta-analysis found the prevalence of self-reported anxiety symptoms to be approximately 18.2% to 24.6% across pregnancy and 15% across the postpartum was 15% (Dennis, Falah-Hassani, & Shiri, 2017a). These findings suggest anxiety symptoms are

common in the perinatal period yet more specific information on the phenomenology of perinatal symptoms is needed.

Comorbidity with Depression

The perinatal period provides a unique life stress over which the course of psychiatric disorders can be observed (Prenoveau et al., 2013). The perinatal period also appears to be a time of increased risk for the onset of new psychiatric symptoms (Rambelli et al., 2010). As is common in other lifespan periods, anxiety and depressive disorders during the perinatal period are commonly comorbid; approximately 4 - 50% of individuals report both types of disorders, depending on the sample (Borri et al., 2008; Grigoriadis et al., 2011; Le Strat, Dubertret, & Le Foll, 2011; Wenzel, Haugen, Jackson, & Brendle, 2005). Comorbid depressive symptoms can worsen anxiety symptoms in the perinatal period. Women with comorbid panic disorder and major or minor depressive disorder experience panic symptoms earlier in pregnancy compared to women who only endorse panic symptoms (Marchesi et al., 2014). Conversely, antenatal anxiety is one of the strongest risk factors for postpartum depression, even when controlling for antenatal depression (Austin, Tully, & Parker, 2007; Coelho, Murray, Royal-Lawson, & Cooper, 2011; Sutter-Dallay, Giaccone-Marcasche, Glatigny-Dallay, & Verdoux, 2004). An understanding of rates of perinatal anxiety prevalence, onset, and comorbidity with depression is important but an evaluation of the structure of symptoms would allow for a deeper understanding of anxiety in the perinatal period.

Structure of Anxiety and Mood Disorders

To understand the structure of anxiety disorders, one must also consider mood disorders. Attempting to understand the structure of anxiety and mood disorders is not a new endeavor (Clark, 1989). Depression and anxiety have been conceptualized as different ends of a spectrum

as well as completely separate phenomena, and everything in between (Clark & Watson, 1991). Studies of the structure of emotional disorders have consistently found two broad factors, *internalizing* and *externalizing* that encompass a range of transdiagnostic, interconnected symptoms and behaviors (Eaton, South, & Krueger, 2010). For example, a unidimensional model (the *internalizing spectrum*; Krueger, 1999) conceptualized mood and anxiety disorders as a continuum to best account for the high rates of comorbidity among the disorders (Krueger & Markon, 2006). Unidimensional models of for internalizing as well as externalizing symptoms have been replicated in various samples (Eaton et al., 2012; Krueger, Chentsova-Dutton, Markon, Goldberg, & Ormel, 2003).

While models of psychopathology utilizing a unitary factor are important to consider, more comprehensive models containing lower-order sub-factors have also been postulated (Kim, & Eaton, 2015; Slade & Watson, 2006). One particularly relevant model is the *tripartite model* of anxiety and mood disorders. The tripartite model of anxiety and depression suggests that three components, 1) high negative affect (NA), 2) low positive affect (PA), and 3) physiological hyperarousal (PH), best account for the manifestation of mood and anxiety symptoms. Anxiety and depression share a general distress component (negative affect, sometimes conceptualized as neuroticism) while physiological tension/hyperarousal best characterizes anxiety disorders and positive affect, specifically low positive affectivity, embodies mood disorders (Clark & Watson, 1991; Clark, Watson, & Mineka, 1994). Thus, there is not one underlying distress factor but rather three distinct components that best describe the classification of anxious and mood disorders.

The tripartite model has found empirical support in samples of adolescents, adults, students, and patients (Joiner, Catanzaro, & Laurent, 1996; Watson et al., 1995). Yet, since the

creation of the tripartite model, clinical research has questioned the number of factors and designation of the factors as specifically negative affect, positive affect, and physiological hyperarousal (Anderson & Hope, 2008). One particular line of research suggests the emergence of a *fear* factor, rather than physiological hyperarousal, as a pivotal factor in the structure of anxiety and depression (Chorpita, Albano & Barlow, 1998). Chorpita et al. (1998) suggested that anxiety as a whole may be better incorporated into the negative factor while the physiological hyperarousal factor may actually be a manifestation of the fear emotion and panic symptomatology. The authors further suggested that there needs to be a clearer understanding of the three components of the model (NA, PA, & PH) and their association with specific diagnoses. In accordance with Chorpita et al., Watson, Gamez and Simms (2005) noted that there is substantial heterogeneity among anxiety disorders and the tripartite theory seems best able to explain unspecified anxiety symptoms rather than symptomatology of specific anxiety disorders.

Research has attempted to clarify which specific disorder corresponds best with which specific higher order factor. Brown, Chorpita, and Barlow (1998) found the higher-order factor of negative affect to influence all diagnoses. Interestingly, Brown et al. (1998) found the positive affect factor most influenced depression and social anxiety while physiological hyperarousal was positively related to panic disorder and agoraphobia but inversely related to generalized anxiety disorder. Mineka et al. (1998) also suggested that physiological hyperarousal may be more characteristic of panic disorder and that the unique components of each anxiety disorder should be better clarified.

Building on this need to account for heterogeneity within anxiety disorders as well as better determine the hierarchy of factors, Watson (2005) proposed an alternative structure to anxiety and depression. Watson integrated information from existing models (including the *two-*

factor affective model, tripartite model, and integrative hierarchical model), as well as a plethora of genetic, phenotypic, and structural data available to better conceptualize the structure of emotional disorders than the taxonomy proposed by the *DSM-IV*. This conceptualization, known as the *quantitative hierarchical model*, included a general higher order factor of ‘emotional disorders’ that includes both mood and anxiety disorders. Specific mood and anxiety disorders were represented among three lower-order factors, depending on their factor loading. The three lower-order factors included: ‘Bipolar Disorders’, which included bipolar disorder (I & II) and cyclothymia; ‘Distress Disorders’, which included major depressive disorder, dysthymic disorder, generalized anxiety disorder, and posttraumatic stress disorder; and ‘Fear Disorders’, which included panic disorder, agoraphobia, social phobia, and specific phobia. Strongly correlated mood and anxiety disorders loaded onto the same factor with more weakly related disorders separated. This model found strong empirical support although one limitation was that obsessive-compulsive disorder was not able to be placed in the model. Watson suggested it may be particularly important to assess and model OCD symptom dimensions in future structural investigations.

Recently, Kotov, Perlman, Gámez, and Watson (2015) tested a variation of the quantitative hierarchical model (a) to better understand the lower-order factors, (b) to attempt to place obsessive-compulsive disorder within the model, and (c) to utilize a dimensional psychopathology assessment measure, the Inventory of Mood and Anxiety Symptoms (IMAS). The authors found success in replicating the three-factor structure of internalizing psychopathology (Distress, Fear, and Bipolar factors). Additionally, obsessive-compulsive disorder was categorized within the model, loading on the Fear *and* Bipolar factors; this was the only diagnosis to load nearly equally well onto more than one factor (see Figure 1). Kotov et al.

assessed this model longitudinally in both a sample of students and a sample of psychiatric outpatients; the model remained stable over time and across populations. This is a psychometrically and theoretically sound model of psychopathology that may fit a range of populations but more research is needed.

The structure of anxiety specifically in the perinatal period has been limited to measurement evaluation (Levin, 1991) or grouped in with measurements that are primarily assessing postpartum depression, such as the well-known Edinburgh Postnatal Depression Scale (EPDS; Hartley et al., 2014; King, 2012). In studies that examined the structure of the EPDS, factor analysis has yielded a depression factor and an anxiety factor (Swalm, Brooks, Doherty, Nathan, & Jacques, 2010). However, questions assessed general state anxiety, (e.g., “I have been anxious or worried for no good reason”) rather than symptoms specific to different anxiety disorders. Only one study exists that assessed anxiety and depression disorder symptoms in a perinatal sample; yet they utilized a sample of postpartum inpatients, a unique population (Cunningham, Brown, & Page, 2016). Cunningham et al. found that a factor-analytically derived, three-factor model consistent with the tripartite model (NA, PA, & PH factors) provided a better fit to their data than a one-factor general distress model. However, inconsistent with the model and previous research, neither depression nor anxiety was related to high negative affect (Brown, Chorpita, & Barlow, 1998; Brown & McNiff, 2009; Chorpita, Albano, & Barlow, 1998).

Important first steps in examining the structure of perinatal anxiety and depression have been taken by Cunningham et al. (2016). Although understanding the structure of perinatal psychopathology in a perinatal inpatient population is important, examination of the structure of perinatal anxiety and depression in more representative samples of pregnant and postpartum women is needed. A more diagnostically-informed, comprehensive model needs be tested in a

community sample of women. The three-factor model tested by Kotov et al. (2015) was utilized to explore the structure of perinatal anxiety and mood disorders in a community sample of postpartum women.

Risk Factors of Perinatal Anxiety

In addition to understanding the structure of perinatal mood and anxiety, it is important to know who may be at particular risk for these symptoms and/or disorders. There is limited information available on risk factors in the perinatal period. A recent review by Goodman, Chenausky, and Freeman (2014a) examined all known prenatal risk factors. Across studies, lower educational level, serious medical conditions (including hypertension and diabetes mellitus), and a personal history of psychiatric illness were found to be risk factors for antenatal anxiety (Adewuya, Ola, Aloba, & Mapayi, 2006; Borri et al., 2008; Fadzil, Saliba, Grech, Cox, & Calleja, 2013; Felice et al., 2007). There were conflicting findings for socioeconomic status (SES), age, marital status, and primiparity as significant risk factors for perinatal anxiety.

There have been even fewer studies conducted on risk factors for postpartum anxiety disorders. The majority of research centered on postpartum risk factors has only examined state and trait anxiety, not specific anxiety disorder symptoms (Alibekova, Huang, Lee, Au, & Chen, 2016; Britton, 2008; Figueiredo & Conde, 2011). However, one specific risk factor for postpartum anxiety that has been examined is antenatal anxiety. An antenatal anxiety diagnosis is associated with a five-fold increased likelihood of a postpartum anxiety diagnosis in the first seven months postpartum (Grant, McMahon, & Austin, 2008). Yet, there is a lack of literature centered on risk factors for perinatal anxiety disorder *symptoms*, which may be even more important to understand when examining community samples. A dimensional approach to

conceptualizing and assessing psychopathology can be beneficial for many reasons, one of which is that it allows for the identification of risk factors for a broad range of anxiety disorders.

The literature has been fairly limited in examining cognitive and psychological mechanisms of perinatal anxiety (Gourounti, Anagnostopoulos, & Lykeridou, 2013). One potentially productive way to better understand risk factors for perinatal anxiety is to examine risk factors in the broader anxiety literature. One construct that has emerged as important to the development of psychopathology is *experiential avoidance* (Hayes et al., 2004). Experiential avoidance occurs when an individual is unwilling to remain in contact with his or her internal mental imagery and actively attempts to avoid the thoughts, memories, and or feelings and the stimuli that elicit them (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). Experiential avoidance has been strongly correlated with anxiety in multiple clinical and non-clinical samples (Forsyth, Parker, & Finlay, 2003; Roemer, Salters, Raffa, & Orsillo, 2005). Experiential avoidance amplifies anxiety symptoms for individuals with pre-existing anxiety symptoms (Kashdan et al., 2014; Roemer, Orsillo, & Salters-Pedneault, 2008; Venta, Sharp, & Hart, 2012;) and can even elicit anxiety symptoms in healthy individuals (Feldner, Zvolensky, Eifert, & Spira, 2003; Karekla, Forsyth, & Kelly, 2004). Experiential avoidance appears to represent an important psychological variable explaining the development or exacerbation of internalizing symptoms across a multitude of contexts (Eisma et al., 2013; Glick & Orsillo, 2011; Kashdan et al., 2006, 2009; Santanello & Gardner, 2007; Tull & Gratz, 2008). It would be useful to examine experiential avoidance in the perinatal period, particularly to determine if experiential avoidance explains why other psychosocial risk factors have been associated with perinatal anxiety symptoms.

Other cognitive and psychological mechanisms have been proposed to account for the dispositional vulnerability of an individual to experience anxiety symptoms. *Anxiety sensitivity*, the fear of bodily sensations due to beliefs about negative consequences (Reiss & McNally, 1985), has often been studied in relation to anxiety symptomatology (Esteve, Ramírez-Maestre, & López-Martínez, 2012). Recently, Bardeen, Fergus, and Orcutt (2013) studied anxiety sensitivity, experiential avoidance, and perceived stress in a group of healthy individuals. Experiential avoidance moderated the association between anxiety sensitivity and perceived stress, leading the authors to suggest anxiety sensitivity may only be a vulnerability factor for the development of anxiety among individuals endorsing higher levels of experiential avoidance. Further, experiential avoidance has been found to mediate the relationship between anxiety symptoms and anxiety sensitivity in other community samples (Zvolensky & Forsyth, 2002) and samples of individuals exposed to trauma (Tull, Gratz, Salters, & Roemer, 2004).

When anxiety sensitivity was examined in perinatal women specifically, higher anxiety sensitivity has been associated with elevated depressed mood during pregnancy (Verreault et al., 2014). Anxiety sensitivity has also been examined in relation to perinatal PTSD and fear of childbirth. Keogh, Ayers, and Francis (2002) found that higher levels of anxiety sensitivity during pregnancy was associated with PTSD symptoms following childbirth, even when controlling for psychological distress levels during pregnancy. Anxiety sensitivity may predispose women to developing PTSD in the postpartum period. Anxiety sensitivity, specifically the physical concerns dimensions, has been postulated as an important vulnerability factor for the fear of childbirth in pregnant women (Jokić-Begić, Žigić, & Nakić Radoš, 2014) and expectations of labor pain (Curzik & Jokic-Begic, 2011). Anxiety sensitivity appears to be

important in perinatal psychopathology yet how anxiety sensitivity affects anxiety symptoms or how it may interact with experiential avoidance is not yet understood.

Another psychological mechanism that is emerging in relation to perinatal psychopathology is coping strategies. Coping strategies refer to a person's cognitive and/or behavioral efforts to control, reduce, or endure internal and/or external sources of stress (Lazarus & Folkman, 1984). Gourounti et al. (2013) examined the association between coping strategies and perinatal anxiety and depressive symptoms. The authors found coping strategies centered on avoiding thinking or acting on the stressor, such as denial and behavioral disengagement, significantly predicted perinatal anxiety and depressive symptomatology.

The relation between maladaptive coping strategies and increased anxiety has been seen across several contexts, including among adult caregivers, burn patients, and inner-city youth exposed to violence (del-Pino-Casado, Pérez-Cruz, & Frías-Osuna, 2014; Fauerbach et al., 2009; Edlynn, Gaylord-Harden, Richards, & Miller, 2008). Examining if a relation exists between maladaptive coping skills and increased anxiety in the perinatal period may be particularly useful. The perinatal period can be a stressful time and coping skills are conceptualized as helping an individual handle internal and/or external stress. Maladaptive coping skills may act as a risk factor in understanding psychological status of pregnant and postpartum women. Examining coping skills in relation to experiential avoidance may help further elucidate the relation between all the psychological mechanisms that are important in the perinatal period.

One last psychological variable to consider is negative maternal attitudes. Negative maternal attitudes during pregnancy have a history of being conceptualized as a precursor to postpartum difficulties (Kumar, Robson, & Smith, 1984). Negative attitudes related to motherhood have been found to be highly associated with depressive symptoms (Warner,

Appleby, Whitton, & Faragher, 1997) and to predict depressive and anxiety symptoms, even when controlling for interpersonal risk factors (Sockol, Epperson, & Barber, 2014). However, an assessment of negative attitudes toward motherhood while separating out depressive and anxiety symptoms has not yet been conducted. It could be beneficial to explore negative attitudes toward motherhood in the context of perinatal anxiety in addition to exploring the relationship to experiential avoidance.

There is a significant gap in the literature surrounding perinatal risk factors for anxiety. A major goal of this study was to replicate the findings that lower educational level, serious medical conditions, a personal history of psychiatric illness, maladaptive coping mechanisms, and dysfunctional maternal attitudes contribute as risk factors for antenatal anxiety. Additionally, this study examined socioeconomic status, age, marital status, primiparity, and anxiety sensitivity for the first time to determine more definitively if they should also be conceptualized as perinatal risk factors. Most importantly, experiential avoidance was examined as a potential mediator between anxiety symptoms and all risk factors, based on the significant literature highlighting its role in anxiety symptomatology.

Perinatal Obsessive-Compulsive Symptoms

Prevalence

One of the most vulnerable times for an individual to experience obsessive-compulsive (OC) symptoms is the perinatal period (Munk-Olsen et al., 2006). A recent meta-analysis found pregnant and postpartum women to be approximately 1.5-2 times more likely to experience OC symptoms than other populations of men and women (Russell, Fawcett, & Mazmanian, 2013). The most recent estimates of perinatal OC symptom onset is for about 2% of women in

community samples and 10% of women in clinical samples (Kitamura et al., 2006; Labad et al., 2010).

Approximately 8-33% of women with pre-existing obsessive-compulsive disorder experience exacerbation of symptoms during pregnancy and 29-50% of women report worsening in the postpartum period (Labad et al., 2005; Williams & Koran, 1997; Vulink, Denys, Bus, & Westenberg, 2006). For the perinatal period as a whole, up to 73% of individuals with an OCD diagnosis reported worsening of their symptoms at some point (Epperson et al., 1995). Further, the severity of OC symptoms has been found to increase significantly from pregnancy to the postpartum (Chaudron & Nirodi, 2010).

The Obsessive-Compulsive Spectrum

As described above, in the DSM-5 OCD is not grouped with the anxiety disorders but rather grouped with the Obsessive-Compulsive Spectrum disorders (APA, 2013). The disorders that are currently classified as OCS disorders include: body dysmorphic disorder (BDD), hoarding disorder (HD), trichotillomania (hair-pulling disorder) (TTM), excoriation (skin-picking) disorder (ED), and OCD (APA, 2013). There have been only two empirical studies conducted on the OCS disorders during the perinatal period (Lochner et al., 2005; Keuthen et al., 1997). When examining perinatal trichotillomania, Lochner et al. found approximately 7.7% of participants reported onset while pregnant or within one month postpartum, while Keuthen et al. (1997) found both exacerbation and lessening of trichotillomania symptoms during pregnancy. There is no empirical literature on hoarding disorder, body dysmorphic disorder, or excoriation nor is there any information on trichotillomania in the postpartum. While there have been some significant gains in understanding perinatal OCD, there is a significant lack of literature exploring the other disorders in the Obsessive-Compulsive Spectrum (OCS) in the perinatal

period. Disorders are arranged in the *DSM* taxonomy based on shared phenomenological features (APA, 1994) and possible shared etiology (Phillips et al., 2010). If there are etiological and phenomenological similarities between OCD and other OCS disorders, the perinatal period may *also* be a vulnerable time for the development or exacerbation of symptoms.

An examination of OCD, and related OCS disorders, could add substantially to the collective knowledge of all emotional disorders that occur in the perinatal period (APA, 2013). The perinatal period may represent a period for vulnerability to experience these disorders. Understanding their role could add incremental value to our understanding of emotional disorders in the postpartum period. OC symptomatology is common in the general population but there is a lower prevalence rate for individuals meeting full-criteria, which often leads to exclusion from structural analyses (Vollebergh et al., 2001). Given how common OCD symptoms are during the perinatal period, it is worthwhile to determine if this is a vulnerable time for the development of other OCS disorder symptoms. The base rate of women meeting diagnostic criteria for an OCS disorder is expected to be low but subthreshold symptoms may not be as low. Additionally, Watson (2005) was not able to find a good fit for OCD in his quantitative hierarchical model and Kotov et al. (2015) found OCD to load onto multiple lower-order factors (Bipolar and Fear) in their three-factor model. Examining OCS symptoms along with OCD may allow for a clearer picture to form of where OCD belongs in the realm of perinatal mood and anxiety disorders.

Limitations of the Existing Literature

Childbirth is related to a higher prevalence of anxiety disorders than would be expected based on life period alone (Sholomskas et al., 1993). Anxiety symptoms are prone to reoccur in other life periods (Scholten et al., 2013) and the perinatal period appears to represent a specific

period of vulnerability (Wenzel, Haugen, Jackson, & Brendle, 2005). A review of the perinatal research suggests that postpartum anxiety is common yet the existing perinatal anxiety literature is lacking in depth and prospective, methodologically rigorous studies (Wenzel et al., 2005).

There are relatively few studies on perinatal anxiety and for the studies that do exist, many have problematic methodologies. Studies often employ only self-report measures instead of utilizing clinician-administered measures (Czarnocka & Slade, 2000). Case studies or retrospective chart reviews are often used as a substitute for prospective, longitudinal studies (Metz, Sichel, & Goff, 1988; Røseth, Bongaardt, & Binder, 2011) and studies often have small sample sizes (Wenzel et al., 2003). There is limited information on community samples as studies often take place in psychiatric hospital or outpatient settings where individuals are being treated for anxiety (Cunningham, Brown, & Page, 2016; Sichel et al., 1993).

A second limitation is that much of the perinatal literature has focused simply on anxiety symptoms or state/trait anxiety. It is important to examine anxiety symptoms using structured clinical interviews in order to examine sub-threshold levels of symptoms in addition to levels of symptoms that meet diagnostic criteria for anxiety disorders. By capturing subthreshold anxiety symptoms, structural analysis of anxiety symptoms can then be used to show a more complete picture of how anxiety may present in a community sample. Equally important, structured clinical interviews allow for the assessment of past and current anxiety symptoms that meet criteria for an anxiety disorder, which allows for the capture of pathology at the more severe end of the anxiety spectrum (Goodman, Chenausky, & Freeman, 2014a). Because of low base rates of anxiety disorders in community samples, studying women who display symptoms that meet full diagnostic criteria as well as subthreshold levels of symptoms more readily allows for the capture of the full range of psychopathology experienced by a community sample of postpartum women

(Abramowitz, Schwartz, Moore, & Luenzmann, 2003). Lastly, prospective studies on OCD are very limited, especially in pregnancy (Forray, Focseneanu, Pittman, McDougle, & Epperson, 2010; Uguz, Akman, Kaya, & Cilli, 2007). Examination of OCS disorders in the perinatal period is nonexistent. Understanding OCD and related OCS disorders, along with mood and anxiety disorders, could help to form a better picture of perinatal psychopathology.

The limitations in the current literature create a need for an exploration of the factor structure of perinatal anxiety, an evaluation of multivariate models of the associations between specific risk factors and perinatal outcomes, and an understanding of OCS disorders in a perinatal population. By following a sizeable sample of women prospectively from pregnancy through the postpartum period, this study allowed for a deeper understanding of the structure of perinatal anxiety, a clear assessment of perinatal risk factors and mediating factors, and an examination of the prevalence of perinatal OCS disorder symptoms.

Specific Aims of the Current Study

Specific Aim #1: To examine, through confirmatory factor analysis, the structure of perinatal mood and anxiety disorders utilizing the three-factor model as proposed by Kotov et al. (2015). The quantitative hierarchical model proposed by Kotov et al. (2015) specifies three latent factors: Distress (to which depression, generalized anxiety, posttraumatic stress, irritability, and panic symptoms load), Fear (to which social anxiety, agoraphobia, specific phobia, and obsessive-compulsive symptoms load), and Bipolar (to which mania and obsessive-compulsive symptoms load) (Figure 1). It was hypothesized that the structure of mood and anxiety in the perinatal period would replicate the structure of the three-factor model in both pregnancy and the postpartum. Because certain somatic symptoms of internalizing psychopathology may be more prevalent during pregnancy (e.g., more fatigue, sleep and appetite

changes; Striegel-Moore, Goldman, Garvin, & Rodin, 1996), it is important to examine the structure of anxiety in both time periods. Measures of absolute fit and strength of factor loadings (AIC, BIC, CFI/TLI, χ^2 , RMSEA, SRMR, similar to the fit indices reported in the Kotov et al., 2015; see *Data Analyses*) were used to determine model fit.

Specific Aim #2: Examine the strength of the association between perinatal anxiety risk factors and perinatal anxiety symptoms, while assessing the mediating effect of experiential avoidance. Across studies, several groups of variables have been found to be potential risk factors for perinatal anxiety: sociodemographic (age, marital status, education, and income level), obstetric/medical (pregnancy complications, history of illness, & primiparity), and psychological (past psychiatric diagnosis, anxiety sensitivity, coping strategies, and maternal attitudes). This study aimed to determine the validity and magnitude of these variables as risk factors for perinatal anxiety. Structural equation modeling (SEM) was used to test the magnitude of the relation between perinatal anxiety risk factors and anxiety symptoms during pregnancy and during the postpartum. The SEM model examining obstetric/medical risk factors was conducted only in the postpartum as those variables could not be measured until the postpartum period. It was expected that the magnitude of the effect exerted by psychological risk factors on psychiatric symptoms may change from pregnancy to the postpartum but that the effect of sociodemographic risk factors would remain constant from pregnancy to the postpartum.

Experiential avoidance was expected to exert a particularly potent effect on the relation between risk factors and perinatal anxiety symptoms. All SEM models were conducted as mediation models in order to evaluate whether experiential avoidance affected the strength of the relations between sociodemographic, obstetric/medical, and psychological variables and perinatal anxiety. It was hypothesized that higher levels of experiential avoidance account for the

relation between all predisposing risk factors and anxiety symptoms in both pregnancy and the postpartum period.

Specific Aim #3: To assess symptoms of all OCS disorders in pregnant and postpartum women and determine if OCS symptoms predict postpartum adjustment outcomes. I aimed to assess the prevalence of the four OCS disorders (hoarding disorder, body dysmorphic disorder, trichotillomania, and excoriation disorder) during pregnancy and the postpartum based on the number of women who meet threshold criteria for clinical relevance (see *Measures*). Additionally, I aimed to specify the incidence of clinically significant symptoms in the postpartum for participants that were *not* endorsing clinically significant symptoms in pregnancy in order to determine vulnerable periods for the development of psychopathology.

In addition to determining prevalence of OCS symptoms, hierarchical multiple regression modeling was used to determine if OCS symptoms predict postpartum adjustment outcomes. It was hypothesized that elevated scores on any of the four OCS symptom measures predict more negative postpartum functioning across domains. The IMAS Depression and OCD subscales were included in analyses as covariates to determine if OCS symptoms have a unique effect on perinatal functioning over and above existing depression and anxiety.

CHAPTER TWO: METHOD

Procedure & Materials

Recruitment

The University of Iowa Institutional Review board approved all study procedures. Recruitment letters were sent to pregnant women identified by the Institute for Clinical and Translational Science. Participants were also recruited through mass emails sent to all individuals with a University of Iowa email address. The Institute for Clinical and Translational Science¹ provided contact information for all University of Iowa Hospitals and Clinics (UIHC) patients over the age of 18 that received prenatal care based on information from electronic medical records. Recruitment packets with an information letter and a consent letter were sent to the identified pregnant women beginning at 26 weeks gestation. Women who were not interested in participating in the study were encouraged to call to decline participation. Women who did not call to decline participation five days after the initial letter was sent were contacted via telephone to inquire as to whether they were interested in participating in the study. During this phone call, women were given more detailed information about the study and eligibility requirements (over the age of 18; between 28-32 weeks gestational age; able to read and speak English; living with the baby after delivery) were confirmed. Women who were interested in participation gave verbal consent; a waiver of documentation of consent was obtained to increase confidentiality. Women who received the mass emails but not the recruitment packets were sent a copy of the consent letter for their records if interested.

Study Assessments

Participants completed two online assessments and two clinical interviews, completing one of each during their third trimester and again at 6-8 weeks postpartum. Participants were

scheduled for their pregnancy interview after consenting to participate in the study and sent the online questionnaire when they were at least 28 weeks pregnant. Online questionnaire data were collected and managed using REDCap (Research Electronic Data Capture), a secure, web-based application for data capture hosted at the University of Iowa.

Participants' expected delivery dates were recorded during the initial consent phone call and they were subsequently contacted within 7 days of the date to set up the postpartum interview. Participants were asked to confirm their delivery date and schedule the second postpartum interview. The second online questionnaire was sent once the participant reached 6 weeks postpartum. Participants were compensated \$7.50 for completing either the clinical interview or the questionnaire, \$15 for each time point they completed a full assessment (clinical interview and questionnaire), and \$30 for completing the entire study (see Table 1 for a complete listing of study time points and assessments).

Pregnancy interviews were typically 30–60 minutes while postpartum interviews were typically 20–45 minutes in duration. The IMAS was administered by 11 interviewers, all graduate students or individuals in post-baccalaureate or post-doctoral positions. Every interviewer was trained in establishing rapport, distinguishing between clinically significant and normative responses, especially for the perinatal period, probing techniques, and the specific content of each module. Supervision was provided throughout the project and any ambiguous responses were discussed with the principal investigator. Interviews were recorded, and 10% of each interviewers' recordings for pregnancy interviews and postpartum interviews were rescored by an independent rater to provide reliability statistics.

Measures

All measures are included in Appendix C.

Acceptance and Action Questionnaire (AAQ-II; Bond et al., 2011). This is a seven-item self-report measure designed to assess experiential avoidance. One total score was used from this measure to assess experiential avoidance. Higher scores reflect higher levels of psychological inflexibility; scores that range from 24-28 indicate a clinically significant level of intolerance of distress. The AAQ-II has good short-term (3-month) and long-term (12-month) test-retest reliability (.81 and .79, respectively) as well as good internal consistency (coefficient alphas (α) ranged from .78–.88; mean = .84) (Bond et al., 2011). Convergent validity was demonstrated in large, statistically significant correlations ($r = .59-.63$) with the White Bear Suppression Inventory (WBSI; Wegner & Zanakos, 1994), a thought suppression task indicative of experiential avoidance. Discriminant validity was demonstrated with small, non-significant correlations with a measure of social desirability, the Marlowe-Crowne Social Desirability scale (Crowne & Marlowe, 1960).

Anxiety Sensitivity Index (ASI; Reiss, Peterson, Gursky, & McNally, 1986). This is a 16-item self-report measure that utilizes a 5-point Likert scale to assess fear of anxiety-related sensations, in the three domains of physical, social, and mental concerns. Factorial validity was demonstrated by Reiss et al. (1986) who used principal component analysis to identify the structure and factors of the measure. A higher score indicates more fear of anxiety-like sensations. Studies indicate mean scores on the ASI are approximately 36 for panic disorder, 26 for generalized anxiety disorder, and 19 for individuals without anxiety disorders (Otto, Pollack, Fava, Uccello, & Rosenbaum, 1995; Peterson & Reiss, 1992). A total continuous score was utilized to assess anxiety sensitivity in this study (Blais et al., 2001).

Brief COPE Inventory (COPE; Carver, 1997). The brief COPE is a 28-item self-report measure that assesses fourteen different methods of coping within the last month, including:

active coping, planning, positive reframing, acceptance, humor, using emotional support, using instrumental support, denial, self-distraction, behavioral disengagement, self-blame, venting, religion, and substance use. Items are rated on a 4-point scale ranging from 0 (I don't do this at all) to 3 (I do this a lot), with subscales ranging from 0 to 6. Internal consistency has been found to be as high as 0.88 (Gourounti, Anagnostopoulos, & Lykeridou, 2013). This measure has been validated in a sample of breast cancer patients and a community sample affected by a natural disaster (a hurricane) (Carver, 1997). Carver (1997) demonstrated factorial validity of the COPE, reporting that the multiple scales demonstrated strong loadings in factor analyses, which accounted for the majority of the variance in responding in the hurricane sample. A continuous total negative coping score for the current study was composed of the maladaptive coping skills *denial, behavioral disengagement, self-blame, self-distraction, and substance use*, as determined by empirical studies examining coping mechanisms in perinatal samples (Gourounti et al., 2013).

Dysmorphic Concern Questionnaire (DCQ; Oosthuizen, Lambert, & Castle, 1998).

This is a seven-item self-report measure that assesses body dysmorphic disorder symptoms. This measure specifically assesses cognitive and behavioral symptoms of preoccupation with a physical feature, real or imagined (Mancuso, Knoesen, & Castle, 2010). Participants rate their concern about their physical appearance on a 4-point scale, ranging from 0 (not at all) to 3 (much more than most people). Internal consistencies for patient and undergraduate samples have been found to be acceptable ($\alpha = 0.73-.85$). It has been found to be useful as a brief, screening tool for BDD in non-psychiatric clinical settings with good sensitivity and specificity (Mancuso, Knoesen, Chamberlain, Cloninger, & Castle, 2009; Stangier, Janich, Adam-Schwebe, Berger, & Wolter, 2003). Face validity was established with robust correlations ($r = .55-.73$) among the DCQ and subscales indicating distress, and work and social impairment on the Work Home

Leisure Schedule (Marks, Hallam, & Philpott, 1977). Discriminant validity was demonstrated by an absence of significant correlations with psychotic symptoms on the Psychosis Screening Questionnaire (PSQ; Bebbington & Nayani, 1995). Discriminant validity was also demonstrated in a later study that showed compared to the undergraduates, the BDD patients reported significantly higher DCQ scores after controlling for the severity of social anxiety and depression. One total score was used from this measure and clinically significant scores were considered to be a score of 9 and above (Mancuso et al., 2010).

Interview for Mood and Anxiety Symptoms (IMAS; see Watson et al., 2007; Kotov et al., 2015). The IMAS is a semi-structured clinical interview used to dimensionally assess symptoms of mood and anxiety disorders that can also be used as a method of diagnosis. The measure was constructed to be given without using skip-out rules so every symptom could be assessed in every individual to whom it was administered. The IMAS has 214 items that made up the nine specific subscales that were utilized for this study: Depression, Panic, Social Phobia, Agoraphobia, Generalized Anxiety, Obsessive-Compulsive, Specific Phobia, Irritability, and Mania. Calculation of scales was done in accordance with Kotov et al. (2015) and the number of items per scale ranged from 6 to 28. Symptoms are rated on a three-point scale: absent (0), subthreshold (1), or above-threshold (2) to allow for a dimensional measure of psychopathology in a variety of populations. The items were derived from the diagnostic criteria that comprised the mood and anxiety disorder modules of the Composite International Diagnostic Interview (CIDI; Kessler & Ustun, 2004) and the DSM-IV (APA, 2004). Several studies have provided support for the reliability and validity of the IMAS (Watson et al., 2007, 2012; Ruggero et al., 2014; Kotov et al., 2015). This measure shows strong associations (convergent validity) with comparable subscales from the IDAS and good discriminant validity (Watson et al., 2007; 2012).

The measure has also demonstrated strong internal consistency with α ranging from .71 to .90 (mean = .79) in students and α ranged from .80 to .94 (mean = .87) in patients (Kotov et al., 2015). In this sample, the IMAS demonstrated moderate to strong internal consistency in pregnancy (α ranging from .69 to .93) and the postpartum (α ranging from .71 to .93). In terms of inter-rater reliability, interclass correlations were excellent ranging from .85 to .97 across pregnancy modules and from .89 to .99 in the postpartum.

Massachusetts General Hospital Hairpulling Scale (MGH-HPS; Keuthen et al., 1995).

This is a 7-item self-report instrument that assess trichotillomania symptoms. The MGH-HPS uses a 5-point Likert scale (ranging from 0 to 4) to assess frequency, intensity, and control of hair-pulling urges; frequency, resistance, and control of hair-pulling behaviors; and distress associated with hair pulling (Diefenbach, Tolin, Hannan, Crocetto, & Worhunsky, 2005). The measure has previously demonstrated high internal consistency ($\alpha = .89$) and test-retest reliability ($r = .97$; Keuthen et al., 1995; O'Sullivan et al., 1995). Convergent validity was demonstrated by a strong, significant correlation ($r = .63$) with a clinician-rated measure of hair-pulling severity, the Psychiatric Institute Trichotillomania scale (PITS; Winchel et al., 1992). Discriminant validity was demonstrated with nonsignificant correlations with the BDI ($r = .30$) and the BAI ($r = .10$). The total score from this measure was used to assess trichotillomania symptoms. In this sample, any score above 0 was considered clinically significant as available studies suggest the mean score of healthy controls on this measure is zero (Francazio & Flessner, 2015; Odlaug et al., 2014).

Maternal Adjustment and Maternal Attitudes Scale (MAMA; Kumar, Robson, & Smith, 1984). This self-report measure is utilized to assess maternal attitudes in the perinatal period. The measure is composed of a total of 60 items, however only a continuous 12-item

subscale that assesses maternal attitudes was administered during pregnancy and the postpartum and used for data analyses. Scores were coded (with some items recoded) so that higher scores indicated more negative maternal attitudes, such as worrying about not being a good mother, not feeling happy about being pregnant, and thinking life will be more difficult after delivery (Wan, Sharp, Howard, & Abel, 2011). The maternal attitude subscale has demonstrated good inter-rater reliability at $\kappa = .84$ (Kumar et al., 1984), regardless of advanced maternal age or parity (Windridge & Berryman, 1996).

Mini International Neuropsychiatric Interview (MINI: Sheehan et al., 1998). The MINI was used to assess past depression and anxiety disorder symptoms. The measure is a short structured clinical interview that explores seventeen disorders ranging across depressive disorders, anxiety disorders, substance use, and psychosis utilizing criteria for DSM-IV; a version using DSM-5 criteria was not available. For each disorder, screening questions allow for rule-outs to be used for when the questions are answered negatively. Convergent and discriminant validity were originally established by comparing the MINI to the Composite International Diagnostic Interview (CIDI) and the Structured Clinical Interview for DSM-III-R (SCID) in hundreds of patients and non-patients (Lecrubier et al., 1996). Sensitivity and specificity were reported to be good or very good for all diagnoses except for agoraphobia (sensitivity = 0.59).

The subscales used included: Major Depressive Episode, Dysthymia, Manic Episode, Hypomanic Episode, Panic Disorder with or without Agoraphobia, Social Phobia, Obsessive-Compulsive Disorder, and Generalized Anxiety Disorder. The number of disorders for which a participant met subthreshold criteria or full criteria for a diagnosis was used as a continuous scale for the variable of *past psychiatric history*. To qualify for a subthreshold diagnosis, a participant

had to have endorsed at least one symptom on a module but not enough symptoms to meet full diagnostic criteria. In the current study, interrater reliability was fair to excellent with Kappas ranging from .74 to 1.00 across modules.

Pregnancy Risk Assessment Monitoring System (PRAMS; Centers for Disease Control and Prevention, 2009). The PRAMS is administered during the first 12 months after delivery. Participants report on experiences and behaviors that occurred during their pregnancy and in the 12 months prior to pregnancy. The measure assesses a wide range of pregnancy related health issues. Dietz et al. (2014) assessed the validity of multiple maternal and infant health indicators at four months post-delivery. Sensitivity, specificity and positive predictive value (PPV) were calculated in two representative samples of mothers delivering live births and compared hospital records. Most PRAMS indicators had > 90 % specificity, including prior live birth and lifetime history of diabetes.

Items from the PRAMS utilized in this study included: parity, history of pregnancy complications, history of being checked for hypertension, history of being checked/treated for diabetes, education level, marital status, and income level. All items were categorical. To determine SES as a risk factor, education and income level were separately examined. Marital status was utilized as a dichotomous variable with individuals that were married, cohabitating, or engaged classified as *in a committed relationship* while individuals that were single, divorced, or widows were classified as *not in a committed relationship*; higher values reflect committed relationship status. Categories were combined because of the limited variability across categories, with the majority of participants reporting that they were married.

Postpartum Adjustment Questionnaire (PPAQ; O'Hara, Hoffman, Philipps, & Wright, 1992). This is a 61-item, self-report measure that assesses postpartum adjustment across seven

scales. This measure assesses postpartum women's role adjustment in several social roles, including family member, friend, mother, wife, housemaker and employee (outside the home). Face validity was demonstrated as the agreement on responses between the participant and her romantic partner was fairly strong for most PPAQ subscale scores ($r = .36-.58$). Convergent validation was demonstrated by significant, large correlations ($r = .52 - .74$) of the PPAQ with measures of similar constructs such as postpartum depressive symptoms (Beck Depression Inventory (BDI); O'Hara, Neunaber, & Zekoski, 1984), social adjustment (Social Adjustment Scale-Self-Report (SAS-SR); O'Hara, Rehm, & Campbell, 1982), marital adjustment (Dyadic Adjustment Scale (DAS); O'Hara, 1986), and infant temperament (Infant Characteristics Questionnaire (ICQ); Bates, Freeland, & Lounsbury, 1979). Higher scores indicate more difficulty adjusting to the postpartum. All domain scores and the total score was used to assess postpartum adjustment in hierarchical multiple regression models.

Skin Picking Scale (SPS; Keuthen et al., 2001). This is a six-item self-report measure that is used for the assessment of skin-picking (excoriation disorder) symptoms. This measure asks about various facets of excoriation (*how often feel urge to pick, how much time spent picking, etc.*) and asks respondents to use a five-point scale ranging from 0 (*none*) to 4 (*extreme*) scale. This measure has been tested in a sample of clinical and non-clinical skin-pickers with moderate internal reliability ($\alpha = .80$). Construct validity was demonstrated with significant correlations between the total score of the measure with different facets of skin-picking asked of a psychiatric sample, including tension before skin-picking ($r = .42$) and release of tension after skin-picking ($r = .38$). The total score from the measure was used to assess excoriation symptoms. Clinically significant scores were considered to be a score of 7 and above (Keuthen et al., 2001).

Saving Inventory-Revised (SI-R; Frost, Steketee, & Grisham, 2004). This is a 23-item self-report measure that assesses hoarding disorder symptoms. The measure is composed of three subscales (Discarding, Clutter, and Acquisition) that utilizes a Likert-type scale ranging from 0 to 4, with varying anchors. Higher scores indicate more hoarding disorder symptoms. The SI-R has shown discriminant validity in identifying hoarding specific symptoms compared to general depressive or other OCD symptoms when compared to another measure of hoarding-related beliefs and attitudes, the Saving Cognitions Inventory (SCI; Steketee, Frost, & Kyrios, 2003). Correlations between the SI-R and the SCI subscales were all statistically significant ($r = .38-.70$). The SI-R appears to be appropriate for assessing symptoms of compulsive hoarding in clinical and non-clinical samples. Internal consistency was found to be excellent ($\alpha = .92$). A total score and the three subscales, *discarding*, *clutter*, and *acquisition*, were utilized from this measure. Clinically significant hoarding symptoms in this study were scores that were at least one and one-half standard deviations above the mean community scores, scores of 42 and higher (Frost, Randy, Steketee, & Grisham, 2004).

Data Analyses

Data were analyzed using Mplus 7.4 (Muthen & Muthen, 2015) and SPSS (Version 21).

Analysis of Specific Aim #1

To evaluate the factor structure of perinatal anxiety and mood, I used confirmatory factor analysis (CFA) to analyze the IMAS data in pregnancy and the postpartum to determine fit relative to the model proposed by Kotov et al. (2015) (Figure 1). Composite scores of the IMAS subscales were computed from the nine depression and anxiety subscales (Depression, Panic, Social Phobia, Agoraphobia, Generalized Anxiety, Obsessive-Compulsive, Specific Phobia, Irritability, and Mania). Multiple indices of global model fit were assessed including: the chi-

square to degrees of freedom ratio (χ^2/df ; Wheaton, Muthen, Alwin, & Summers, 1977); the Bayesian Information Criterion (BIC; Schwarz, 1978); Akaike's information criteria (AIC; Bozdogan, 1987); the Comparative Fit Index (CFI: Bentler, 1990); the Tucker-Lewis Index (TLI; Tucker & Lewis, 1973); the Root mean Square Error of Approximation (RMSEA; Browne & Cudeck, 1993); and the Standard Root Mean Residual (SRMR; Hu & Bentler, 1999).

For acceptable model fit, the ratio of the chi-square to degrees of freedom should be less than 2 and smaller values of BIC and AIC indicate better model fit. The CFI and TLI indicator should be $\geq .95$ and the SRMR should be $\leq .08$ (Hu & Bentler, 1999). The closer the value of RMSEA is to zero, the better the fit indicated (Kline, 2011). All participants that completed the IMAS completed all the subscales, resulting in no missing data included in analyses. The magnitude and significance of standardized loadings onto latent factors were evaluated to determine adequate component fit. Factor loadings greater than .30 reflect that items are good indicators of the associated latent factor (Henson & Roberts, 2006).

Analysis of Specific Aim #2

Structural equation modeling (SEM) was used to test the magnitude of the relation between groups of perinatal anxiety risk factors and anxiety symptoms in both pregnancy and the postpartum. Risk factor groups included: sociodemographic (age, marital status, education, and income level), obstetric/medical (pregnancy complications, history of illness, & primiparity), and psychological (past psychiatric diagnosis, anxiety sensitivity, coping strategies, and maternal attitudes) variables. Because of the multitude of risk factors, separate models for each group of risk factors in pregnancy and again in the postpartum were utilized to maximize power. Sociodemographic and psychological risk factors were modeled in both pregnancy and the postpartum while the obstetric/medical model were only tested in the postpartum. In addition, a

mediation model was tested for each group of risk factors to determine if experiential avoidance accounted for the effect of the sociodemographic, obstetric/medical, and psychological risk factors on perinatal and postpartum functioning. A mediation model was chosen because experiential avoidance is conceptualized to explain the effect of sociodemographic, obstetric/medical, and psychological risk factors on perinatal and postpartum functioning. The latent factors determined in Aim #1 were used in all SEM models.

Mediation analyses occurred with a set of predictors and outcomes examined simultaneously, with Distress, Fear and Bipolar latent factors all included in the same model. These models were hypothesized to be similar to Kotov's three-factor model but a data-driven approach was chosen for the final construction of the model. The total scores of measures that assessed sociodemographic, obstetric/medical, and psychological risk factors were entered into the SEM models as predictors only if they were significantly correlated with IMAS subscales. If measure scores in each group of predictors (sociodemographic, obstetric/medical, or psychological) were not correlated with any latent variables, a structural equation model for that group of predictors was not constructed. A conservative approach was taken by requiring significantly correlated predictors and outcome variables as criteria for exploring mediated indirect effects in a structured equation model (Baron & Kenny, 1986), even though other approaches allow for mediation models to occur without the presence of significant direct effects (Preacher & Hayes, 2008).

Exploratory models were included that explored a longitudinal model and SEM models for individual risk factors. The longitudinal model was created to examine all significant risk factors (anxiety sensitivity, negative maternal attitudes, past psychiatric history, and negative coping strategies) in the postpartum while accounting for the same risk factors during pregnancy.

SEM models for individual risk factors analyzed models for each risk factor *separately*. Each model examined the direct effects between one specific risk factor (e.g. anxiety sensitivity) and all outcome variables (Distress, Fear, and Bipolar factors) while also examining the indirect effects of experiential avoidance; there were sixteen SEM models for individual risk factors examined (four psychological risk factors, four demographic risk factors during pregnancy and again in the postpartum).

For mediation models, direct and indirect paths were examined and missing data due to attrition was addressed via Full Information Maximum Likelihood (FIML). A bootstrapping method (Shrout & Bolger, 2002), specifically a nonparametric resampling method (bias-corrected bootstrap; Preacher & Hayes, 2004), was used to examine indirect effects of psychological variables on the internalizing factors (Distress, Fear, and Bipolar) via experiential avoidance. Bootstrapping creates an approximation of sampling distributions by drawing a large number of samples from the observed data, calculating the indirect effect on each sample, and providing a confidence interval based on the distribution of indirect effects across all samples (Biesanz, Falk, & Salvalei, 2010). As is common in the literature (Owens & Hinshaw, 2016), 10,000 bootstrap samples were taken to construct the confidence intervals. If zero falls within the 95% confidence interval, the indirect effect is no different than zero.

Analysis of Specific Aim #3

The prevalence of all clinically significant symptoms of all OCS disorders (hoarding, body dysmorphic disorder, trichotillomania, and excoriation disorder) were examined. New incidence of clinically significant OCS symptoms was determined to be the percentage of participants who met the threshold for clinically significant scores in the postpartum that did not meet the threshold for clinically significant scores during pregnancy. Clinically significant

thresholds were measure specific. For clinically significant scores not available in the literature, a cutoff of 1.5 standard deviations above the community mean scores was used.

Correlation analyses between OCS symptoms perinatal measures, IMAS depression and OCD perinatal subscales, and PPAQ domains of postpartum functioning were conducted. To determine if perinatal OCS symptoms predicted poorer total postpartum adjustment, hierarchical multiple regression analyses were subsequently conducted. Covariates were entered into the model based on chronological order and establishment in the literature as risk factors. The prenatal IMAS depression subscale was included in Step 1. Both the prenatal IMAS OCD subscale and the prenatal OCS symptom measure score were included in Step 2. The postpartum IMAS depression, postpartum IMAS OCD subscale, and the postpartum OCS symptom measure score were all included in Step 3, with total postpartum adjustment as the outcome variable for each model.

CHAPTER THREE: RESULTS

Participant Characteristics

A total of 281 women participated in the study by completing either the phone interview or online questionnaire during pregnancy. During pregnancy, a total of 251 participants completed the pregnancy interview and 276 participants completed the online questionnaire, with most women ($n = 246$ [87.5%]) completing both the phone interview and questionnaire. During the postpartum, a total of 216 participants completed the interview and 221 participants completed the online questionnaire, with most women ($n = 206$ [93.2%]) completing both the phone interview and questionnaire (Figure 2). The number of women that participated in this study was sufficient to complete analyses as a minimum of 200 participants were needed for measurement models (Barrett, 2007; Kline, 2011, pp.12) as well as a minimum of 160 participants were needed for structural model analyses (Jackson, 2003).

On average, participants were 31 years of age and most were Caucasian (Table 2). The majority (69%) had at least a Bachelor's degree. On average, participants completed the phone interview when they were 31.7 weeks pregnant and 7.1 weeks postpartum. Current and lifetime internalizing "diagnoses" were based on high levels of disorder symptoms according to the *DSM-5* criteria; current diagnoses were determined by the IMAS and past diagnoses were determined by the MINI (Table 3; see Appendix A for diagnosis determination). During pregnancy, 10% of participants met criteria for major depressive disorder or subthreshold major depressive disorder while 14.7% of participants met criteria for any anxiety diagnosis. During the postpartum, 6.9% met criteria for major depressive disorder or subthreshold major depressive disorder while 7.9% of participants met criteria for any anxiety diagnosis. Nearly a quarter

(22.1%) of participants met criteria for a diagnosis of major depression and 18.5 % met criteria for a diagnosis of any anxiety disorder.

In relation to the obsessive-compulsive spectrum disorder symptoms, relatively few participants met criteria for clinically significant hoarding disorder, trichotillomania, or excoriation disorder symptoms; a larger number of participants met criteria for clinically significant body dysmorphic disorder symptoms (14.8%) (Table 4). Overall, participants endorsed low levels of experiential avoidance, anxiety sensitivity, and negative maternal attitudes in pregnancy and the postpartum (Table 5).

Univariate independent *t*-tests and chi-square tests were used to compare demographic characteristics of lost-to-follow-up participants as well as participants who only completed the study during pregnancy to study completers (Table 6). No significant difference in age was found between women who consented to participate and those who did participate, with age the only demographic collected at the consent call. There were several significant differences between participants who only completed the pregnancy interview and questionnaire compared to participants that also completed the postpartum interview and questionnaire. Women who only completed the pregnancy interview/questionnaire endorsed higher scores on Panic, Social Anxiety, Generalized Anxiety, Specific Phobia, and Mania on the IMAS subscales during the interview as well as higher levels of anxiety sensitivity, experiential avoidance, negative maternal attitudes, and maladaptive coping strategies on the online questionnaire.

Results of Specific Aim #1

The descriptives of the IMAS subscales (Table 7) as well as skewness and kurtosis (Table 8) were examined for both pregnancy and postpartum data. There was significant skew and kurtosis for many subscales (Trochim & Donnelly, 2006), though this is not surprising given the

non-normal distribution of clinical symptoms in a community sample, especially for scales such as mania.

The three-factor model (Figure 1) was tested during pregnancy and the postpartum. The data were modeled as continuous and a maximum likelihood estimation was used. The global fit of the pregnancy data to the three-factor model was good (Figure 3). During pregnancy, the fit statistics indicated adequate to good fit with a χ^2/df estimate at 3.98, SRMR estimate at 0.04, a RMSEA estimate at 0.11, a CFI estimate at 0.94, and a TLI estimate at 0.91 (Table 9). Nearly all subscales loaded above .30 onto latent factors, suggesting adequate component fit; only OCD's factor loading onto the Bipolar factor was slightly below .30. To confirm model fit, other models were assessed, including: a unidimensional model; a three-factor model that did not allow OCD to cross-load, with OCD included only on the Fear factor; and a three-factor model with OCD included only on the Bipolar factor. For the model with OCD included only on the Fear factor, the variance of the Bipolar factor was fixed at 1 because of poor model fit due to the Bipolar factor. The global fit for the alternative models was not as good on any of the measured indices compared to the three-factor model in which OCD cross-loaded.

During the postpartum period, the global fit of the data to the quantitative hierarchical model was also good (Figure 4). The fit statistics indicated good fit with a χ^2/df estimate at 2.63, SRMR estimate at 0.05, a RMSEA estimate at 0.09, a CFI estimate at 0.95, and a TLI estimate at 0.92 (Table 9). Similar to pregnancy, all factor loadings were above .30 with the exception of OCD's slightly lower loading onto the Bipolar factor. To again confirm model fit, two three-factor model that did not allow OCD to cross-load (one with OCD on the Fear factor and the other with OCD on the Bipolar factor) as well as a unidimensional model were assessed. The global fit was not as good for any other model on any of the measured indices compared to the

cross-loaded three-factor model. Additionally, the fit statistics and factor loadings for both perinatal models were similar to the fit statistics and factor loadings of the student sample model (Kotov et al., 2015). This suggests that the three-factor model reflects the structure of internalizing disorders in the perinatal period.

Results of Specific Aim #2

Structural equation models (SEM) were tested to determine the effects of risk factor variables on the latent factors identified in Specific Aim 1. Because the three-factor model was retained, SEM models were utilized to test the specificity of pathways between psychological risk factors and the three latent factors of Distress (composed of the Depression, GAD, Irritability, and Panic subscales), Fear (composed of the Social Anxiety, Agoraphobia, Specific Phobia, and OCD subscales), and Bipolar (composed of the OCD and Mania subscales) factors; all three latent factors (Distress, Fear, and Bipolar) were included in each model simultaneously. Bootstrapping was used in all analyses to determine the stability of any significant effects. Experiential avoidance (AAQ-II) was examined as a mediator in all models. Examples of SEM models can be found in Figures 5-7, correlation tables in Tables 10-14, and all model unstandardized path estimates can be found in Table 15 (direct effects) and Table 16 (indirect effects). A table with the values of all direct and indirect paths for individual SEM models for each predictor variable can be found in Appendix B.

Pregnancy

Sociodemographic risk factors. An SEM model was used to evaluate the effects of the demographic risk factors on the latent factors of Distress, Fear, and Bipolar. Age, education, income level, and marital status were significantly correlated across multiple anxiety subscales

and subsequently all were included in the model (Table 10). However, no direct or indirect paths between the sociodemographic risk factors and the latent factors were significant.

Psychological risk factors. An SEM model was used to evaluate the effects of psychological risk factors on the latent factors of Distress, Fear, and Bipolar. Anxiety sensitivity, negative maternal attitudes, past psychiatric history, and negative coping strategies were significantly correlated with all IMAS subscales (Table 11) and thus were all included in the model.

Significant direct effects were observed between past psychiatric history and Distress (as well as between past psychiatric history and Fear ($B=.690, p= <.001$ [CI: .292, 1.267])). A significant direct effect was also observed between anxiety sensitivity and Fear ($B=.122, p= .005$, [CI: .004, .233])). A significant indirect effect was observed wherein experiential avoidance mediated the relation between negative coping strategies and Fear, indicating increased negative coping strategies predicted increased experiential avoidance, which predicted increased Fear ($B=.159, p= .031$, [CI: .001, .399])).

Postpartum

Sociodemographic risk factors. An SEM model was used to evaluate the effects of the demographic risk factors on the latent factors of Distress, Fear, and Bipolar. Age, education, income level, and marital status were significantly correlated with multiple anxiety subscales (Table 10). However, upon examining the SEM model, no direct or indirect paths between the sociodemographic risk factors and the latent factors were significant.

Obstetric/medical risk factors. There were no significant associations between postpartum IMAS subscales and obstetric/medical variables (Table 12). Subsequently, a model

examining obstetric/medical variables and Distress, Fear, and Bipolar latent factors was not tested.

Psychological risk factors. Similar to pregnancy, anxiety sensitivity, negative maternal attitudes, past psychiatric history, and negative coping strategies were all significantly correlated with all postpartum IMAS subscales (Table 13) and included in the SEM model. A significant direct effect was observed between negative maternal attitudes and Distress ($B=.314, p=.002, [CI: .033, .565]$). A significant indirect effect was observed wherein experiential avoidance mediated the relation between negative coping strategies and Fear ($B =.304, p=.009, [CI: .040, .645]$). Experiential avoidance also mediated the relation between anxiety sensitivity and Fear ($B=.086, p=.01, [CI: .010, .192]$)

Exploratory analysis: Longitudinal model. A longitudinal model was created to examine all significant risk factors (anxiety sensitivity, negative maternal attitudes, past psychiatric history, and negative coping strategies) across the perinatal period. Correlations between IMAS subscales during pregnancy and the postpartum can be found in Table 14. Psychological risk factors and experiential avoidance from pregnancy were utilized as control variables. The only significant effect that remained was a direct effect between negative maternal attitudes and Distress ($B =.581, p=.011, [CI: .128, 1.328]$). Experiential avoidance no longer mediated the relation between fear sensitivity and Distress nor the relation between fear sensitivity and Fear. However, due to the large number of parameters and complexity of the model for the number of observations, the model may be over fit. Fit statistics indicated poorer model specificity with a χ^2/df estimate at 2.04, SRMR estimate at 0.068, a RMSEA estimate at 0.09, a CFI estimate at 0.88, and a TLI estimate at 0.81. Results should be viewed as exploratory and cautiously interpreted.

Exploratory analyses: SEM models for individual risk factors.

Demographic risk factors in pregnancy. In pregnancy, there was a significant direct effect found between age and Fear ($B = -0.194, p = .005, [CI: -0.409, -0.037]$); all paths in Appendix B). No direct effects were observed between demographic risk factors, Distress, or Bipolar factors; no indirect effects were observed between demographic risk factors and the latent factors.

Psychological risk factors in pregnancy. When examining psychological risk factors, significant direct effects were observed between anxiety sensitivity and Fear ($B = 0.152, p = .002, [CI: 0.013, 0.271]$) and maladaptive coping and Bipolar ($B = 0.126, p = .035, [CI: 0.001, 0.303]$). Direct effects were also observed between past psychiatric history and Distress ($B = 0.710, p < .001, [CI: 0.296, 1.267]$); Fear ($B = 0.918, p < .001, [CI: 0.469, 1.541]$); and Bipolar ($B = 0.102, p = .005, [CI: 0.008, 0.200]$) factors. There were no significant direct effects between negative maternal attitudes and the latent factors.

Several indirect effects were also observed. Experiential avoidance partially mediated the relation between anxiety sensitivity and Fear ($B = 0.142, p = .006, [CI: 0.022, 0.277]$), psychiatric history and Distress ($B = 0.498, p = .003, [CI: 0.177, 1.021]$), and psychiatric history and Fear ($B = 0.352, p = .008, [CI: 0.092, 0.772]$). Further, experiential avoidance fully mediated the relation between anxiety sensitivity and Distress ($B = 0.161, p = .004, [CI: 0.041, 0.323]$), maladaptive coping and Fear ($B = 0.117, p < .001, [CI: 0.229, 1.059]$), maladaptive coping and Distress ($B = 0.464, p = .003, [CI: 0.102, 0.888]$), negative maternal attitudes and Distress ($B = 0.286, p < .001, [CI: 0.123, 0.503]$), and negative maternal attitudes and Fear ($B = 0.292, p < .001, [CI: 0.121, 0.530]$).

Demographic risk factors in the postpartum. When examining demographic risk factors, significant direct effects were observed between income and Fear ($B=-0.418, p=.019, [CI: -1.057, -0.040]$). No direct effects were observed between risk factors and Distress or Bipolar factors; no indirect effects were observed between demographic risk factors and the latent factors.

Psychological risk factors in the postpartum. There were significant direct effects between maladaptive coping and Distress ($B=0.599, p=.014, [CI: 0.002, 1.282]$), and between negative maternal attitudes and Distress ($B=0.364, p<.001, [CI: 0.134, 0.617]$). Several indirect effects were also observed. Experiential avoidance partially mediated the relation between negative maternal attitudes and Distress ($B=0.146, p<.001, [CI: 0.134, 0.617]$). Additionally, experiential avoidance fully mediated the relation between anxiety sensitivity and Distress ($B=0.164, p=.002, [CI: 0.044, 0.326]$); anxiety sensitivity and Fear ($B=0.131, p=.004, [CI: 0.007, 0.250]$); maladaptive coping and Fear ($B=0.470, p=.001, [CI: 0.151, 0.909]$); past psychiatric history and Fear ($B=0.164, p=.039, [CI: 0.019, 0.457]$); and between negative maternal attitudes and Fear ($B=0.210, p=.001, [CI: 0.076, 0.409]$).

Results of Specific Aim #3

During pregnancy, low levels of clinically significant symptoms of hoarding disorder ($n = 5, 1.8\%$), trichotillomania ($n = 20, 7.3\%$), and excoriation disorder ($n = 16, 5.8\%$) were found (Table 4). However, a larger number of participants ($n = 41, 14.9\%$) met criteria for clinically significant body dysmorphic disorder symptoms. All pregnancy OCS scales were highly correlated (Table 17). During the postpartum, similarly low levels of clinically significant symptoms were found for hoarding disorder ($n = 3, 1.4\%$), trichotillomania ($n = 18, 8.3\%$), and

excoriation disorder ($n = 10, 4.6\%$). The most clinically significant OCS scale was again the body dysmorphic disorder scale; 26 participants (12%) met criteria for clinically significant body dysmorphic disorder symptoms in the postpartum. Additionally, a substantial proportion (61-66%) of participants that endorsed clinically significant levels of hoarding, trichotillomania, or excoriation symptoms in the postpartum were reporting new incidence of clinically significant symptoms.

Scores on postpartum adjustment subscales in all domains for this sample were low, similar to other community postpartum samples (Table 18; O'Hara, Hoffman, Philipps, & Wright, 1992). Elevated symptoms of all OCS symptoms (body dysmorphic, hoarding, trichotillomania, and excoriation disorders) in pregnancy were significantly associated with total scores of postpartum adjustment ($r = .19-.35, p < .0$); this pattern was also seen with elevated OCS symptoms in the postpartum ($r = .16-.33, p < .05$; Table 19). Elevated OCS symptoms across the perinatal period are significantly related to more difficulty adjusting to the postpartum.

Outside of total postpartum adjustment, poorer adjustment to responsibilities in the home was most frequently associated with elevated OCS symptoms in pregnancy (body dysmorphic [$r = .18, p < .01$]; and hoarding symptoms [$r = .24, p < .01$]) and in the postpartum (body dysmorphic [$r = .26, p < .01$]; hoarding [$r = .23, p < .01$]; and trichotillomania [$r = .18, p < .05$] symptoms). Elevated body dysmorphic disorder symptoms were the OCS symptom type most associated with poorer postpartum adjustment across several domains, in pregnancy ($r = .18-.41, p < .01$) and the postpartum ($r = .18-.33, p < .05$). Hierarchical multiple regression models were conducted to determine if elevated OCS symptoms across the perinatal period predict postpartum adjustment across domains. All postpartum adjustment domains significantly associated with each OCS

symptoms were included in hierarchical models (Tables 19-22); only total postpartum adjustment hierarchical models are discussed below.

For body dysmorphic disorder symptoms (Table 20), in the context of a hierarchical multiple regression model for total adjustment domain, there was a significant effect of prenatal depressive symptoms ($\beta = .43, p < .001$). After controlling for the significant effect of prenatal depression depressive symptoms, prenatal OCD symptoms were not significant ($\beta = .00, p > .05$) but prenatal BDD symptoms were significant in the regression ($\beta = .19, p < .05$). After controlling for the effects of prenatal depressive, OCD, and BDD symptoms, postpartum depressive, OCD, and BDD symptoms were not significant in the regression ($\beta = .02 - .14, p > .05$). The final model accounted for 23% of the variance for the postpartum adjustment friendship domain scores. Elevated prenatal depressive and body dysmorphic disorder symptoms significantly predicted overall poorer postpartum adjustment.

For hoarding disorder symptoms (Table 21), in the context of a hierarchical multiple regression model for total postpartum adjustment, there was a significant effect of prenatal depressive symptoms ($\beta = .33, p < .01$). After controlling for the significant effect of prenatal depressive symptoms, prenatal OCD symptoms were not significant ($\beta = .02, p > .05$) but prenatal hoarding symptoms were significant in the regression ($\beta = .20, p < .01$). After controlling for the effects of prenatal depressive, OCD, and hoarding symptoms, the postpartum depressive, OCD, and hoarding symptoms were not significant in the regression ($\beta = .04 - .12, p > .05$). The final model accounted for 16.7% of the variance for the postpartum adjustment friendship domain scores. Elevated prenatal depressive and hoarding disorder symptoms significantly predicted overall poorer postpartum adjustment.

For trichotillomania symptoms (Table 22), in the context of a hierarchical multiple regression model for total postpartum adjustment, there was a significant effect of prenatal depressive symptoms ($\beta = .45, p < .001$). After controlling for the significant effect of prenatal depressive symptoms, neither prenatal OCD nor trichotillomania symptoms were significant in the model ($\beta = .05, .12, p > .05$). After controlling for the effects of prenatal depressive, OCD, and trichotillomania symptoms, the postpartum depressive, OCD, and trichotillomania symptoms were also not significant in the regression ($\beta = .01 - .04, p > .05$). The final model accounted for 22% of the variance for the postpartum total adjustment scores. Only elevated prenatal depressive symptoms significantly predicted poorer overall postpartum adjustment.

For excoriation disorder symptoms (Table 23), in the context of a hierarchical multiple regression model for total postpartum adjustment, there was a significant effect of prenatal depressive symptoms ($\beta = .43, p < .001$). After controlling for the significant effect of prenatal depressive symptoms, neither prenatal OCD nor excoriation disorder symptoms were significant in the model ($\beta = -.00, .13, p > .05$). After controlling for the effects of prenatal depressive, OCD, and excoriation disorder symptoms, the postpartum depressive, OCD, and excoriation disorder symptoms were also not significant in the regression ($\beta = -.04 - .10, p > .05$). The final model accounted for 20.5% of the variance for the postpartum total adjustment scores. Only elevated prenatal depressive symptoms significantly predicted poorer overall adjustment to the postpartum.

CHAPTER FOUR: DISCUSSION

The present study examined the structure and risk factors for all anxiety disorders during pregnancy through the first eight weeks postpartum and OCS symptom prevalence and its relation to postpartum adjustment. Results from Specific Aim 1 revealed support for the three-factor model in both pregnancy and the postpartum, demonstrating the similarity of the structure of internalizing disorders across populations. With the three-factor model retained, Specific Aim 2 clarified the role of sociodemographic, obstetric/medical, and psychological perinatal risk factors in relation to the Distress, Fear, and Bipolar factors. Experiential avoidance was also explored as a mediator. During pregnancy, past psychiatric history predicted symptomatology that composed the Distress and Fear factors while experiential avoidance mediated the relation between negative coping strategies and symptomatology that composed the Fear factor. In the postpartum, negative maternal attitudes predicted Distress factor symptomatology. Experiential avoidance was important in the postpartum as well, significantly mediating the relation between negative coping strategies and Fear as well as between anxiety sensitivity and Fear. Regarding OCS symptoms, results from Specific Aim #3 demonstrated that body dysmorphic disorder symptoms were the most prevalent in pregnancy and the postpartum. Prenatal and postpartum elevations in all OCS disorder symptoms were significantly associated with more difficulty adjusting to postpartum roles.

The Structure of Perinatal Anxiety Symptoms

This study was the first to examine the structure of depressive and anxiety disorders in a community sample of pregnant and postpartum women. This study's dimensional approach to assessing psychopathology allowed for a more thorough examination of all perinatal anxiety disorder symptoms than had previously been attempted. Results from the current study provided

evidence that the three-factor model, a model consisting of Distress, Fear and Bipolar factors, was the best-fitting model in pregnancy and the postpartum (Kotov et al., 2015). Not only was this model the best fitting model during pregnancy and the postpartum but this model also fit better than a unidimensional model encompassing both depressive and anxiety symptoms (Eaton et al., 2012; Krueger, 1999; Krueger, Chentsova-Dutton, Markon, Goldberg, & Ormel, 2003). The three-factor model clarified that OCD is linked to both Fear and Bipolar lower-order factors, contrary to other models suggesting three separate factors to model depressive and anxiety symptoms (Clark & Watson, 1991; Chorpita, Albano & Barlow, 1998; Joiner, Catanzaro, & Laurent, 1996; Watson et al., 1995), including the only other study that has examined the structure of both perinatal anxiety and depressive symptoms (Cunningham, Brown, & Page, 2016). The findings from the present study replicated Kotov's (2015) finding that OCD was best modeled on both the Fear and Bipolar factors. In the current study's model, OCD's loading on the Bipolar factor was small (.28) yet nearly identical to the OCD factor loading (.30) on the Bipolar factor in the student sample model reported in Kotov et al. (2015).

The three-factor model revealed which specific anxiety disorder symptoms are most structurally similar to depressive symptoms in the perinatal period, namely generalized anxiety disorder and panic disorder symptoms. Not only did depressive symptoms and generalized anxiety symptoms load highly on the Distress factor at both time points, they were also the most highly correlated psychopathology scales across pregnancy and the postpartum. This finding is consistent with the literature showing that generalized anxiety disorder and depressive symptoms are consistently highly correlated (Moffit et al., 2007; Simon, 2009; Ruscio, 2007), including in perinatal samples (Prenoveau et al., 2013), with phenotypic and genetic similarities (Kendler, Neale, Kessler, Heath, & Eaves, 1992; Kendler, Prescott, Myers, & Neale, 2003).

Depressive symptoms were also found to be the most structurally similar to panic disorder symptoms, in contrast with previous structural analyses categorizing panic symptoms with Fear disorders (Krueger & Markon, 2006). The reason for this may be that in this study the symptoms that composed the panic disorder scale were reflective of panic attack symptoms rather than the frequency of panic attacks and avoidance of panic cues. When panic was operationalized as physiological symptoms as in the present study rather than avoidance, panic symptoms appeared more similar to Distress than to Fear; this is consistent with other literature demonstrating the similarity of panic to depressive symptoms (Wright et al., 2013).

This study provided support for the three-factor model as a diagnostically-informed, comprehensive model that accounts for both depressive and anxiety symptoms endorsed by a non-clinical sample of women. Perinatal anxiety symptoms are frequently comorbid with depressive symptoms (Wenzel, Haugen, Jackson, & Brendle, 2005), and have often been classified as components of postpartum depression (Ross, Evans, Sellers, & Romach, 2003). High rates of comorbidity among depressive and anxiety disorders may represent varying expressions of underlying core deficits (Krueger, Caspi, Moffitt, & Silva, 1998). The three-factor model incorporates the shared core features of emotional disorders while also distinguishing among anxiety symptomatology, something that is lacking when simply classifying anxiety and depressive symptoms into discrete categories (Goldberg, Krueger, Andrews & Hobbs, 2009). In the perinatal period, anxiety and depressive symptoms may be best conceptualized as three factors, Distress, Fear, and Bipolar rather than separate anxiety and depression disorders. This parsimonious structure of perinatal anxiety and depressive symptoms has important implications for research and clinical treatment.

Postpartum depression is the most well-studied perinatal mental health disorder (Gavin et al., 2005; O'Hara & McCabe, 2013; Robertson, Grace, Wallington, & Stewart, 2004) with a substantial literature on evidence-based psychotherapy treatments, including Interpersonal Psychotherapy (IPT; O'Hara et al., 2000), cognitive behavioral therapy (CBT; Prendergast & Austin 2001), and psychodynamic therapy (Bloch et al. 2012, Cooper, Murray, Wilson, & Romaniuk, 2003). Yet, there has been much less research on the treatment of anxiety in the perinatal period (Lemon, Vanderkruik, & Dimidjian, 2015). Findings from this study revealed that Distress, Fear, and Bipolar factors could be utilized to guide treatment of perinatal anxiety rather than only discreet depressive and anxiety diagnoses. For example, a woman presenting with depressive symptoms as well as other symptoms characterized by distress, such as excessive worrying or panic attacks, may respond particularly well to empirically-based treatments for depression. In turn, if a woman presented with pronounced avoidance of social situations, clinicians may also assess other Fear disorder symptoms. Treatment of one psychiatric illness has often resulted in improvement of comorbid internalizing symptoms, even when comorbid symptoms are not the primary focus of treatment (Brown & Barlow, 1992; Tsao, Mystkowski, Zucker, & Craske, 2002), including for the current distress-based disorders (panic, generalized anxiety and depression; Allen et al., 2010). This study suggests that treatment of symptoms that are structurally similar may also be beneficial in the perinatal period. Future research should focus on treatment trials of evidence-based psychotherapy protocols to combat perinatal anxiety symptoms and explore how structurally similar symptoms change over the course of treatment.

In addition to the Distress and Fear factors, the Bipolar factor has implications for the perinatal period. Obsessive-compulsive disorder was the only scale to load on two factors, specifically the Fear and Bipolar factors. Kotov et al. (2015) suggested that disordered thinking

accounted for Mania and OCD loading on the Bipolar factor, consistent with other studies illustrating a link between features of mania, obsessive-compulsive symptoms, and the thought disorder spectrum (Chmielewski & Watson, 2008; Watson, Wu, & Cutshall, 2004). This link between obsessive-compulsive and mania symptoms is particularly pertinent to the perinatal period as there can be concern in distinguishing between postpartum intrusive thoughts indicative of OCD and intrusive thoughts suggesting postpartum psychosis. Psychosis is the most serious emotional disorder that can occur during the postpartum period (Mighton et al., 2016), with an average onset after childbirth similar to postpartum OCD (two to eight weeks postpartum). However, there are significant differences between intrusive thoughts indicative of postpartum OCD and postpartum psychosis. Individuals experiencing obsessive-compulsive symptoms often report ego-dystonic thoughts focused on the infant that are severely disturbing and over-interpreted as meaningful (Rachman, 1997). For individuals experiencing postpartum psychosis, the mother does not view her intrusive thoughts as the problem but rather sees the object of her thought (the child) as the problem (Sit, Rothschild, & Wisner, 2006). Considering that there are structural similarities between obsessive-compulsive and mania symptoms, even if the similarities are comparatively fewer than between other disorder symptoms, more research is warranted to better understand the similarities between these perinatal phenomena that may lead to misdiagnosis or misunderstanding of the presentation.

Risk Factors of Perinatal Anxiety

This study elucidated the role of sociodemographic, obstetric/medical, and psychological perinatal risk factors in relation to perinatal depressive and anxiety symptoms with experiential avoidance utilized as a mediator. This is the first study among perinatal mental health investigators to utilize latent variables to classify clusters of psychopathology rather than

examine only one anxiety disorder or state/trait anxiety. Further, this study was one of the few methodically rigorous explorations of prenatal risk factors by including risk factors in SEM models to predict the latent Distress, Fear, and Bipolar factors. Only psychological risk factors directly influenced depressive and anxiety symptoms during pregnancy and the postpartum. Sociodemographic and obstetric/medical risk factors were not predictive of perinatal depressive and anxiety symptoms.

Past psychiatric history predicted increased risk for prenatal anxiety and depressive symptoms, specifically symptoms that loaded on the Distress and Fear factors. History of depression has long been recognized as one of the strongest predictors of perinatal depression (Beck, 1996; Milgrom et al., 2008; O'Hara, Schlechte, Lewis, & Wright, 1991). Results from this study revealed that cumulative past psychiatric history of depressive episodes or anxiety disorder diagnoses is predictive of prenatal anxiety disorder symptoms as well as prenatal depressive symptoms. This is consistent with the broader literature demonstrating that anxiety disorder symptoms endure throughout the lifespan (Bruce et al., 2005) as well as with studies that have demonstrated previous psychiatric difficulties as a risk factor for prenatal anxiety (Clavarino et al., 2010; Fadzil et al., 2017; Giardinelli, 2012; Leach, Poyser, & Fairweather, 2017). Importantly, studies that have found a link between psychiatric history and prenatal anxiety only measured general state anxiety. The measurement of “general anxiety”, often assessed by the State-Trait Anxiety Inventory (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983), groups anxiety symptoms with depression and general negative affect and fails to distinguish among anxiety disorders (Bieling, Antony, & Swinson, 1998). The current study furthers the literature by providing evidence that past psychiatric history is predictive of specific prenatal anxiety disorder symptoms (e.g., avoiding crowded places, panic symptoms, fear of negative social

evaluation), not just general state anxiety. For individuals who have previously experienced distress- or fear-centered anxiety symptoms, the perinatal period is a time of increased risk for recurrence of symptoms.

It was unexpected that past psychiatric history did not predict postpartum depressive or anxiety symptoms. A seminal synthesis of prenatal risk factors for postpartum depression by Robertson, Grace, Wallington and Stewart (2004) found prenatal depression *and* prenatal anxiety to be among the strongest predictors of postpartum depression. More recent research has found past psychiatric history of anxiety and depression predictive of postpartum depressive and anxiety symptoms (Rambelli et al., 2010; Reck et al., 2008), including postpartum OCD (Miller, Chu, Gollan, & Gossett, 2013). One reason for the lack of findings may be that a count of all past depressive or anxiety disorders was used to signify past psychiatric history rather than examining past depressive and anxiety disorders separately. Future research could examine past psychiatric history of each depressive or anxiety disorder separately to clarify if history of previous internalizing disorder diagnoses are truly not predictive of postpartum depressive and anxiety symptoms, especially in other more heterogeneous populations.

Another direct effect was observed between negative maternal attitudes and distress symptomatology in the postpartum. This finding is consistent with the literature that suggests negative attitudes predict postpartum difficulties (Kumar, Robson, & Smith, 1984) as well as depressive and anxiety symptoms (Sockol, Epperson, & Barber, 2014). Negative maternal attitudes have consistently been associated with depressive symptoms (Warner, Appleby, Whitton, & Faragher, 1997), yet it was unknown if negative evaluations of motherhood were also associated with anxiety disorder symptoms. This is the first study to demonstrate that

negative maternal attitudes also predict the distress component that is common to depression, generalized anxiety disorder, and panic disorder.

Negative maternal attitudes may be directly related to distress-based symptoms because of the meaning a woman gives to her thoughts. One branch of psychological science that examines theoretically and empirically how cognitions such as negative maternal attitudes could directly influence psychopathology is *functional contextualism* (Biglan & Hayes, 1996; Hayes et al., 1993; Hayes, Hayes, & Reese, 1988). Functional contextualism focuses on an entire behavioral event in a particular context in order to understand the function of the event. Understanding the function of an event and environmental contingencies that exert influence in a certain context allows for the prediction of future events in similar contexts (Hayes, 1993). Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999) translates this theory into a tangible way to understand how psychological symptoms arise.

From an ACT framework, psychopathology is characterized by frequent, recurrent behavior guided by inflexible cognitive rules rather than by an individual's actual experience with the environmental contingencies, resulting in a lack of behavior aimed at value-based goals (Hayes et al., 2006). Further, control of one's emotions and cognitions become the primary goal, an approach that is unsustainable without serious negative consequences. This focus on control of painful emotions and cognitions increases the importance of the function of these mental events and narrows the range of behaviors an individual is willing to do so as not to evoke these unwanted thoughts or feelings, a process often described as *psychological inflexibility* (Hayes et al., 2006).

Psychological inflexibility is consistently associated with depressive and anxiety symptoms (Bond & Bunce, 2003; Hofmann, Heering, Sawyer, & Asnaani, 2009; Kashdan,

Barrios, Forsyth, & Steger, 2006; Ruiz, 2010). The way negative maternal attitudes may be predicting distress symptoms could be conceptualized as psychological inflexibility around negative maternal internal events (thoughts, attitudes, emotions). By trying to control painful emotions and cognitions related to motherhood, these same painful emotions and thoughts amplify in frequency and intensity and a woman may subsequently spend increasing time and mental resources trying to control these types of thoughts rather than on value-based behaviors. Further, basing her behavior on cognitive rules such as “I’m not a good mother” rather than experiencing the here-and-now where there may be examples of how she is a competent caregiver maintains the psychological inflexibility. Psychological inflexibility is one mechanism for how negative attitudes may directly predict distress-based symptoms. Other empirical and theoretically-based work corroborates the proposition that a lack of meaningful value-based activities (Martell, Dimidjian, & Herman-Dunn, 2013) and rumination on painful thoughts (Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008) contribute to internalizing psychopathology. Future basic research should more directly test the mechanisms through which negative maternal attitudes directly affect distress-based symptoms.

Indirect effects were observed between risk factors and the Distress and Fear factor symptoms. Experiential avoidance significantly mediated the relation between anxiety sensitivity and Fear in the postpartum period. This is consistent with previous perinatal studies describing an association between anxiety sensitivity and internalizing symptomatology (Verreault et al., 2014; Keogh, Ayers, & Francis, 2002; Jokić-Begić, Žigić, & Nakić Radoš, 2014). However, this study elucidated the role of experiential avoidance on anxiety sensitivity and postpartum anxiety disorder symptoms specifically, demonstrating that increased anxiety sensitivity was predictive

of Fear symptomatology as experiential avoidance increased. It is important to note that while experiential avoidance was a significant mediator, it was not a robust mediator overall.

Anxiety sensitivity was originally considered to contribute to the development of panic disorder (Taylor, 1999) but a large literature has found a link between anxiety sensitivity and the other Fear disorders (Naragon-Gainey, 2010), including agoraphobia (Hayward & Wilson, 2007), social anxiety (e.g., Hazen, Walker, & Stein, 1995; Rodriguez, Bruce, Pagano, Spencer, & Keller, 2004), specific phobia (Lilienfeld, 1999; Taylor, 1996), as well as OCD (Zinbarg, Barlow, & Brown, 1997). Results from the current study reveal that experiential avoidance mediates the relation between fear of anxiety symptoms and manifestation of anxiety symptoms in the postpartum, consistent with multiple studies that have demonstrated experiential avoidance mediates the relation between anxiety sensitivity and anxiety disorder symptoms (for review, see Salters-Pedneault, Tull, & Roemer, 2004).

Avoidance of anxiety-provoking internal and external stimuli has long been implicated in the development of anxiety disorders (Mowrer, 1960; Foa & Kozak, 1986). Mowrer's *two-factor theory of fear acquisition and maintenance* explained that when an organism avoided a fear-producing stimulus, that fear continued until the feared stimuli was approached, new learning was created and extinction occurred. If the fear-producing stimulus was avoided, new learning could not be created and fear would be maintained. Foa and Kozak (1986) expanded on Mowrer's framework with *emotional processing theory*, which suggested that it is not just avoidance of the feared-stimulus but avoidance of any physiological, contextual, cognitive, or emotional representation of the feared object that can interfere with new learning and subsequent extinction.

In the experiential avoidance framework, a fear-producing stimulus is paired with a negative emotional response and that the cognitive representation of the stimulus, as well as the feared stimulus can produce the same negative emotional responses (Hayes et al., 1996; Hayes, Strosahl, & Wilson, 1999). Fear is maintained when an individual is unwilling to experience physiological sensations, thoughts, memories, and emotions that arise when confronted with the cognitive representation of or the actual feared-stimuli and continually attempt to avoid the distressing stimuli. Anxiety disorders are conceptualized as continual use of maladaptive strategies to avoid distressing mental imagery (e.g. avoidance of crowded areas/social situations, continuous checking) that reduce distress in the short-term but maintain heightened levels of fear over time.

Utilizing this experiential framework, experiential avoidance mediating anxiety sensitivity and Fear disorder symptomatology could be explained by the woman's relative unwillingness to experience heightened arousal-related body sensations, leading to higher levels anxiety disorder symptoms in the postpartum. Women may be more accepting of experiencing bodily sensations during pregnancy due to the normative physiological changes that often occur while bodily sensations mimicking anxiety in the postpartum can cause more concern, especially if a woman is unwilling to experience physiological symptoms of anxiety. This mirrors how certain depressive symptoms (e.g. appetite gain, fatigue) are not as robustly related to depression during pregnancy due to their similarity to natural occurrences in pregnancy but those same symptoms are predictive of postpartum depression (Nylen, Williamson, O'Hara, Watson, & Engeldinger, 2013; Runquist, 2007). Women may be more tolerant of anxiety sensations in pregnancy but fear the negative consequences of those same sensations to a greater degree in the

postpartum. If a woman exerts substantial effort in avoiding experiencing anxiety-related sensations, there is more risk for anxiety symptoms.

Experiential avoidance also mediated the relation between negative coping strategies and Fear disorder symptomatology in both pregnancy and the postpartum. Negative coping skills, which included primarily *denial*, *behavioral disengagement*, *self-blame*, and *self-distraction*, were predictive of Fear disorder symptoms when participants also endorsed experiential avoidance. Maladaptive coping skills have been substantially associated with perinatal depressive symptoms (Terry, Mayocchi, & Hynes, 1996; Guardino & Schetter, 2014) and increasingly, perinatal anxiety (Gourounti et al., 2013). Folkman and Lazarus' (1985) classification of coping skills has been utilized in the perinatal literature, distinguishing between active efforts to change the stressful situation (*problem-focused coping*) and efforts aimed at decreasing emotional distress created by the stressor (*emotion-focused coping*). Emotion-focused coping skills tend to include more passive maladaptive coping, such as *self-blame*, *escapism*, and *wishful thinking* (Penley, Tomaka, & Wiebe, 2002). Maladaptive emotion-focused coping skills have been associated with a variety of outcomes including overall negative health outcomes (Penley et al., 2002), caregiver distress (Haley et al., 1996), and diminished quality of life in a variety of populations (Gore-Felton et al., 2013; Meléndez, Fortuna, Sales, & Mayordomo, 2015; Wolters et al., 2015).

Karekla and Panayiotou (2011) examined the relation between experiential avoidance and emotion-focused coping skills in predicting general distress and well-being. Higher experiential avoidance was associated with utilizing maladaptive coping skills to a greater degree. The authors also described a third dimension of coping skills, *avoidance-based coping*, which incorporates emotion-based coping skills aimed at avoiding stressful situations and/or associated

thoughts and feelings (such as *behavioral disengagement* and *distraction*) (Schwartz & Schwartz, 1996; Endler, 1997; Gutiérrez, Peri, Torres, Caseras, & Valdés, 2007). Kashdan, Barrios, Forsyth, and Steger (2006) further elucidated the relation between experiential avoidance and emotion-based/avoidance-based coping skills. Kashdan et al. (2006) described attempting to escape situations, detaching from, or inhibiting emotions as the most maladaptive components of emotion-based or avoidance-based coping skills. Further, the authors distinguished between avoidance-based coping skills, which are focused on type and frequency of use, and experiential avoidance, which is linked to context and function of the behavior. Experiential avoidance is contextually linked and when negative internal events are continually, intransigently suppressed, regardless of context and function, there are long-term consequences on emotional well-being, social interactions, and overall life satisfaction (Kashdan et al., 2006).

Utilizing the experiential framework, experiential avoidance mediates emotion-focused coping in the perinatal period if skills are applied inflexibly across contexts and the primary goal is to escape unwanted negative thoughts or feelings. The paradox of utilizing experiential avoidance is that distressing thoughts and feelings tend to increase in frequency and intensity (Gross, 1998, 2002; Wegner, 1994) and positive emotions are reduced due to not being present-moment focused (Gross & John, 2003). Over time, this continued distress amplifies anxiety symptomatology (Blakey, Jacoby, Reuman, & Abramowitz, 2016; Roemer, Salters, Raffa, & Orsillo, 2005; Tull, Gratz, Salters, & Roemer, 2004), even in individuals with no history of anxiety-related disorders (Feldner, Zvolensky, Eifert, & Spira, 2003; Karekla, Forsyth, & Kelly, 2004).

One important caveat to the proposition that experiential avoidance mediates emotion-focused coping is the similarity between avoidant coping and experiential avoidance. Due to

their similar appearing nature, Karekla and Panayiotou (2011) tested the hypothesis that experiential avoidance and avoidant types of coping are actually the same construct. The authors found that individuals who exhibit more experiential avoidance are also more likely to use avoidant coping strategies. However, experiential avoidance uniquely predicted psychological distress and well-being, leading the authors to conclude that while there is significant overlap, avoidant coping and experiential avoidance are separate constructs. Interestingly, Karekla and Panayiotou (2011) utilized the same measures as the current study to assess experiential avoidance and coping (Brief COPE and AAQ, translated into Greek); this suggests that the measures utilized in the current study were discriminately valid and reflecting unique outcomes. Understanding this link in the perinatal period allows more precise clinical targets for intervention, namely experiential avoidance and potentially avoidant coping as well as anxiety disorder symptomatology.

Interestingly, in the present study sociodemographic and obstetric/medical risk factors were not predictive of perinatal depressive and anxiety symptoms. This is inconsistent with the literature which has shown demographic characteristics to be important, especially younger age, lack of a committed relationship, and lower level of education (Bodecs et al., 2013; Borri et al., 2008; Faisal-Cury & Menezes, 2007; Leach, Poyser, Fairweather & Schmidt, 2017). However, the study sample size was relatively homogenous and consisted of mostly educated, upper middle class, Caucasian women. Sociodemographic variables may only be risk factors for perinatal anxiety symptoms when larger numbers of women endorse more disadvantaged sociodemographic factors (e.g. less income, minority race status, etc.). Future research aimed at more diverse samples would allow for a more nuanced understanding of when sociodemographic factors predict risk for groups of depressive and anxiety disorder symptoms.

Similarly, obstetric or medical variables were not predictive of depressive and anxiety symptoms. This was inconsistent with earlier work demonstrating a link between higher risk obstetric or medical variables and perinatal anxiety (Adewuya, Ola, Aloba, & Mapayi, 2006; Britton, 2008), although more recent work did not find this same association (Dennis, Brown, Falah-Hassani, Marini, & Vigod, 2017b). The study sample was relatively healthy, with small numbers of women endorsing being checked for hypertension or diabetes before pregnancy as well as minimal pregnancy complications. Importantly, more recent work by Dennis et al. included more partnered and Caucasian women, similar to the current study's sample. Obstetric variables, such as pregnancy or delivery complications, and medical variables, such as dealing with chronic or serious illnesses, may be more serious risk factors for perinatal anxiety for women from ethnic minority backgrounds (Engle, Scrimshaw, Zambrana, & Dunkel-Schetter, 1990; York, Brown, Persily, & Jacobsen, 1996) or with limited access to healthcare (Bromley, Nunes, & Phipps, 2012). Future research should examine medical and obstetric variables in more diverse samples in studies that include assessment of healthcare access to better understand if these variables predict perinatal anxiety.

The current study clarified the role that negative maternal attitudes and past psychiatric history play in predicting distress-and fear-based disorder symptoms. This study is a first step in understanding the pivotal role that experiential avoidance plays in relation to perinatal anxiety symptoms. More research is needed to understand how targeting experiential avoidance in postpartum women may be beneficial in addressing anxiety symptoms, particularly for women with higher levels of anxiety sensitivity and maladaptive coping skills.

The Obsessive-Compulsive Spectrum in the Perinatal Period

This study examined the prevalence of hoarding, body dysmorphic, trichotillomania, and excoriation disorder symptoms during pregnancy and the postpartum. Low levels of clinically significant symptoms of trichotillomania, hoarding and excoriation disorder were found during pregnancy (2-7%) and the postpartum (1-8%). A substantial proportion of participants that met criteria for clinical significance in the postpartum were reporting new incidence of clinically significant hoarding, trichotillomania, or excoriation symptoms. Prevalence rates of hoarding and excoriation disorder symptoms were similar to prevalence rates in the general population, 2 - 6% for hoarding disorder (Samuels et al., 2008; Iervolino et al., 2009) and 1- 5% for excoriation disorder (Grant, Odlaug, & Kim, 2010; Hayes, Storch, & Berlanga, 2009; Keuthen, Korna, Aboujaoude, Large, & Serpe, 2010). Trichotillomania symptoms were slightly more prevalent in the perinatal period than in other populations. Trichotillomania is more common in women (Grant & Chamberlain, 2016), with a point prevalence range of 0 - 4% in the general population (Mansueto, Thomas, & Brice, 2007; Odlaug & Grant, 2010). It is important to cautiously interpret this finding. When assessing trichotillomania symptoms, the literature suggested that any score above a zero was considered clinically significant (Francazio & Flessner, 2015; Odlung, Chamberlain, Derbyshire, Leppink, & Grant, 2014), yet that is a relatively low threshold for clinical significance. Future research needs to validate measures for trichotillomania (as well as all OCS disorders) in the perinatal period to better understand if this period truly represents a vulnerability window or rather a poor clinical significance threshold. Additionally, future research should explore why so few women who met clinical significance in pregnancy for OCS symptoms no longer met criteria in the postpartum as well as to explain the increase in clinically significant cases in the postpartum. In the perinatal OCD literature, some women with pre-

pregnancy OCD symptoms experience improvement in symptoms during pregnancy (Maina, Albert, Bogetto, Vaschetto, & Ravizza, 1999; Neziroglu, Anemone, & Yaryura-Tobias, 1992; Russell, Fawcett, & Mazmanian, 2013; Williams & Koran, 1997), while the postpartum period is a vulnerable time for onset of OCD symptoms for other women (Russell et al., 2013). The mechanisms of this pattern are not well understood and future research should investigate if perinatal trichotillomania symptoms follow the same trajectory as perinatal OCD symptoms.

Body dysmorphic disorder symptoms were found to be the most prevalent among the OCS disorders during pregnancy and the postpartum (12-15%), suggesting that a sizeable portion of perinatal women are significantly preoccupied with bodily concerns. During the perinatal period there are numerous changes to a woman's body; but for most women this does not result in preoccupation and dissatisfaction with its features (Davies & Wardle, 1994). Experiences that can mimic body dysphoric disorder symptoms (e.g. focus on certain body parts, monitoring of bodily change) can be normal and expected in pregnancy and the early postpartum period. Further, many women positively evaluate the physical changes during pregnancy, which is associated with psychological well-being (Fuller-Tyszkiewicz, Skouteris, Watson, & Hill, 2013; Pullmer, Zaitsoff, & Cobb, 2018).

However, some women, such as women with a history of an eating disorder, endorse clinical levels of preoccupation with weight and shape during pregnancy (Soares et al., 2009). Body dissatisfaction has also been shown to increase over the postpartum period, especially in women with poorer mental health and current disordered eating (Gjerdingen et al., 2009). There are high rates of comorbidity between eating disorders, such as anorexia nervosa, and body dysmorphic disorder (Grant, Won Kim, & Eckert, 2002). Similarities are evident between both types of psychopathology, such as an obsessive focus on appearance and compulsions related to

the body (Allen & Hollander, 2004). Yet, the perinatal literature has focused on the intersection of body-image, depressive mood, and disordered eating behaviors without also exploring body dysmorphic disorder symptoms. Elevated prenatal body dysmorphic disorder symptoms predicted poorer adjustment to several aspects of the postpartum, making perinatal body dysmorphic disorder symptoms worthy of more attention. The body dysmorphic disorder measure used in the present study was not validated to assess perinatal body dysmorphic disorder symptoms. Currently, a measure exists to assess body image in pregnant women (Body Image in Pregnancy; Watson, Fuller-Tyszkiewicz, Broadbent, & Skouteris, 2017) but the development of a measure that can distinguish between normative attunement to body changes and clinically significant body dysmorphic disorder symptoms in the perinatal period could be particularly useful. With the development of such a measure, future research could better assess the difference between non-pathological concerns about shape and clinically significant preoccupation with appearance that represent a target for clinical intervention.

Elevated prenatal body dysmorphic disorder symptoms were not the only predictor of poorer adjustment to the postpartum. While elevations in all OCS symptoms were associated with poorer adjustment to the postpartum, prenatal hoarding symptoms, along with prenatal body dysmorphic disorder symptoms, uniquely predicted poorer postpartum adjustment when controlling for OCD and depression scores. This suggests that something about the perinatal period may be particularly salient to these types of symptoms over and above existing depressive and anxiety symptoms. Interestingly, this pattern was not seen with trichotillomania or excoriation disorder symptoms. While all OCS disorders are grouped together in the *DSM-5*, the repetitive nature associated with obsessive-compulsive, body dysmorphic, and hoarding disorders appear to be mechanistically different than trichotillomania and excoriation disorder.

Compulsions associated with obsessive-compulsive, body dysmorphic, and hoarding disorders are often conceptualized as irrational behavioral strategies used to reduce anxiety (e.g. checking several times a day, excessive surgeries to fix a perceived flaw). Yet, the repetitive nature associated with trichotillomania and excoriation disorder symptoms (e.g., hair-pulling and skin-picking) has been described as an immediate, involuntary movement that the individual uses to relax or reduce tension (Bari & Robbins, 2013; Radomsky, Bohne, & O'Connor, 2007). The way that these similar disorders differ could account for the postpartum interference. Individuals who view their symptoms as quick responses to uncomfortable urges may be expending less energy managing their symptoms compared to individuals performing complex rituals or spending vast amount of time obsessed with one aspect of the body. Importantly, the current study only determined if there was a relation between OCS symptoms and postpartum adjustment; it did not assess the mechanisms accounting for the relation between symptoms and outcome. Future research should analyze the mechanisms through which prenatal hoarding and body dysmorphic disorders predict more difficulty in adjusting to the perinatal period.

Clinical Implications

The findings from this study add to the mounting evidence that treatment of perinatal anxiety, like perinatal depression, is of paramount importance (Miller, Pallant, & Negri, 2006). More identification of vulnerable women and subsequent engagement in treatment is needed to address low rates of perinatal mental health treatment (Goodman & Tyler-Viola, 2010; Smith et al., 2009). One way that has been moderately successful in identifying women who may have mental health concerns has been to screen perinatal women for depressive symptoms during obstetrician or pediatrician visits (Silverman & Loudon, 2010; Yogman, 2016).

Screening involves briefly assessing for common depressive symptoms via a self-report measure such as the Edinburgh Postnatal Depression Scale (EPDS; Cox, Holden, & Sagovsky, 1987) or the Patient Health Questionnaire (PHQ-9; Kroenke, Spitzer, & Williams, 2001). Screening protocols have become more commonly implemented for perinatal depression (Gavin, Meltzer-Brody, Glover, & Gaynes, 2015; Miller et al., 2012), yet these screening protocols often neglect other significant perinatal mental health concerns such as anxiety, stress, and PTSD. Screening for depression still has significant barriers such as women failing to follow-up for care (Parker et al., 2012), lack of protocol standardization for screening (Shakespeare et al., 2003), and lack of awareness about PPD by provider or patient that certain occurrences are symptoms of depression and not simply the result of being in the postpartum (Wisner et al., 2006). However, even with these barriers, perinatal depression screening has allowed for prevention and early intervention that may not have otherwise been possible (Loudon, Nentin, & Silverman, 2016). Findings from this study suggest that screening for prenatal anxiety disorder symptoms could be beneficial as well.

It appears that timing of screening may also be a factor as prenatal anxiety appears to be not only important to a woman's current functioning but also to the functioning of her children across their lifespan. For example, high levels of maternal depression, anxiety, and stress symptoms in early pregnancy predicts increased risk of internalizing behavior problems even in adolescence (Betts, Williams, Najman, & Alati, 2014). Other studies have found prenatal anxiety that occurs in late pregnancy to have the most damaging effects on children (Brouwers, van Baar, & Pop, 2001; O'Connor, Heron, Golding, Glover, & ALSPAC Study Team, 2003). For the most benefit, perinatal anxiety screens should be conducted more than once during pregnancy. When perinatal depression screens are only conducted once, women that could

benefit from treatment can be missed as depressive symptoms may increase later in the perinatal period (Chaudron et al., 2010). While multiple screenings can be burdensome, anxiety disorders are under detected in obstetric settings (Coleman, Carter, Morgan, & Schulkin, 2008) and multiple screens aimed at detecting perinatal anxiety could increase awareness of women in need of treatment.

When women are identified as experiencing perinatal anxiety, the next consideration must be treatment. While many women experience transient anxiety during the adjustment to parenthood that does not require clinical intervention (Matthey & Ross-Hamid, 2012), a significant number of women experience sustained anxiety across the perinatal period (Dennis, Brown, Falah-Hassani, Marini, & Vigod, 2017b). Non-pharmacologic options to address prenatal anxiety are preferred (Arch, 2014), suggesting that research should focus on psychotherapy options to manage perinatal anxiety.

There have been very few studies targeting treatment of perinatal anxiety (Goodman, Chenausky, & Freeman, 2014a). Two pilot cognitive-behavioral treatment (CBT) group studies for pregnant women have been pioneered, one for individuals with any anxiety disorder (Green, Haber, Frey & McCabe, 2015) and the other aimed at treatment of a blood/injection phobia (Lilliecreutz, Josefsson, & Sydsjö, 2010). Both CBT studies demonstrated significant reductions in anxiety symptoms. Goodman et al. (2014b) adapted Mindfulness Based Cognitive Therapy (MBCT) to treat generalized anxiety disorder during pregnancy, which was also associated with significant reduction in anxiety symptoms.

There are currently no randomized controlled trials of treatment for anxiety in the perinatal period. The current study posits that negative maternal attitudes and experiential avoidance could be particularly salient clinical targets. CBT is considered the gold-standard for

the treatment of anxiety and could be an ideal treatment choice to target negative maternal attitudes with its focus on identifying and re-evaluating negative and/or distorted thoughts (Foa et al., 2005). However, some women may feel apprehension in completing the behavioral component of CBT for anxiety, *exposure therapy*, during pregnancy due to the increase in physiological anxiety symptoms targeted during treatment (Abramowitz, Deacon, & Whiteside, 2012). An alternative is ACT, a third-wave behavioral therapy aimed at reducing experiential avoidance and increasing value-based behaviors (Hayes, Luoma, Bond, Masuda, & Lillis, 2006), that has shown to be effective in the treatment of anxiety disorders (Eifert & Forsyth, 2005).

Looking towards the future of perinatal mental health research, targeting behavior change rather than challenging maladaptive thoughts appears to be a more robust clinical intervention (Longmore & Worrell, 2007). Given that unwillingness to experiencing aversive mental stimuli (experiential avoidance) mediated the effect of other psychological constructs across the perinatal period in the current study, future clinical research utilizing a behavior-based ACT approach compared to a more cognitively-based approach may be particularly productive. Further, Dennis et al. (2017b) identified low partner social support as an important risk factor for sustained general anxiety, indicating that couple-based psychotherapy could also be helpful to perinatal women. Future research must include more empirical studies assessing feasibility, effectiveness, and efficacy of individual-, group-, and couple-based psychotherapy aimed at the treatment of anxiety disorder symptoms in the perinatal period.

Limitations

This study had some notable limitations. First, the IMAS that was used in this study was validated against the DSM-IV-TR rather than the DSM-5 (APA, 2000, 2013). There have been some changes to depressive and anxiety disorders in the new DSM-5 (e.g. the increased focus on

fear of negative evaluation in social anxiety disorder; Heimberg et al., 2014). However, a validated dimensional assessment of psychopathology was not available for the DSM-5 at the beginning of the study. Nevertheless, the symptoms captured by the IMAS were similar enough to the DSM-5 that DSM-5 criteria was used to calculate the rates of current depressive and anxiety disorders in pregnancy and the postpartum. Future research should attempt to replicate the findings with this study with a dimensional assessment of psychopathology validated against the DSM-5.

Another limitation is that in both three-factor models, there were two factors that were highly correlated at each time point; Fear and Distress in the pregnancy model (.80) and Distress and Bipolar factors in the postpartum model (.84), indicating poor discriminant validity. Interestingly, these correlations were nearly the same as the factor loadings in Kotov's (2015) student sample (Fear and Distress [.80], Distress and Bipolar [.72]). Multiple theoretically-based models were tested in this study (three-factor model with cross-loading, one higher-order factor, three separate lower-order factors) with the three-factor model the best fit for the data. This is consistent with the Cunningham et al. (2013) study assessing the structure of anxiety and depressive symptoms in inpatient women in which a three-factor model with low discriminant validity between lower-order factors was also the best-fitting model. However, a model that distinguishes among lower-order factors even more precisely may exist.

Another limitation was that participants that completed components of the study during pregnancy but did not finish the study had higher mean scores on most IMAS scales, suggesting that women with more severe psychopathology symptoms may not be adequately represented. Future research should incorporate a larger sample that captures a broader severity of psychopathology as well as potentially explore other models of psychopathology to determine

more conclusively if the three-factor model is the best representation of internalizing symptoms in pregnancy and the postpartum. Additionally, all measures collected during the study did not inquire about prior pregnancies, only about the current pregnancy. While parity was assessed, there was potentially relevant information (e.g. traumatic birth experiences, number of children) that could impact how a woman responded to her current pregnancy. Future research should more comprehensively assess past and current birth experiences.

Finally, data were only collected during the third trimester and the early part of the postpartum. The structure of anxiety and depressive symptoms might have been slightly different if data had been collected earlier in pregnancy or further in the postpartum period. For example, Dennis, Falah-Hassani and Shir (2017a) found that self-reported anxiety increased incrementally at each pregnancy trimester and decreased from the first four weeks postpartum to twelve weeks postpartum. Perinatal anxiety follows a dynamic trajectory, increasing across pregnancy and decreasing across the postpartum, making timing of measurement important (Agrati et al., 2015; Figueiredo & Conde, 2011). Future studies should measure anxiety symptoms during the first or second trimester of pregnancy as well as later in the postpartum year to determine if perinatal anxiety risk factors and symptom structure change over time.

Conclusions and Future Directions

The present study was the first to examine the structure of all anxiety and depressive disorder symptoms in a community sample during pregnancy and the postpartum. The three-factor model was the best fitting model across the perinatal period, suggesting that perinatal internalizing symptoms are best classified by core feature of Distress, Fear, and/or Bipolar. Future clinical intervention research should target structurally similar groups of symptoms rather than simply depression or anxiety disorders to determine if treatment outcomes can be improved.

The present study also examined sociodemographic, obstetric/medical, and psychological risk factors while using experiential avoidance as a mediator. During pregnancy, past psychiatric history predicted Distress and Fear symptoms while experiential avoidance mediated the relation between negative coping strategies and Fear symptoms. In the postpartum, negative maternal attitudes predicted Distress symptoms. Experiential avoidance significantly mediated the relation between negative coping strategies and Fear as well as between anxiety sensitivity and Fear. Past psychiatric history, negative maternal attitudes, and experiential avoidance appear to be the most important risk factors for perinatal anxiety of the studied risk factors. Future clinical research should be aimed at identifying and treating at-risk women, such as women with a lifetime history of depressive and/or anxiety disorders or women who endorse negative attitudes about having a new infant. Future research should also examine clinical interventions aimed at modifying perinatal experiential avoidance, given its significant role in explaining why negative coping strategies and anxiety sensitivity predict internalizing symptoms. Sociodemographic and obstetric/medical risk factors should continue to be examined in more diverse samples given the homogenous nature of the current sample.

This study was also the first to examine all OCS disorder symptoms in the perinatal period. Clinically significant symptoms of trichotillomania, hoarding and excoriation disorder symptoms were not particularly prevalent across the perinatal period. However, body dysmorphic disorder symptoms were the most prevalent OCS symptoms in both pregnancy and the postpartum. Future research needs to validate body dysmorphic disorder symptom measures for the perinatal period in order to untangle the relation between normative body concerns, eating disorder psychopathology, and body dysmorphic disorder symptoms. All perinatal OCS disorder symptoms were significantly associated with more overall difficulty adjusting to the postpartum.

Prenatal hoarding and body dysmorphic disorder symptoms uniquely predicted postpartum adjustment when controlling for existing OCD and depressive symptoms. Further research is needed to better understand which mechanisms account for the relation hoarding and body dysmorphic disorder symptoms and postpartum adjustment.

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TABLES

Table 1

Study Time Points and Corresponding Assessments

<i>Time Point</i>	<i>Measures</i>
Third Trimester (at least 28 weeks)	IMAS (clinical interview + demographics)
	MINI (Depression, Anxiety, & OCD modules only)
	AAQ-II
	ASI
	COPE
	MAMA
	OCS questionnaires (DCQ; SI-R; SPS; & MGH-HPS; question about past sx)
Postpartum (6-8 weeks)	IMAS (clinical interview)
	AAQ-II
	ASI
	COPE
	MAMA
	OCS questionnaires (DCQ; SI-R; SPS; & MGH-HPS; for current use only)
	PPAQ
PRAMS (modified)	

Note. AAQ-II-Acceptance and Action Questionnaire; ASI- Anxiety Sensitivity Index; COPE – Brief COPE Inventory; DCQ – Dysmorphic Concerns Questionnaire; IMAS-Interview for Mood and Anxiety Symptoms; MAMA- Maternal Adjustment and Maternal Attitudes Scale; MINI – Mini International Neuropsychiatric Interview; MGH-HPS – Massachusetts General Hospital Hair-Pulling Scale; PPAQ - Postpartum Adjustment Questionnaire; PRAMS - Pregnancy Risk Assessment Monitoring System; SI-R - Saving Inventory-Revised; SPS - Skin Picking Scale.

Table 2.

Participant Demographics

<i>Variable</i>	<i>M(SD)</i>
Age	30.8(5.3)
	<i>N(%)</i>
<i>Race</i>	
Asian	4(2.1)
Black	8(4.2)
White	172(90.1)
Pacific Islander	1(0.5)
More than one race	6(3.1)
<i>Ethnicity</i>	
Latina	15(7.7)
Not Latina	181(92.3)
<i>Education Level</i>	
High School Degree or Less	15(7.7)
Associates Degree/Some College	46(23.6)
Bachelor's Degree	72(36.9)
Masters or Doctoral/Professional	62(31.8)
<i>Parity</i>	
Multiparous	101(49.0)
Nulliparous	104(50.5)
<i>Income Level</i>	
<30,000	27(13.9)
30-70,000	71(36.6)
>70,000	96(49.5)
<i>Marital Status</i>	
Single	14(7.2)
Cohabiting/Engaged/Married	177(91.2)
Separated/Divorced/Widowed	3(1.5)

Note. There were 203 participants that reported any demographic data during the study. Table numbers reflect percentage of participants that reported data; *M* = mean; *SD* = standard deviation; *N* = 194-199.

Table 3.

Psychopathology in Pregnancy, the Postpartum, and Lifetime

	Pregnancy N (%)			Postpartum N (%)			Lifetime N (%)		
	Full Criteria	Subthreshold	No Diagnosis	Full Criteria	Subthreshold	No Diagnosis	Full Criteria	Subthreshold	No Diagnosis
Major Depression	7(2.8)*	18(7.2%)	226 (90.1)	11(5.5)	4(1.9)	201(93.1)	55(22.1)	42(16.8)	152(60.8)
Recurrent Depression		N/A			N/A		33(13.3)	16(6.4)	199(79.9)
Dysthymia		N/A			N/A		5(2)	3(1.2)	241(96.8)
Hypomania		N/A			N/A		4(1.6)	13(5.2)	232(93.2)
Mania	0	2(0.8)	249(99.2)	0	2 (0.9)	214(99.1)	10(4)	4(1.6)	235(94.4)
Panic	2(0.8)	2(0.8)	247(98.4)	1(0.5)	0	215(99.5)	21(8.5)	24(9.72)	201(81.7)
Social Phobia	8(3.2)	7(2.8)	236(94)	4(1.9)	1(0.5)	211(97.7)	23(9.2)	22(8.8)	204(81.6)
Agoraphobia	4(1.6)	9(3.6)	238(94.8)	3(1.4)	2 (0.9)	211(97.7)	14(5.6)	14(5.6)	221(88.8)
Specific Phobia	24(9.6)	12(4.8)	215(85.7)	8(3.7)	6(2.8)	202(93.5)		N/A	
GAD	2(0.8)	9(3.6)	240(95.6)	1(0.5)	1(0.5)	214(99.1)	17(6.9)	5(2)	226(90.8)
OCD	11(4.4)	7(2.8)	233(92.8)	7(3.2)	25(11.6)	184(85.2)	14(5.6)	21(8.4)	214(85.9)
Irritability	17(6.8)	19(7.6)	216(85.7)	10(4.6)	6(2.8)	200(92.6)		N/A	
Comorbid DEP/ANX	6(85.7)	9(50)	N/A	1(9.1)	2(50)	N/A	24(24.7)	29(29.9)	152(61)
Any anxiety diagnosis	37(14.7)	38(15.1)	176(70.1)	17(7.9)	33(15.3)	166(76.9)	46(18.5)	56(22.5)	147(59)

Note. Current diagnoses (determined by high levels of disorder symptoms) on the IMAS according to DSM-V criteria with past diagnoses (determined by high levels of disorder symptoms) determined by the MINI criteria; GAD= generalized anxiety disorder; OCD= obsessive compulsive disorder; Subthreshold = endorsed some symptoms but not enough to meet criteria; *= number reflects participants who met criteria for Major and Mild Depression (described in Appendix A); Comorbid DEP/ANX subthreshold category refers to the number of participants that met criteria for both depression and an at least one anxiety disorder, although at least one depression or anxiety diagnosis was subthreshold; N for pregnancy diagnoses = 251; N for postpartum diagnoses = 216; N for past diagnoses = 246-249.

Table 4.

Obsessive-Compulsive Spectrum Measures: Descriptive Statistics, Reliability, Clinical Significance Rates, and New Incidence Rates in Pregnancy and the Postpartum

OCS Symptom	Number of items	α	Pregnancy <i>M(SD)</i>	Range	Clinically Significant in Pregnancy	α	Postpartum <i>M(SD)</i>	Range	Clinically Significant in the Postpartum	New Incidence
BDD	7	0.88	4.68(3.85)	0-19	41(14.86)	0.88	4.01(3.61)	0-18	26(12.04)	8(30.8)
Hoarding	23	0.92	13.94(10.01)	0-53	5(1.81)	0.94	11.34(10.31)	0-54	3(1.43)	2(66.7)
TTM	7	0.91	0.56(2.25)	0-19	20(7.25)	0.93	0.62(2.73)	0-23	18(9.47)	11(61.1)
Excoriation	6	0.88	1.60(2.80)	0-19	16(5.80)	0.9	1.42(2.92)	0-21	10(4.76)	6(60.0)

Note. BDD = Body Dysmorphic Disorder; TTM = Trichotillomania; Diagnoses determined by clinically significant cutoff scores as determined by each disorder-specific measure; *M* = mean; *SD* = standard deviation; Sx = symptoms; * = indicated that the participant experienced symptoms at a prior time point; N/% of all participants at each time point; *N* = 248-273 in pregnancy; *N* = 190-216 for postpartum scales.

Table 5.

Descriptive Statistics, Score Range, and Reliability for Psychological and Obstetric/Medical Risk Factors in Pregnancy and the Postpartum

	Number of items	Pregnancy			Postpartum		
		α	$M(SD)$	Range	α	$M(SD)$	Range
<i>Psychological</i>							
AAQ-II	7	.92	15.60 (7.62)	7-49	0.91	13.28(6.74)	7-42
ASI	16	.89	14.86 (9.51)	0-55	0.85	11.93(8.04)	0-39
COPE							
Negative Coping Total	10	.80	4.37 (3.50)	0-20	0.71	3.28(3.10)	0-17
Total	28	.91	28.91 (13.03)	0-55	0.91	24.5(13.31)	0-56
MAMA	12	.65	10.92 (4.67)	0-26	0.84	8.98(5.15)	0-30
MINI	14	.87*	1.70 (2.55)	0-13			
<i>Obstetric/Medical</i>							
Checked for Hypertension						<i>N (%)</i>	
Checked for Diabetes						10(4.9)	
Dental Hygiene Visit						151(73.3)	
Total Pregnancy Complications							
0						82(39.8)	
1						73(35.4)	
2						26(12.6)	
3+						25(12.1)	
Cold/Flu						103(50)	
Infections/Virus						34(16.5)	
NICU						26(12.6)	

Note. AAQ-II = Acceptance and Action Questionnaire; ASI = Anxiety Sensitivity Index; COPE = Brief COPE Inventory; MAMA = Maternal Adjustment and Maternal Attitudes Scale; MINI – Mini International Neuropsychiatric Interview; NICU- neonatal intensive care unit; M = mean; SD = standard deviation; *average interrater reliability across modules = $N = 205-245$ as only participants who completed both online questionnaires and phone interviews were included in descriptives.

Table 6.

Independent t-tests between Pregnancy and Postpartum Completers Compared to Pregnancy-Only Completers

	Group		Test statistic	p-value
	Consenters (N = 313)	Pregnancy Participants (N = 246)		
<i>Demographics</i>	<i>M(SD)</i>			
Age	30.82(5.33)	29.05(6.25)	$t = 1.746$	0.08
	Completers (N = 206)	Non- completers (N = 51)		
	<i>N(%)</i>			
Race±	39(81.3)	166(90.2)	$\chi^2=9.403(5)$	0.09
Ethnicity±	42(85.7)	175(92.6)	$\chi^2=2.288(1)$	0.13
<i>Pregnancy IMAS Subscales</i>	<i>M(SD)</i>			
Depression	3.10(6.45)	4.84(5.62)	$t = -1.773$	0.08
Panic	0.96(1.94)	2.51(4.37)	$t = -3.810$	<.01*
Social Anxiety	3.44(5.36)	5.76(7.86)	$t = -2.503$	0.01*
Agoraphobia	0.99(2.68)	2.10(3.80)	$t = -2.417$	0.02*
GAD	1.48(3.24)	2.69(3.94)	$t = -2.276$	0.02*
OCD	0.59(1.76)	0.80(1.99)	$t = -0.748$	0.46
Specific Phobia	2.35(3.61)	3.80(5.35)	$t = -2.317$	0.02*
Irritability	1.17(2.73)	1.51(2.47)	$t = -0.823$	0.41
Mania	0.14(0.73)	0.41(0.94)	$t = -2.280$.02*
<i>Pregnancy Risk Factor</i>	<i>M(SD)</i>			
AAQ-II	13.28(6.74)	16.88(8.92)	$t = -3.184$	<.01*
ASI	11.93(8.04)	17.61(11.97)	$t = -3.967$	<.01*
MAMA	8.98(5.15)	10.63(3.89)	$t = -2.099$	0.04*
Psych hx	1.80(2.70)	1.82(2.78)	$t = -3.560$	0.96
Neg Cope	3.28(3.01)	5.22(4.53)	$t = -0.045$	<.01*

Note. *M* = Mean; *SD* = standard deviation; Consenters = anyone who consented to participate; Pregnancy participants = participants who completed any component in pregnancy; Completers = participants that completed the postpartum interview and questionnaire and at least one component in pregnancy; Non-completers = individuals who completed pregnancy interview and questionnaire but did not complete postpartum interview and questionnaire; ± = numbers and percentages for Caucasian and Non-Latina participants, respectively as those were the categories that most participants endorsed; GAD = generalized anxiety disorder; OCD = obsessive compulsive disorder; AAQ-II = Acceptance and Action Questionnaire; ASI = Anxiety Sensitivity Index; MAMA = Maternal Adjustment and Maternal Attitudes Scale; Psych hx = history of psychological diagnoses; Neg Cope = maladaptive coping skills; * = significant at the $p < .05$ level.

Table 7.

Descriptive Characteristics and Reliability of the IMAS Subscales and Norms for Outpatient and Student Samples

IMAS scale	Number of items	Pregnancy <i>N</i> = 251		Postpartum <i>N</i> = 216		Outpatient <i>M</i> (<i>SD</i>)	Student <i>M</i> (<i>SD</i>)
		<i>A</i>	<i>M</i> (<i>SD</i>)	<i>α</i>	<i>M</i> (<i>SD</i>)		
Depression	28	0.93	4.17(7.27)	0.93	3.36(6.99)	27.07(14.22)	9.22(10.24)
Panic	16	0.83	2.48(3.73)	0.8	1.04(2.31)	11.13(7.63)	5.23(4.69)
Soc Anxiety	24	0.90	4.67(6.36)	0.85	3.63(5.55)	17.28(11.63)	7.91(7.02)
Agoraphobia	22	0.89	1.63(3.77)	0.85	1.08(2.77)	8.10(8.47)	1.59(3.50)
GAD	12	0.89	2.30(4.13)	0.89	1.63(3.51)	12.66(7.34)	4.17(5.49)
OCD	13	0.78	0.86(1.99)	0.79	0.61(1.84)	4.70(5.65)	1.88(3.17)
Spec Phobia	16	0.81	3.25(4.21)	0.8	2.38(3.60)	8.48(6.72)	6.36(5.66)
Irritability	6	0.87	1.47(2.64)	0.93	1.19(2.74)	5.26(4.39)	1.50(2.70)
Mania	11	0.69	0.45(1.26)	0.71	0.14(0.72)	5.30(5.00)	2.41(3.51)

Note. IMAS = Inventory of Mood and Anxiety Symptoms; Soc = Social; Spec = Specific; Outpatient and Student *M/SD* taken from Kotov et al. (2015) IMAS validation paper; *α* = Cronbach's alpha; *M* = mean; *SD* = standard deviation; GAD = generalized anxiety disorder; OCD = obsessive compulsive disorder.

Table 8.

Skewness and Kurtosis of IMAS Subscales

	Skewness		Kurtosis	
	Statistic	Std. Error	Statistic	Std. Error
<i>Pregnancy</i>				
Depression	2.819	0.154	10.280	0.306
Panic	2.296	0.154	6.430	0.306
Social Anxiety	2.363	0.154	6.914	0.306
Agoraphobia	3.610	0.154	15.789	0.306
GAD	2.359	0.154	5.615	0.306
OCD	3.298	0.154	12.902	0.306
Specific Phobia	2.012	0.154	4.827	0.306
Irritability	2.088	0.154	4.087	0.306
Mania	3.749	0.154	16.541	0.306
<i>Postpartum</i>				
Depression	3.159	0.166	11.421	0.330
Panic	4.030	0.166	23.426	0.330
Social Anxiety	2.067	0.166	4.259	0.330
Agoraphobia	3.806	0.166	17.874	0.330
GAD	3.091	0.166	10.852	0.330
OCD	3.931	0.166	17.158	0.330
Specific Phobia	2.252	0.166	6.086	0.330
Irritability	2.816	0.166	7.290	0.330
Mania	6.692	0.166	50.940	0.330

Note. All subscales from the IMAS; Std. Error = standard error; skewness and kurtosis values between -2 and +2 are considered acceptable to demonstrate normal distribution.

Table 9.

Confirmatory Factor Analysis Goodness of Fit Statistics Across Models

Model	df	χ^2/df	SRMR	RMSEA (90% CI)	CFI	TLI
Pregnancy						
1 (Three-factor, Cross-Loaded)	23	3.980	0.043	0.109 (0.086, 0.133)	0.939	0.905
2 (Unidimensional)	27	6.114	0.055	0.143 (0.122, 0.164)	0.877	0.836
3 (Separate Factors, OCD on Bipolar)	24	4.135	0.480	0.112 (0.089, 0.135)	0.933	0.900
4 (Separate Factors, OCD on Fear)	25	4.084	0.047	0.111 (0.089, 0.134)	0.931	0.901
Postpartum						
1 (Three-factor, Cross-Loaded)	23	2.630	0.048	0.087 (0.061, 0.114)	0.952	0.925
2 (Unidimensional)	27	7.026	0.093	0.167 (0.145, 0.190)	0.791	0.721
3 (Separate Factors, OCD on Bipolar)	24	2.845	0.050	0.092 (0.067, 0.119)	0.943	0.915
4 (Separate Factors, OCD on Fear)	25	2.824	0.065	0.092 (0.067, 0.118)	0.941	0.916

Note. df = degrees of freedom; χ^2 = chi-squared statistic; SRMR = Standard Root Mean Residual; RMSEA=Root Mean Square Error of Approximation; CFI=Comparative Fit Index; TLI =Tucker Lewis Index.

Table 10.

Intercorrelations between Pregnancy and Postpartum IMAS Subscales and Demographic Risk Factors

	1. Age	2. Edu	3. Income	4. Relation	5. Dep-PP	6. Panic-PP	7. Soc Anx-PP	8. Agor-PP	9. GAD-PP	10. OCD-PP	11. Spec Phob-PP	12. Irr-PP	13. Mania-PP
1. Age	1	.32**	.40**	.08	-.04	-.07	-.06	-.03	-.05	.17*	.05	-.01	-.03
2. Education	.32**	1	.45**	.01	-.09	.07	-.17*	-.15*	-.10	-.17*	-.07	-.10	.01
3. Income	.40**	.45**	1	.06	-.12	-.11	-.15*	-.16*	-.18*	-.31**	-.11	-.09	-.10
4. Relationship	.08	.01	.06	1	.17*	.02	.14	.11	.19**	-.03	.04	.08	.18**
5. Dep-AN	.00	-.09	-.12	.20**	1	.30**	.46**	.31**	.83**	.30**	.10	.53**	.38**
6. Panic-AN	-.07	.07	-.11	.08	.30**	1	.20**	.23**	.32**	.29**	.18**	.20**	.21**
7. Soc Anx-AN	-.06	-.17*	-.15*	.16*	.46**	.20**	1	.68**	.43**	.28**	.24**	.39**	.20**
8. Agor-AN	-.03	-.15*	-.16*	.01	.31**	.23**	.68**	1	.26**	.37**	.24**	.25**	.16*
9. GAD-AN	-.05	-.10	-.18*	.20**	.83**	.32**	.43**	.26**	1	.29**	.15*	.65**	.44**
10. OCD-AN	-.17*	-.17*	-.31**	.01	.30**	.29**	.28**	.37**	.29**	1	.16*	.27**	.24**
11. Phob-AN	.05	-.07	-.11	.00	.10	.18**	.24**	.24**	.15*	.16*	1	.13	.05
12. Irr-AN	-.01	-.11	-.09	.16*	.53**	.20**	.39**	.25**	.65**	.27**	.13	1	.24**
13. Mania-AN	-.03	.01	-.10	.20**	.38**	.21**	.20**	.16*	.44**	.24**	.05	.24**	1

Note. The lower right of the table reflects pregnancy IMAS values while the top left reflects the postpartum IMAS values. AN = pregnancy; PP = postpartum; Dep = depression; Soc Anx = social anxiety; Agor = agoraphobia; GAD = generalized anxiety disorder; OCD = obsessive compulsive disorder; Phob = specific phobia; Irr = irritability; * = correlation is significant at the $p < .05$ level; ** = correlation is significant at the $p < .01$ level; $N = 190-203$.

Table 11.

Intercorrelations between IMAS Subscales and Psychological Risk Factors in Pregnancy

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Depression														
2. Panic	.39**													
3. Soc Anx	.54**	.35**												
4. Agor	.46**	.38**	.72**											
5. GAD	.71**	.55**	.65**	.60**										
6. OCD	.31**	.36**	.38**	.56**	.49**									
7. Spec Phob	.23**	.35**	.36**	.45**	.41**	.41**								
8. Irritability	.58**	.44**	.54**	.53**	.67**	.51**	.33**							
9. Mania	.38**	.21**	.29**	.21**	.31**	.31**	.21**	.42**						
10. AAQ-II	.57**	.38**	.54**	.48**	.52**	.32**	.16**	.42**	.24**					
11. ASI	.37**	.47**	.47**	.45**	.47**	.24**	.24**	.31**	.14**	.66**				
12. MAMA	.34**	.15*	.16**	.10	.23**	.14*	.08	.18**	.19**	.42**	.26**			
13. Psych hx	.45**	.43**	.50**	.57**	.50**	.44**	.28**	.42**	.25**	.52**	.40**	.16**		
14. Neg Cope	.50**	.39**	.43**	.38**	.50**	.23**	.20**	.42**	.33**	.75**	.56**	.40**	.41**	

Note. Soc Anx = social anxiety; Agor = agoraphobia; Spec Phob = specific phobia; GAD = generalized anxiety disorder; OCD= obsessive compulsive disorder; hx = history; Neg Cope = negative coping total score; AAQ-II = Acceptance and Action Questionnaire; ASI = Anxiety Sensitivity Index; MAMA = Maternal Adjustment and Maternal Attitudes Scale; Psych hx = history of psychological diagnoses; Neg Cope= maladaptive coping skills; * = correlation is significant at the $p < .05$ level; ** = correlation is significant at the $p < .01$ level; $N = 227$.

Table 12.

Intercorrelations between IMAS Subscales in the Postpartum and Obstetric and Medical Risk Factors

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Depression															
2. Panic	.30**														
3. Social Anx	.44**	.18**													
4. Agor	.28**	.25**	.66**												
5. GAD	.82**	.34**	.42**	.25**											
6. OCD	.31**	.29**	.33**	.43**	.30**										
7. Spec Phob	0.11	.20**	.29**	.32**	.14*	.22**									
8. Irritability	.51**	.23**	.39**	.26**	.66**	.27**	.14*								
9. Mania	.38**	.18**	.19**	0.13	.42**	.23**	0.03	.22**							
10. Diabetes	.04	-.01	.00	-.01	.05	.14	.04	.06	-.04						
11. Hypertension	.07	-.04	.08	.02	.02	.09	.15*	-.01	.11	0.17*					
12. Parity	-.09	-.12	.13	.10	-.09	-.00	.03	.07	-.09	-.09	.05				
13. Preg Comp	.04	.13	.08	.10	.09	-.05	.03	.00	.04	.06	.10	.08			
14. Cold/Flu	-.08	-.02	.10	.04	-.00	.12	.11	.06	-.06	.09	.00	.18	-.01		
15. Infection	.03	-.05	.03	.02	.03	.07	.06	.05	-.08	.14*	.02	.05	.04	.23**	
16. NICU	-.01	.09	-.02	.06	.04	.05	-.05	.04	.03	.12	-.09	-.01	.30**	.08	.07

Note. Soc Anx = social anxiety; Agor = agoraphobia; GAD = generalized anxiety disorder; OCD = obsessive compulsive disorder; Spec Phob = specific phobia; Preg Comp = pregnancy complications; NICU = neonatal intensive care unit; * = correlation is significant at the $p < .05$ level; ** = correlation is significant at the $p < .01$ level; $N = 204-206$.

Table 13.

Intercorrelations between IMAS Subscales and Psychological Risk Factors in the Postpartum

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Depression														
2. Panic	.30**													
3. Social Anx	.44**	.18**												
4. Agor	.28**	.25**	.66**											
5. GAD	.82**	.34**	.42**	.25**										
6. OCD	.31**	.29**	.33**	.43**	.30**									
7. Spec Phob	.11	.20**	.29**	.32**	.14*	.22**								
8. Irritability	.51**	.23**	.39**	.26**	.66**	.27**	.14*							
9. Mania	.38**	.18**	.19**	.13	.42**	.23**	.03	.22**						
10. AAQ-II	.42**	.25**	.45**	.36**	.41**	.32**	.22**	.45**	.03					
11. ASI	.14*	.24**	.34**	.21**	.14	.15*	.22**	.20**	.01	.55**				
12. MAMA	.47**	.20*	.24**	.11	.44**	.15*	-.02	.36**	.15*	.44**	.30**			
13. Psych hx	.19**	.19**	.15*	.12	.22**	.17*	.10	.22**	.03	.19**	.20**	.10		
14. Neg Cope	.45**	.20*	.29**	.26**	.44**	.24**	.10	.44**	.17*	.65**	.33**	.57**	.08	

Note. Social Anx = social anxiety; Agor = agoraphobia; GAD = generalized anxiety disorder; OCD = obsessive compulsive disorder; Spec Phob = specific phobia; hx = history; Neg Cope = negative coping total score; AAQ-II = Acceptance and Action Questionnaire; ASI = Anxiety Sensitivity Index; MAMA = Maternal Adjustment and Maternal Attitudes Scale; Psych hx = history of psychological diagnoses; Neg Cope = maladaptive coping skills; * = correlation is significant at the $p < .05$ level; ** = correlation is significant at the $p < .01$ level; $N = 178-206$.

Table 14.

Intercorrelations between IMAS Subscales in Pregnancy and the Postpartum

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
1. Depression-AN																			
2. Panic-AN	.42**																		
3. Soc Anx-AN	.57**	.40**																	
4. Agor-AN	.42**	.41**	.70**																
5. GAD-AN	.71**	.58**	.68**	.57**															
6. OCD-AN	.28**	.40**	.44**	.56**	.49**														
7. Spec Phobia-AN	.23**	.45**	.38**	.47**	.43**	.38**													
8. Irritability-AN	.60**	.43**	.58**	.51**	.69**	.49**	.33**												
9. Mania-AN	.36**	.23**	.28**	.17*	.28**	.30**	.24**	.40**											
10. Depression-PP	.54**	.26**	.27**	.24**	.39**	.28**	.20**	.41**	.29**										
11. Panic-PP	.14	.23**	.14*	.20**	.17*	.18*	.23**	.23**	.26**	.30**									
12. Soc Anx-PP	.51**	.32**	.72**	.51**	.55**	.32**	.25**	.56**	.17*	.46**	.20**								
13. Agor-PP	.34**	.26**	.60**	.72**	.48**	.45**	.36**	.52**	.09	.31**	.23**	.68**							
14. GAD-PP	.53**	.27**	.33**	.19**	.50**	.30**	.21**	.44**	.27**	.83**	.32**	.43**	.26**						
15. OCD-PP	.29**	.19**	.41**	.42**	.40**	.56**	.21**	.36**	.18**	.30**	.29**	.28**	.37**	.29**					
16. Spec Phobia-PP	.12	.15*	.30**	.26**	.25**	.17*	.62**	.17*	.08	.10	.18**	.24**	.24**	.15*	.16*				
17. Irritability-PP	.47**	.18**	.38**	.21**	.45**	.26**	.18*	.46**	.25**	.53**	.20**	.39**	.25**	.65**	.27**	.13			
18. Mania-PP	.22**	.06	.06	-.03	.23**	.15*	.01	.20**	.27**	.38**	.21**	.20**	.16*	.44**	.24**	.06	.24**		

Note. Soc Anx = social anxiety; Agor = agoraphobia; GAD = generalized anxiety disorder; OCD = obsessive compulsive disorder; Spec Phobia = specific phobia; AN = antenatal; PP = postpartum; * = correlation is significant at the $p < .05$ level; ** = correlation is significant at the $p < .01$ level; $N = 195$.

Table 15.

Point Estimates of Direct Effects of Pregnancy, Postpartum, and Longitudinal Risk Factors on Fear, Distress, and Bipolar Factors

Predictor	Distress		Fear		Bipolar	
	Estimate (SE), <i>p</i> -value	CI	Estimate (SE), <i>p</i> -value	CI	Estimate (SE), <i>p</i> -value	CI
<i>Pregnancy</i>						
<u>Demographic Risk Factors</u>						
Age	-.090(.069), <i>p</i> =.187	(-.280, .078)	-.138(.068)*, <i>p</i> =.041	(-.333, .021)	-.010(.022), <i>p</i> =.655	(-.006, .002)
Relationship	-.728(2.324), <i>p</i> =.754	(-6.932, 5.408)	.072(2.214), <i>p</i> =.974	(-6.869, 4.970)	.556(.543), <i>p</i> =.306	(-.365, 2.628)
Education	-.299(.298), <i>p</i> =.315	(1.247, .263)	-.294(.315), <i>p</i> =.350	(-1.135, .404)	-.013(.070), <i>p</i> =.848	(-.361, .104)
Income	-.205(.199), <i>p</i> =.302	(-.817, .256)	.193(.187), <i>p</i> =.301	(-.681, .289)	-.055(.069), <i>p</i> =.428	(-.352, .082)
<u>Psychological Risk Factors</u>						
Anxiety Sensitivity	.079(.056), <i>p</i> =.157	(-.057, .251)	.122(.043)*, <i>p</i> =.005	(.004, .233)	-.015(.012), <i>p</i> =.234	(-.050, .015)
Maladaptive Coping	.351(.167)*, <i>p</i> =.036	(-.085, .809)	.003(.147), <i>p</i> =.981	(-.387, .385)	.107(.061), <i>p</i> =.078	(-.015, .301)
Past Psychiatric History	.690(.188)*, <i>p</i> <.001	(.292, 1.267)	.880(.194)*, <i>p</i> <.001	(.445, 1.466)	.094(.040)*, <i>p</i> =.020	(-.028, .193)
Negative Maternal Attitudes	.039(.073), <i>p</i> =.172	(-.110, .274)	-.089(.065), <i>p</i> =.172	(-.268, .073)	.023(.021), <i>p</i> =.261	(-.020, .091)
<i>Postpartum</i>						
<u>Demographic Risk Factors</u>						
Age	-.033(.081), <i>p</i> =.687	(-.247, .181)	-.027(.086), <i>p</i> =.754	(-.254, .189)	-.005(.009), <i>p</i> =.632	(-.029, .023)
Relationship	.502(2.627), <i>p</i> =.848	(-6.838, 6.919)	-1.401(2.425), <i>p</i> =.563	(-8.937, 3.499)	-.124(.359), <i>p</i> =.730	(-1.280, .709)
Education	-.056(.250), <i>p</i> =.822	(-.749, .584)	-.380(.266), <i>p</i> =.154	(-1.099, .329)	.048(.042), <i>p</i> =.255	(-.024, .238)
Income	-.417(.219), <i>p</i> =.058	(-.984, .171)	-.049(.045), <i>p</i> =.411	(-.664, .326)	-.049(.045), <i>p</i> =.273	(-.182, .060)
<u>Psychological Risk Factors</u>						
Anxiety Sensitivity	-.082(.058), <i>p</i> =.157	(-.223, .079)	.063(.065), <i>p</i> =.333	(-.081, .260)	-.005(.010), <i>p</i> =.626	(-.030, .022)
Maladaptive Coping	.341(.246), <i>p</i> =.165	(-.219, 1.052)	.074(.143), <i>p</i> =.602	(-.320, .438)	.041(.054), <i>p</i> =.444	(-.065, .225)
Past Psychiatric History	.344(.164)*, <i>p</i> =.036	(-.035, .819)	.127(.143), <i>p</i> =.375	(-.218, .538)	.009(.017), <i>p</i> =.616	(-.045, .049)
Negative Maternal Attitudes	.314(.100)*, <i>p</i> =.002	(.033, .565)	-.033(.086), <i>p</i> =.701	(-.235, .199)	.012(.021), <i>p</i> =.566	(-.043, .066)
<i>Longitudinal</i>						
<u>Psychological Risk Factors</u>						
Anxiety Sensitivity	-.065(.106), <i>p</i> =.541	(-.294, .245)	.066(.146), <i>p</i> =.653	(-.213, .435)	-.017(.020), <i>p</i> =.386	(-.069, .029)
Maladaptive Coping	.047(.037), <i>p</i> =.200	(-.036, .163)	-.057(.038), <i>p</i> =.136	(-.166, .022)	.010(.008), <i>p</i> =.219	(-.002, .004)
Past Psychiatric History	.337(.194), <i>p</i> =.083	(-.117, .935)	-.017(.135), <i>p</i> =.901	(-.361, .377)	-.009(.020), <i>p</i> =.658	(-.088, .035)
Negative Maternal Attitudes	.581(.227)*, <i>p</i> =.011	(.128, 1.328)	.079(.278), <i>p</i> =.775	(-.358, .871)	-.023(.026), <i>p</i> =.378	(-.148, .024)

Note. *=significant at *p*<.05; CI = confidence intervals.

Table 16.

Point Estimates of Indirect Effects of Pregnancy, Postpartum, and Longitudinal Risk Factors on Fear, Distress, and Bipolar Factors

Predictor	Distress		Fear		Bipolar	
	Estimate (SE), <i>p</i> -value	CI	Estimate (SE), <i>p</i> -value	CI	Estimate (SE), <i>p</i> -value	CI
<i>Pregnancy</i>						
<u>Demographic Risk Factors</u>						
Age	.022(.051), <i>p</i> =.672	(-.120, .165)	.019(.045), <i>p</i> =.668	(-.098, .147)	.002(.005), <i>p</i> =.694	(-.012, .020)
Relationship	-.449(1.454), <i>p</i> =.758	(-4.736, 3.458)	-.398(1.231), <i>p</i> =.746	(-3.613, 3.270)	-.044(.156), <i>p</i> =.777	(-.562, .344)
Education	-.153(.211), <i>p</i> =.468	(-.905, .266)	-.136(.183), <i>p</i> =.457	(-.762, .251)	-.015(.022), <i>p</i> =.495	(-.103, .034)
Income	-.261(.171), <i>p</i> =.126	(-.956, .065)	-.232(.159), <i>p</i> =.146	(-.882, .048)	-.026(.018), <i>p</i> =.163	(-.109, .006)
<u>Psychological Risk Factors</u>						
Anxiety Sensitivity	.026(.021), <i>p</i> =.225	(-.022, .091)	.036(.019), <i>p</i> =.053	(.000, .098)	-.002(.006), <i>p</i> =.711	(-.023, .011)
Maladaptive Coping	.114(.091), <i>p</i> =.212	(-.089, .388)	.159(.074)*, <i>p</i> =.031	(.001, .399)	-.010(.025), <i>p</i> =.700	(-.087, .049)
Past Psychiatric History	.065(.059), <i>p</i> =.271	(-.056, .280)	.091(.051), <i>p</i> =.075	(.000, .294)	-.006(.016), <i>p</i> =.720	(-.067, .030)
Negative Maternal Attitudes	.022(.019), <i>p</i> =.263	(-.016, .092)	.030(.018), <i>p</i> =.084	(.001, .099)	-.002(.005), <i>p</i> =.715	(-.022, .010)
<i>Postpartum</i>						
<u>Demographic Risk Factors</u>						
Age	.059(.041), <i>p</i> =.154	(-.043, .188)	.054(.039), <i>p</i> =.165	(-.033, .179)	.002(.002), <i>p</i> =.443	(-.002, .012)
Relationship	.119(.850), <i>p</i> =.888	(-1.95, 2.873)	.109(.757), <i>p</i> =.886	(-1.686, 2.899)	.003(.035), <i>p</i> =.920	(-.096, .121)
Education	-.080(.176), <i>p</i> =.647	(-.718, .297)	-.073(.154), <i>p</i> =.636	(-.660, .240)	-.002(.007), <i>p</i> =.732	(-.036, .012)
Income	-.060(.114), <i>p</i> =.600	(-.451, .212)	-.054(.103), <i>p</i> =.598	(-.427, .163)	-.002(.005), <i>p</i> =.703	(-.027, .007)
<u>Psychological Risk Factors</u>						
Anxiety Sensitivity	.061(.033), <i>p</i> =.066	(-.024, .159)	.086(.033)*, <i>p</i> =.010	(.010, .192)	-.002(.006), <i>p</i> =.775	(-.026, .011)
Maladaptive Coping	.215(.121), <i>p</i> =.074	(-.076, .582)	.304(.116)*, <i>p</i> =.009	(.040, .645)	-.006(.022), <i>p</i> =.774	(-.086, .038)
Past Psychiatric History	.035(.044), <i>p</i> =.420	(-.024, .238)	.050(.045), <i>p</i> =.266	(-.038, .220)	-.001(.005), <i>p</i> =.833	(-.036, .008)
Negative Maternal Attitudes	.015(.023), <i>p</i> =.522	(-.030, .115)	.021(.029), <i>p</i> =.471	(-.038, .124)	.000(.003), <i>p</i> =.874	(-.022, .005)
<i>Longitudinal</i>						
<u>Psychological Risk Factors</u>						
Anxiety Sensitivity	.028(.045), <i>p</i> =.538	(-.098, .167)	.067(.048), <i>p</i> =.166	(-.046, .214)	.000(.006), <i>p</i> =.940	(-.016, .017)
Maladaptive Coping	.003(.007), <i>p</i> =.637	(-.010, .039)	.008(.009), <i>p</i> =.339	(-.006, .047)	.000(.001), <i>p</i> =.952	(-.003, .004)
Past Psychiatric History	-.003(.024), <i>p</i> =.913	(-.107, .052)	-.006(.031), <i>p</i> =.840	(-.132, .064)	.000(.003), <i>p</i> =.988	(-.011, .009)
Negative Maternal Attitudes	.046(.091), <i>p</i> =.611	(-.114, .446)	.112(.086), <i>p</i> =.195	(-.055, .416)	.001(.011), <i>p</i> =.945	(-.028, .039)

Table 17.

Intercorrelations between Obsessive-Compulsive Spectrum Symptoms

OCS Scale	1	2	3	4	5	6	7
1. DCQ							
2. MGH-HPS	.16**						
3. SPS	.37**	0.11					
4. SI-R-Discarding	.23**	0.12	.25**				
5. SI-R-Clutter	.23**	.17**	.28**	.62**			
6. SI-R-Acquisition	.19**	.18**	.24**	.63**	.51**		
7. SI-R-Total	.26**	.18**	.30**	.89**	.85**	.82**	

Note. DCQ = Dysmorphic Concern Questionnaire; MGH-HPS = Massachusetts General Hospital Hairpulling Scale; SPS = Skin Picking Scale; SI-R = Saving Inventory-Revised; ** = Correlation is significant at the $p < .01$ level; $N = 242-274$.

Table 18.

Descriptive Statistics of Postpartum Adjustment Domains

	Current Study (<i>N</i> = 216)		Postpartum Community Sample (<i>N</i> = 124)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
<i>PPAQ Scale</i>				
Work in Home	2.26	0.50	2.18	0.38
Work out of Home	1.99	0.35	N/A	N/A
Family	2.19	0.42	1.98	0.32
Friends	2.00	0.33	2.18	0.40
New Baby	1.73	0.27	1.78	0.40
Other Children	1.87	0.29	2.12	0.39
Spouse	2.30	0.51	2.36	0.39
Total score	2.07	0.25	2.09	0.22

Note. PPAQ = Postpartum Adjustment Questionnaire; community norms taken from O'Hara, Hoffinan, Philipps, and Wright (1992) 2 months postpartum sample. *M* = mean; *SD* = standard deviation; N/A = not available; *N* = 103-218.

Table 19.

Intercorrelations between Postpartum Adjustment Domain Subscales and Obsessive-Compulsive Spectrum Symptoms in Pregnancy and the Postpartum

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. AN BDD																				
2. AN Hoarding	.26**																			
3. AN TTM	.16**	.18**																		
4. AN Excoriation	.37**	.30**	.11																	
5. AN Depression	.43**	.14*	.42**	.31**																
6. AN OCD	.19*	.16*	.03	.19**	.29**															
7. PP BDD	.71**	.20**	.12	.29**	.38**	.17*														
8. PP Hoarding	.20**	.71**	.05	.32**	.09	.06	.34**													
9. PP TTM	.13	-.01	.41**	.13	.40**	-.01	.21**	.19**												
10. PP Excoriation	.23**	.23**	.31**	.60**	.29**	.13	.31**	.41**	.33**											
11. PP Depression	.29**	.17*	.25**	.33**	.55**	.28**	.27**	.08	.15	.35**										
12. PP OCD	.14*	.02	.14	.14	.30**	.56**	.13	-.00	.06	.15*	.30**									
13. Work in House	.18**	.24**	.12	.11	.29**	.05	.26**	.23**	.18*	.06	.21**	-.00								
14. Outside Work	-.00	.03	-.14	.04	.05	-.09	.11	-.02	-.04	-.02	.44**	.03	.45**							
15. Friendship	.41**	.03	.21**	.10	.41**	.05	.29**	.01	.32**	.08	.24**	.06	.33**	.37**						
16. Relatives	.20**	.13	.13	.12	.32**	.24**	.18*	.05	.06	.06	.19*	.21**	.05	-.08	.22**					
17. New Baby	.10	.13	.04	.16*	.08	-.07	.16*	.10	.09	.09	.16*	-.08	.25**	.36**	.13	.16*				
18. Other Children	.07	.10	.00	.06	-.04	-.11	.12	.10	-.03	-.08	.10	-.12	.25**	.23*	.16	.15	.46**			
19. Spouse	.21**	.12	-.03	.18*	.25**	.10	.18**	.16*	.05	.05	.05	.15*	.27**	.00	.40**	.25**	.15*	.15		
20. Total	.35**	.19**	.21**	.22**	.42**	.15*	.33**	.17*	.22**	.16*	.31**	.16*	.66**	.47**	.67**	.48**	.48**	.46**	.46**	.67**

Note. AN = pregnancy; PP = postpartum; BDD = body dysmorphic disorder; TTM = trichotillomania; OCD = obsessive compulsive disorder; * = correlation is significant at the $p < .05$ level; ** = correlation is significant at the $p < .01$ level; $N = 98-274$.

Table 20.

Hierarchical Multiple Regression Analyses for Body Dysmorphic Disorder Symptoms

	<i>B</i>	<i>SE B</i>	<i>R</i> ²	ΔR^2	β	ΔF	<i>df</i>	<i>F</i>
Work in Home								
<i>Step 1</i>			.081	.081		16.149***	1,184	16.149***
(Constant)	2.177	0.04						
AN Dep	0.02	0.01			.284***			
<i>Step 2</i>			.086	.005		0.515	2,182	5.698***
AN OCD	-0.012	0.02			-.046			
AN BDD	0.009	0.01			.067			
<i>Step 3</i>			.132	.047		3.205*	3,179	4.555***
PP Dep	0.006	0.01			.076			
PP OCD	-0.032	0.02			-.113			
PP BDD	0.038	0.01			.265**			
Friendships								
<i>Step 1</i>			.19	.19		41.848***	1,178	41.848***
(Constant)	2.089	0.03						
AN Dep	0.024	0			.436***			
<i>Step 2</i>			.26	.07		8.318***	2,176	20.642***
AN OCD	-0.026	0.02			-.12			
AN BDD	0.029	0.01			.275***			
<i>Step 3</i>			.261	.001		0.971	3,173	10.198***
PP Dep	0.001	0.01			.017			
PP OCD	-0.008	0.02			-.035			
PP BDD	-0.002	0.01			-.014			
Relatives								
<i>Step 1</i>			.106	.106		20.458***	1,172	20.458***
(Constant)	23.17	0.31						
AN Dep	0.194	0.04			.326***			
<i>Step 2</i>			.125	.019		1.844	2,170	8.115***
AN OCD	0.26	0.16			.129			
AN BDD	0.066	0.08			.061			
<i>Step 3</i>			.129	.003		0.212	3,167	4.107***
PP Dep	-0.014	0.05			-.024			
PP OCD	0.074	0.19			.036			
PP BDD	0.073	0.11			.065			

Table 20. Continued

	<i>B</i>	<i>SE B</i>	<i>R</i> ²	ΔR^2	β	ΔF	<i>df</i>	<i>F</i>
Spouse								
<i>Step 1</i>			0.064	0.064		12.132**	1,177	12.132**
(Constant)	2.242	0.04						
AN Dep	0.021	0.01			.253**			
<i>Step 2</i>			0.077	0.013		1.22	2,175	4.867**
AN OCD	0	0.02			0.001			
AN BDD	0.018	0.01			0.122			
<i>Step 3</i>			0.098	0.021		1.327	3,172	3.111**
PP Dep	-0.012	0.01			-0.141			
PP OCD	0.031	0.03			0.107			
PP BDD	0.008	0.02			0.051			
Total Adjustment								
<i>Step 1</i>			0.186	0.186		42.203***	<.001***	42.203***
(Constant)	1.952	0.027						
AN Dep	0.01	0.003			.431***			
<i>Step 2</i>			0.213	0.028		3.224*	.042*	16.556***
AN OCD	-0.003	0.011			0.002			
AN BDD	0.006	0.006			.185*			
<i>Step 3</i>			0.23	0.017		1.298	0.277	8.967***
PP Dep	0.003	0.003			0.09			
PP OCD	0.003	0.011			0.019			
PP BDD	0.01	0.007			0.142			

Note. AN= pregnancy; PP = postpartum; *B* = unstandardized beta; *SE* = standard error; β = standardized Beta; OCD = obsessive-compulsive disorder; BDD = body dysmorphic disorder. All bolded items represent Postpartum Adjustment Questionnaire subscale; * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 21.

Hierarchical Multiple Regression Analyses for Hoarding Disorder Symptoms

	<i>B</i>	<i>SE B</i>	<i>R</i> ²	ΔR^2	β	ΔF	<i>df</i>	<i>F</i>
Work in Home								
<i>Step 1</i>			.04	.04		7.249**	1,176	7.249**
(Constant)	2.193	0.04						
AN Dep	0.016	0.006			.199**			
<i>Step 2</i>			.105	.066		6.38**	2,174	6.817***
AN OCD	-0.015	0.02			-.058			
AN HD	0.013	0.004			.259***			
<i>Step 3</i>			.12	.015		0.952	3,171	3.882**
PP Dep	0.005	0.007			.073			
PP OCD	-0.019	0.024			-.074			
PP HD	0.006	0.005			.14			
Total Adjustment								
<i>Step 1</i>			.112	.112		22.233***	1,177	22.233***
(Constant)	2.012	0.019						
AN Dep	0.013	0.003			.334***			
<i>Step 2</i>			.153	.042		4.328*	2,175	10.575***
AN OCD	0.003	0.009			.022			
AN HD	0.005	0.002			.203**			
<i>Step 3</i>			.167	.014		0.961	3,172	5.764***
PP Dep	0.004	0.003			.124			
PP OCD	0.009	0.011			.069			
PP HD	0.001	0.002			.042			

Note. AN= pregnancy; PP = postpartum; *SE* = standard error; β = standardized Beta; OCD = obsessive-compulsive disorder; HD = hoarding disorder; all **bolded** items represent Postpartum Adjustment Questionnaire subscales;

* $p < .05$, ** $p < .01$, *** $p < .001$.

Table 22.

Hierarchical Multiple Regression Analyses for Trichotillomania Symptoms

	<i>B</i>	<i>SE B</i>	<i>R</i> ²	ΔR^2	β	ΔF	<i>df</i>	<i>F</i>
Friendships								
<i>Step 1</i>			.189	.189		33.83***	1,145	33.83***
(Constant)	2.111	0.037						
AN Dep	0.025	0.004			.435***			
<i>Step 2</i>			.199	.01		0.889	2,143	11.852***
AN OCD	-0.016	0.017			-.073			
AN TTM	0.012	0.014			.071			
<i>Step 3</i>			.227	.027		1.657	3,140	6.836***
PP Dep	-0.002	0.007			-.031			
PP OCD	-0.016	0.022			-.069			
PP TTM	0.025	0.013			0.171			
Total Adjustment								
<i>Step 1</i>			.204	.204		39.229***	1,153	39.229***
(Constant)	2.002	0.020						
AN Dep	0.015	0.002			.452***			
<i>Step 2</i>			.218	.014		1.361	2,151	14.045***
AN OCD	0.006	0.01			.050			
AN TTM	0.012	0.008			.124			
<i>Step 3</i>			.220	.002		0.118	3,148	6.959***
PP Dep	0.001	0.004			.032			
PP OCD	0.002	0.012			.012			
PP TTM	0.004	0.007			.043			

Note. *SE* = standard error; β = standardized Beta; OCD = obsessive-compulsive disorder; TTM = trichotillomania; all **bolded** items represent Postpartum Adjustment Questionnaire subscales; * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 23.

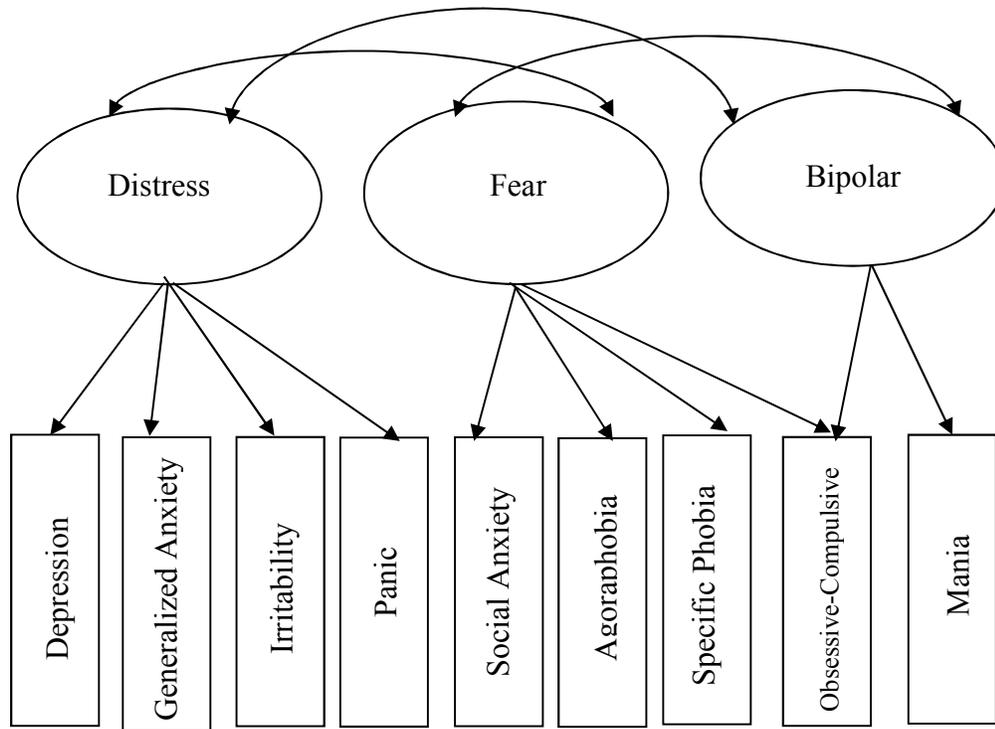
Hierarchical Multiple Regression Analyses for Excoriation Disorder Symptoms

	<i>B</i>	<i>SE B</i>	<i>R</i> ²	ΔR^2	β	ΔF	<i>df</i>	<i>F</i>
New Baby								
<i>Step 1</i>			.005	.005		0.812	1,173	0.812
(Constant)	1.719	0.023						
AN Dep	0.003	0.003			.068			
<i>Step 2</i>			.036	.031		2.759	2,171	2.116
AN OCD	-0.02	0.012			-.137			
AN ED	0.013	0.007			.143			
<i>Step 3</i>			.068	.032		1.91	3,168	2.03
PP Dep	0.009	0.004			.208*			
PP OCD	-0.018	0.015			-.114			
PP ED	-0.002	0.008			-.024			
Spouse								
<i>Step 1</i>			.055	.055		9.735**	1,168	9.735**
(Constant)	2.246	0.045						
AN Dep	0.019	0.006			.234**			
<i>Step 2</i>			.073	.019		1.66	2,166	4.377**
AN OCD	-0.002	0.022			-.009			
AN ED	0.027	0.015			.139			
<i>Step 3</i>			.103	.03		1.808	3,163	3.125**
PP Dep	-0.014	0.007			-.173			
PP OCD	0.039	0.028			.133			
PP ED	-0.005	0.017			-.024			
Total Adjustment								
<i>Step 1</i>			.183	.183		39.320***	1,176	39.320***
(Constant)	2.014	0.019						
AN Dep	0.014	0.002			.427***			
<i>Step 2</i>			.197	.015		1.581	2,174	24.247***
AN OCD	-0.005	0.009			-.001			
AN ED	0.011	0.006			.127			
<i>Step 3</i>			.205	.008		0.541	3,171	7.338***
PP Dep	0.004	0.003			.102			
PP OCD	0.004	0.012			.032			
PP ED	-0.003	0.007			-.033			

Note. *SE* = standard error; β = standardized Beta; OCD = obsessive-compulsive disorder; ED = excoriation disorder all **bolded** items represent Postpartum Adjustment Questionnaire subscales; * $p < .05$, ** $p < .01$, *** $p < .001$.

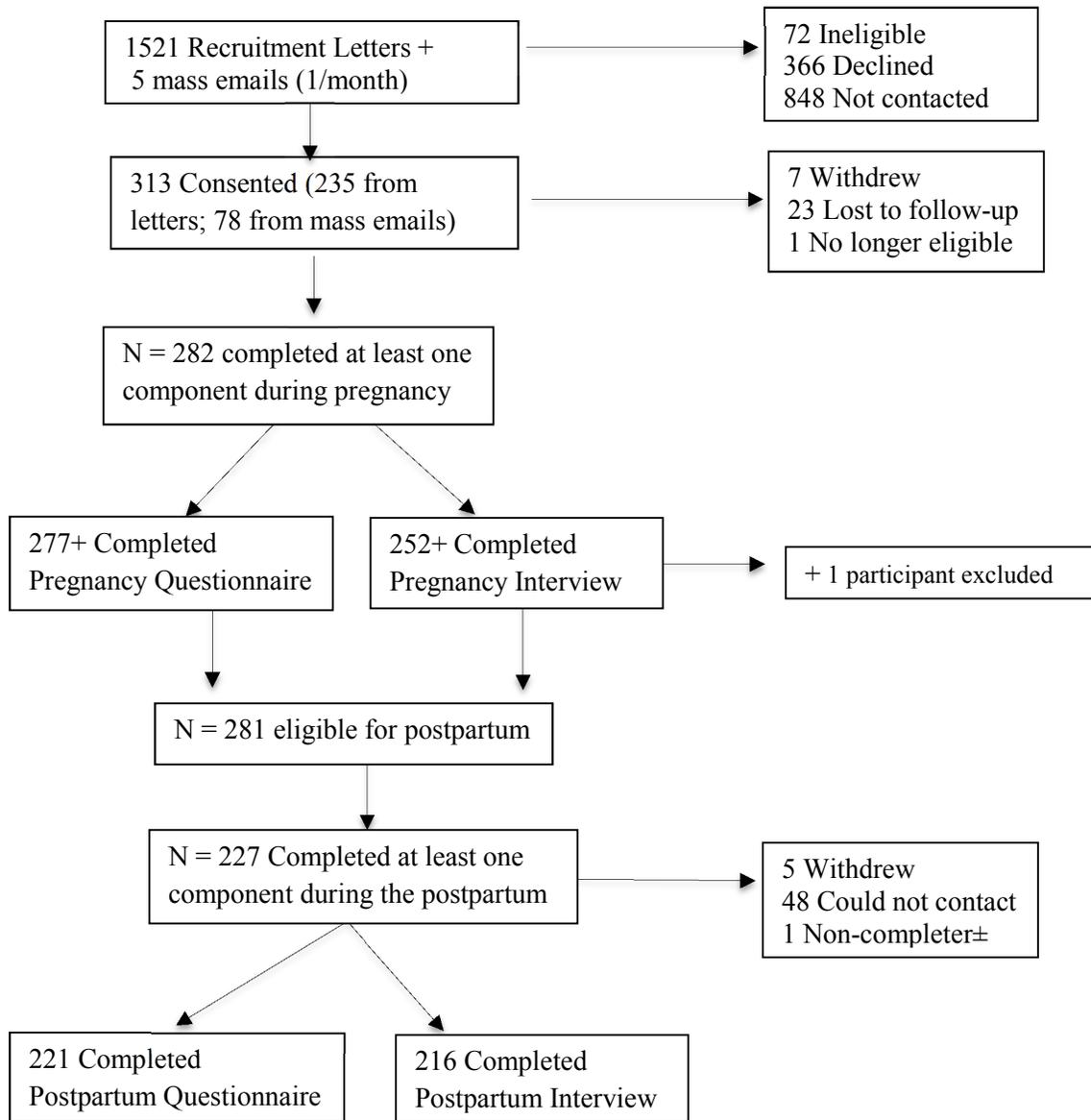
FIGURES

Figure 1. Kotov et al. (2015) Factor Structure of Internalizing Psychopathology



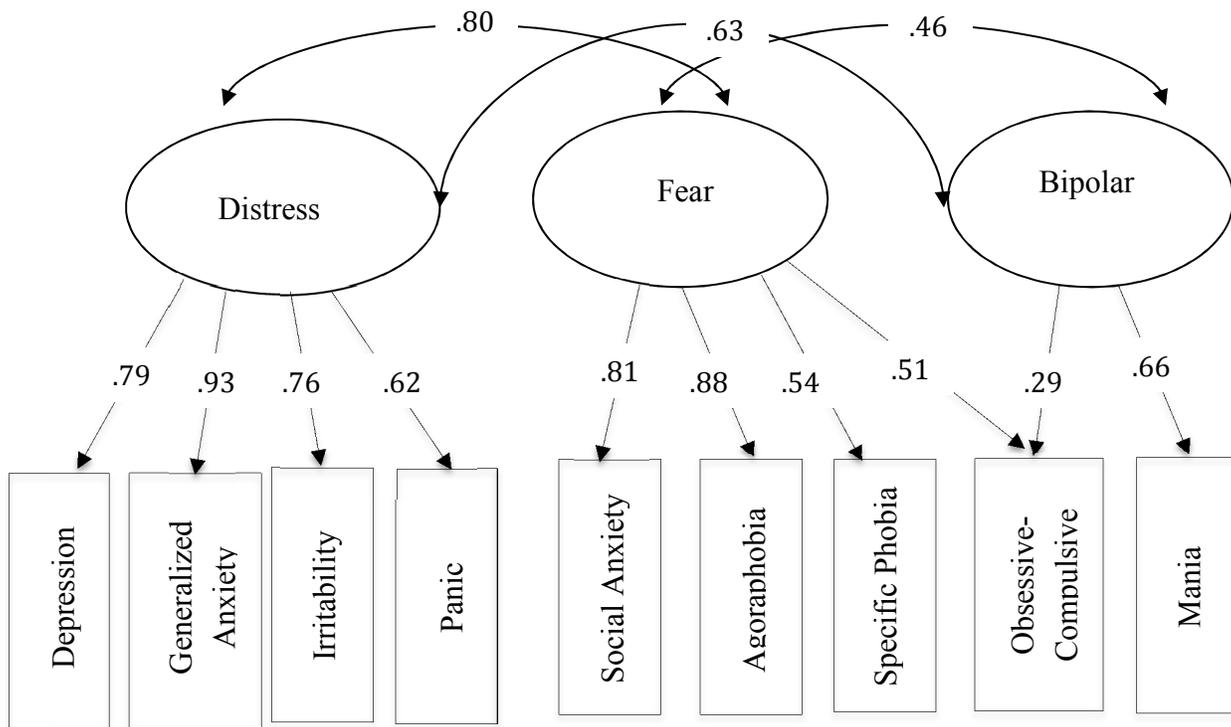
Note: Model used to compare to CFA for Aim #1.

Figure 2. Consort Diagram



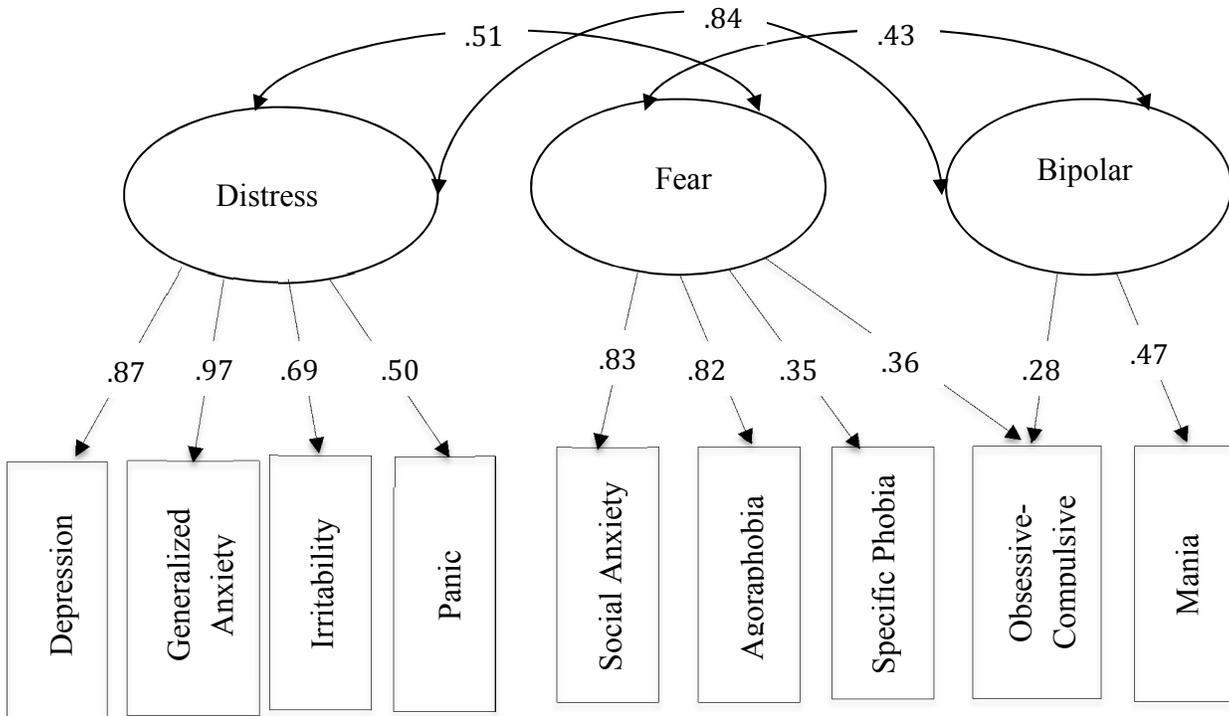
Note. Not Contacted=Eligible participants who the research team could not reach via telephone after 3 attempts or individuals who entered their 33rd week of pregnancy before 3 telephone attempts could be made; Lost to follow-up= Consented but did not complete online questionnaire or telephone interview; No longer eligible = didn't communicate accurate gestation age; + = participant excluded because of language barrier that was not evident at consent phone call; Could not contact = Participants who completed at least one component of the study during pregnancy but could not be reached after up to 6 attempts to schedule a postpartum interview and complete the postpartum questionnaire; ± = There were 228 participants who attempted any component of the study. One participant only completed part of the phone interview and did not return calls to finish the interview and did not complete the online questionnaire.

Figure 3. Study Confirmatory Factor Analysis in Pregnancy



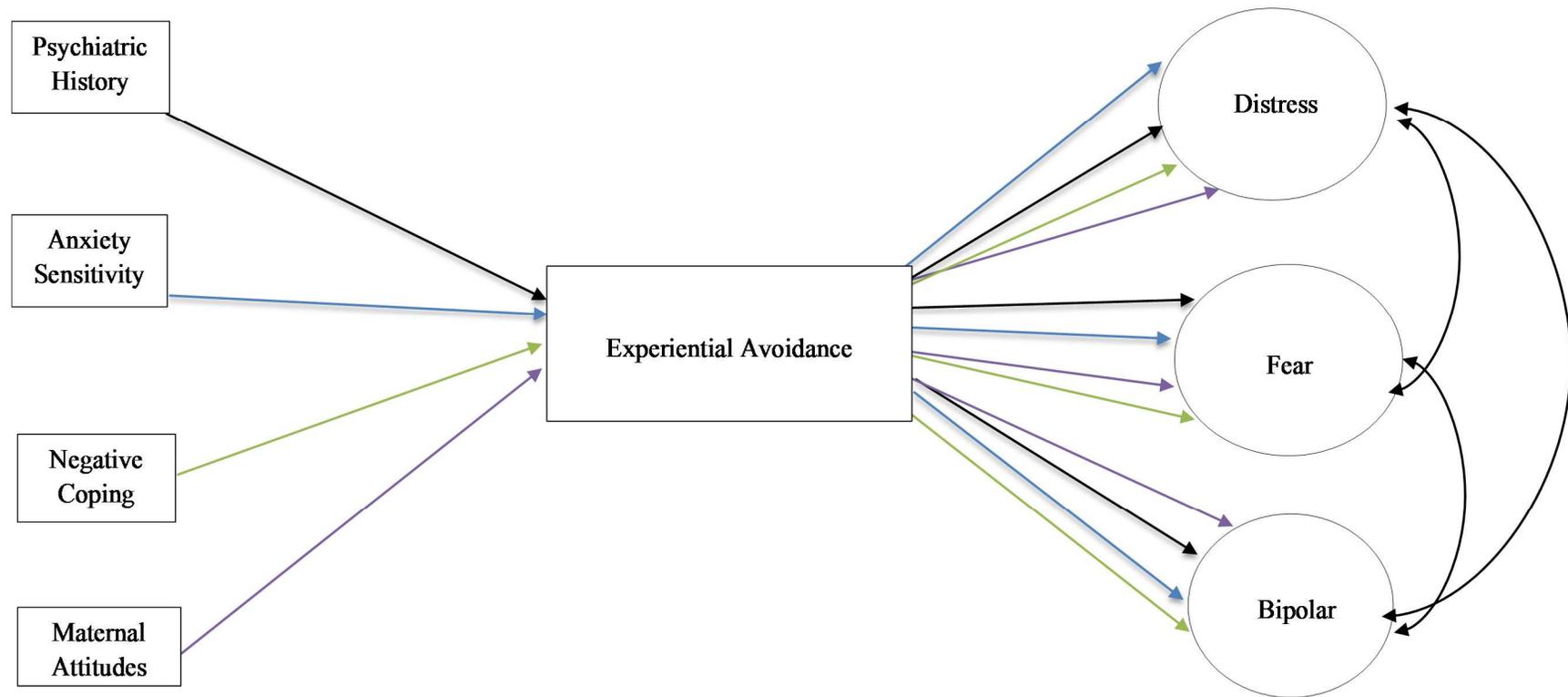
Note. Path coefficients are standardized estimates; $N = 251$.

Figure 4. Study Confirmatory Factor Analysis in Postpartum



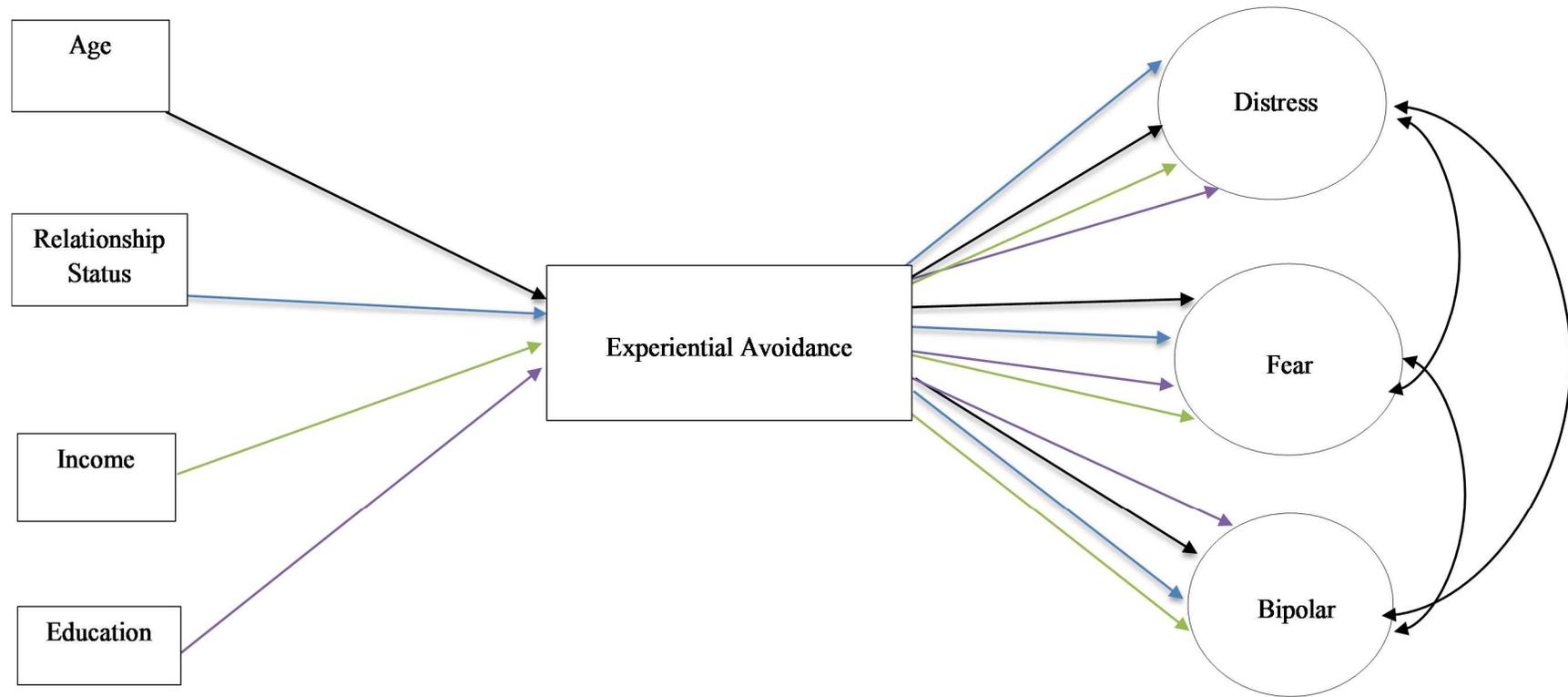
Note. Path coefficients are standardized estimates $N = 206$.

Figure 5. SEM Mediation Model: Psychological Risk Factors



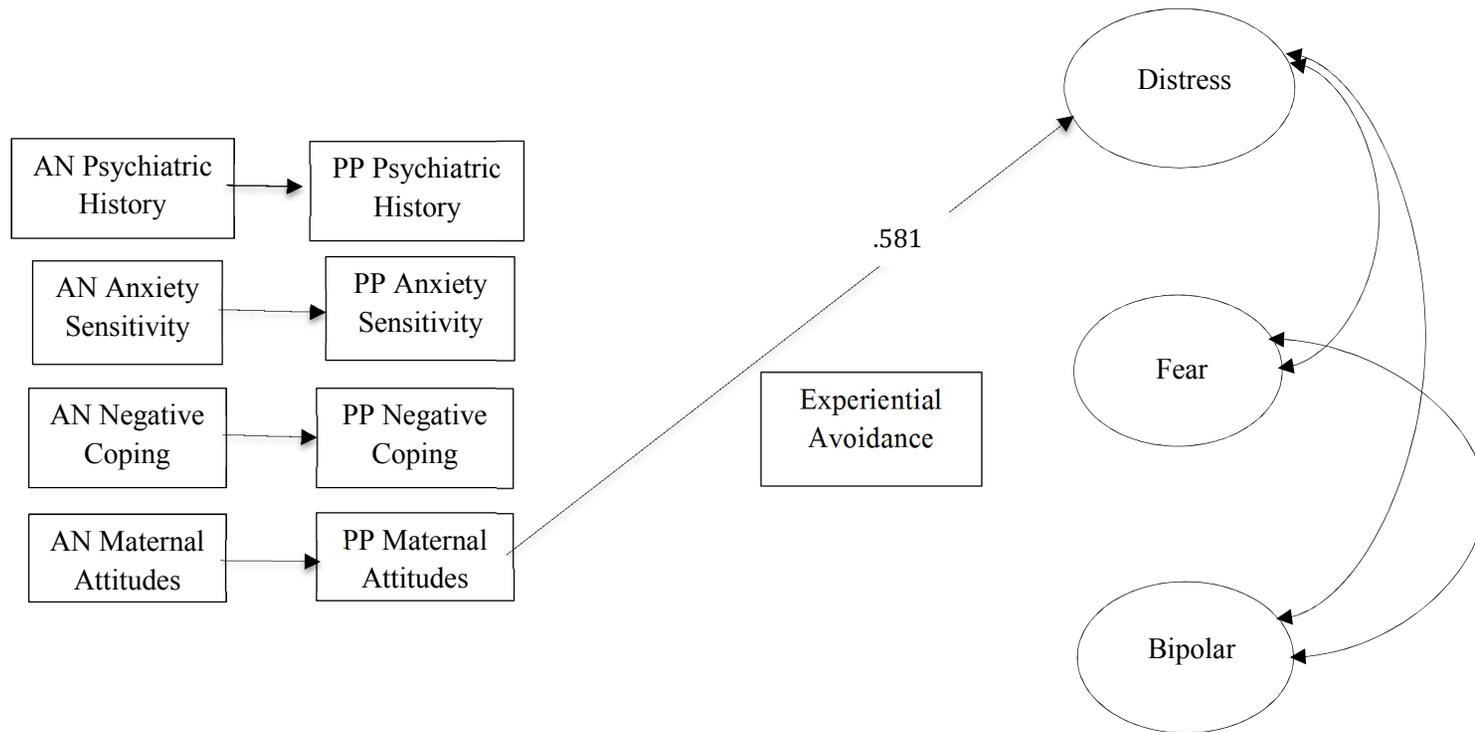
Note: Structural equation model with experiential avoidance mediating associations between anxiety sensitivity, psychiatric history, negative coping skills, and negative maternal attitudes with the latent factors of the three-factor model (from Aim #1).

Figure 6. SEM Mediation Model: Sociodemographic Factors



Note: Structural equation model with experiential avoidance mediating associations between age, relationship status, education, and income with the latent factors of the three-factor model (from Aim #1).

Figure 7. SEM Mediation Model: Pregnancy and Postpartum Longitudinal Model



Note: AN = antenatal; PP = postpartum. Structural equation model with postpartum experiential avoidance mediating associations between postpartum anxiety sensitivity, psychiatric history, negative coping skills, and negative maternal attitudes, controlling for pregnancy risk factor scores, with the latent factors of the three-factor model (from Aim #1). Path estimates are unstandardized. Only significant pathways after bootstrapping are displayed.

APPENDICES

Appendix A. Current Psychopathology Criteria as Determined by the IMAS

<p>*Depression</p> <p><u>Full Criteria:</u></p> <p>2 on DEP1 or DEP3</p> <p>Rule out: 2 or 3 on DEP 5</p> <p>3 or 4 on DEP6</p> <p>2 or more on DEP7</p> <p>1 or 2 on 4 or more questions for DEP1/3 (if both were endorsed), DEP8-DEP46</p> <p>2 or more on DEP47</p> <p><u>Subthreshold Criteria:</u></p> <p>1 or 2 on DEP1 or DEP3</p> <p>Rule out: 2 or 3 on DEP 5</p> <p>2 or more on DEP6</p> <p>1 or more on DEP7</p> <p>1 or 2 on 4 or more questions for DEP1/3 (if both were endorsed), DEP8-DEP46</p> <p>2 or more on DEP47</p>
<p>*Panic</p> <p><u>Full Criteria:</u></p> <p>2 on PANIC1 or PANIC2</p> <p>Rule out: 0 or 1 on PANIC3</p> <p>Rule out: 2 or 3 on PANIC4</p> <p>2 on PANIC5/6/7/or 8</p> <p>2 or more on PANIC9</p> <p>2 on 4 or more questions for PANIC10-PANIC28</p> <p>1 or higher on PANIC29</p> <p><u>Subthreshold Criteria:</u></p> <p>2 on PANIC1 or PANIC2</p> <p>Rule out: 0 or 1 on PANIC3</p> <p>Rule out: 2 or 3 on PANIC4</p> <p>1 or 2 on PANIC5/6/7/or 8</p> <p>2 or more on PANIC9</p> <p>1 or 2 on 4 or more questions for PANIC10-PANIC28</p> <p>1 or higher on PANIC29</p>
<p>*Social Phobia</p> <p><u>Full Criteria:</u></p> <p>2 on 1 or more of SOCPHOB1-SOCPHOB12</p> <p>2 on 1 or more of SOCPHOB13-SOCPHOB24</p>

<p>1 or 2 on SOCPHOB25 Rule out: 1 or 2 on SOCPHOB26 2 or more on SOCPHOB27 <u>Subthreshold Criteria:</u> 1 or 2 on 1 or more of SOCPHOB1-SOCPHOB12 1 or 2 on 1 or more of SOCPHOB13-SOCPHOB24 Rule out: 1 or 2 on SOCPHOB26 2 or more on SOCPHOB27</p>
<p>*Agoraphobia <u>Full Criteria:</u> 2 on 2 or more of AGOR1-11 2 on 2 or more of AGOR12-22 2 on 1 or more of AGOR24-29 2 or more on AGOR30 <u>Subthreshold Criteria:</u> 1 or 2 on 2 or more of AGOR1-11 1 or 2 on 2 or more of AGOR12-22 1 or 2 on 1 or more of AGOR24-29 2 or more on AGOR30</p>
<p>*Generalized Anxiety Disorder <u>Full Criteria:</u> 2 on GENANX1/2/3/4 Rule out: 2 on GENANX5 Rule out: 2 or 3 on GENANX7 2 on GENANX6 2 or higher on GENANX8 2 on 3 or more of GENANX 9-16 <u>Subthreshold Criteria:</u> 1 OR 2 on GENANX1/2/3/4 Rule out: 2 on GENANX5 Rule out: 2 or 3 on GENANX7 1 OR 2 on GENANX6 2 or higher on GENANX8 1 or 2 on 3 or more of GENANX 9-16</p>
<p>*Obsessive-Compulsive Disorder <u>Full Criteria:</u> 2 on any OCD1-OCD19 item 2 or higher on OCD20 <u>Subthreshold Criteria:</u></p>

<p>1 or 2 on any OCD1-OCD19 item</p>
<p>1 or higher on OCD20</p>
<p>*Specific Phobia <u>Full Criteria:</u> 2 on SPECPHOB1-20 that is an <u>even</u> number 2 on SPECPHOB1-20 that is an <u>odd</u> number 2 on either SPECPHOB21 or SPECPHOB22 1 or higher on SPECPHOB22 <u>Subthreshold Criteria:</u> 1 or 2 on SPECPHOB1-20 that is an <u>even</u> number 1 or 2 on SPECPHOB1-20 that is an <u>odd</u> number 1 or 2 on SPECPHOB21 1 or higher on SPECPHOB22</p>
<p>*Irritability <u>Full Criteria:</u> 6 or more total from IRRITABLE1/2/3/4/5 or 6 3 or higher on IRRITABLE7 <u>Subthreshold criteria</u> 4 or more total from IRRITABLE1/2/3/4/5 or 6 2 or higher on IRRITABLE7</p>
<p>*Mania <u>Full Criteria:</u> 2 on MANIA1/2/3 3 or 4 on MANIA4 3 or 4 on MANIA5 Rule out: 2 or 3 on MANIA 6 2 on 3 or more of MANIA7-MANIA15 2 or higher on MANIA16 <u>Subthreshold Criteria:</u> 1 or 2 on MANIA1/2/3 1 or higher on MANIA4 2 or higher on MANIA5 Rule out: 2 or 3 on MANIA 6 1 or 2 on 3 or more of MANIA7-MANIA15 1 or higher on MANIA16</p>

Appendix B. Table of Individual SEM Mediation Model Pathways

<i>Path Estimate (Standard Error)</i>	<i>Distress</i>	<i>Fear</i>	<i>Bipolar</i>	<i>Experiential Avoidance</i>	<i>Indirect Path to Distress</i>	<i>Indirect Path to Fear</i>	<i>Indirect Path to Bipolar</i>
<i>Pregnancy</i>							
<u>Demographic Risk Factors</u>							
Age	-0.159(.072)	-0.194(.069)*	-0.013(.025)	-0.091(.109)	-0.040(.047)	-0.039(.046)	-0.019(.038)
Relationship	-2.561(2.062)	1.75(1.943)	0.095(0.243)	-4.062(2.515)	-1.740(1.299)	-1.632(1.098)	-.127(0.112)
Education	-.598 (0.314)	-0.596(0.292)	0.000(0.066)	-0.764(0.441)	-0.343(0.238)	-0.307(0.200)	-.030(0.024)
Income	-.433(0.208)*	-.409(0.178)*	-0.033(0.060)	-0.695(0.290)	-0.305(0.169)	-0.271(0.145)	-.027(0.018)
<u>Psychological Risk Factors</u>							
Anxiety Sensitivity	0.120(0.059)	0.152(0.048)*	-0.003(0.010)	0.528(0.052)*	0.161(0.056)*	0.142(0.052)*	0.016(0.008)
Maladaptive Coping	0.421(0.168)	0.071(0.171)	0.126(0.060)*	1.653(0.106)*	0.464(0.158)*	0.608(0.159)*	-.007(0.044)
Past Psychiatric History	0.710(0.186)*	0.918(0.203)*	0.102(0.036)*	1.548(0.246)*	0.498(0.165)*	0.352(0.133)*	0.026(0.022)
Negative Attitudes	0.041(0.076)	-0.129(0.074)	0.029(0.020)	0.682(0.096)	0.286(0.074)*	0.292(0.079)*	0.019(0.009)
<i>Postpartum</i>							
<u>Demographic Risk Factors</u>							
Age	-0.097(0.080)	-0.099(0.082)	-0.009(0.011)	0.111(0.092)	0.044(0.037)	0.040(0.034)	0.001(0.002)
Relationship	-1.762(2.121)	-2.915(1.992)	-0.281(0.316)	-0.363(1.478)	-0.128(0.531)	-0.125(0.504)	-.001(0.016)
Education	-0.361(0.293)	-.651(0.233)*	0.004(0.043)	-0.134(0.337)	-.052(0.138)	-0.046(0.117)	-.001(0.005)
Income	-0.451(0.217)	-.418(0.178)*	-0.052(0.042)	-0.064(0.219)	-0.025(0.086)	-0.022(0.074)	-.001(0.003)
<u>Psychological Risk Factors</u>							
Anxiety Sensitivity	-0.055(0.058)	0.056(0.061)	-0.006(0.009)	0.450(0.059)*	0.164(0.053)*	0.131(0.046)*	0.006(0.007)
Maladaptive Coping	0.599(0.244)*	0.035(0.113)	0.054(0.046)	1.432(0.184)*	0.275(0.143)	0.470(0.142)*	-.012(0.027)
Past Psychiatric History	0.320(0.195)	0.154(0.138)	0.007(0.019)	0.475(0.196)*	0.179(0.101)	0.164(0.079)*	0.004(0.006)
Negative Attitudes	0.364(0.096)*	-0.016(0.073)	0.022(0.016)	0.591(0.110)	0.146(0.056)*	0.210(0.063)*	0.000(0.004)

Note: Structural equation model with experiential avoidance mediating associations age with the latent factors of the three-factor model (from Aim #1). Path estimates are unstandardized. Significant pathways ($p < .05$) after bootstrapping are indicated with an asterisk.

Appendix C. Measures

C1. Acceptance and Action Questionnaire

AAQ-II

Below you will find a list of statements. Please rate how true each statement is for you by circling a number next to it. Use the scale below to make your choice.

1	2	3	4	5	6	7
never true	very seldom true	seldom true	sometimes true	frequently true	almost always true	always true

1. My painful experiences and memories make it difficult for me to live a life that I would value.	1	2	3	4	5	6	7
2. I'm afraid of my feelings.	1	2	3	4	5	6	7
3. I worry about not being able to control my worries and feelings.	1	2	3	4	5	6	7
4. My painful memories prevent me from having a fulfilling life.	1	2	3	4	5	6	7
5. Emotions cause problems in my life.	1	2	3	4	5	6	7
6. It seems like most people are handling their lives better than I am.	1	2	3	4	5	6	7
7. Worries get in the way of my success.	1	2	3	4	5	6	7

C2. Anxiety Sensitivity Index

Items

Item 9: When I notice that my heart is beating rapidly, I worry that I might have a heart attack.

Item 10: It scares me when I become short of breath.

Item 11: When my stomach is upset, I worry that I might be seriously ill.

Item 14: Unusual body sensations scare me.

Item 15: When I am nervous, I worry that I might be mentally ill.

Item 6: It scares me when my heart beats rapidly.

Item 16: It scares me when I am nervous.

Item 4: It scares me when I feel faint.

Item 3: It scares me when I feel “shaky” (trembling).

Item 13: Other people notice when I feel shaky.

Item 2: When I cannot keep my mind on a task, I worry that I might be going crazy.

Item 8: It scares me when I am nauseous.

Item 12: It scares me when I am unable to keep my mind on a task.

Item 7: It embarrasses me when my stomach growls.

Item 1: It is important to me not to appear nervous.

Item 5: It is important to me to stay in control of my emotions.

C3. Brief COPE

These items deal with ways you've been coping with the stress in your life since you found out you were going to have to have this operation. There are many ways to try to deal with problems. These items ask what you've been doing to cope with this one. Obviously, different people deal with things in different ways, but I'm interested in how you've tried to deal with it. Each item says something about a particular way of coping. I want to know to what extent you've been doing what the item says. How much or how frequently. Don't answer on the basis of whether it seems to be working or not—just whether or not you're doing it. Use these response choices. Try to rate each item separately in your mind from the others. Make your answers as true FOR YOU as you can.

- 1 = I haven't been doing this at all
- 2 = I've been doing this a little
- 3 = I've been doing this a medium amount
- 4 = I've been doing this a lot

1. I've been turning to work or other activities to take my mind off things.
2. I've been concentrating my efforts on doing something about the situation I'm in.
3. I've been saying to myself "this isn't real."
4. I've been using alcohol or other drugs to make myself feel better.
5. I've been getting emotional support from others.
6. I've been giving up trying to deal with it.
7. I've been taking action to try to make the situation better.
8. I've been refusing to believe that it has happened.
9. I've been saying things to let my unpleasant feelings escape.
10. I've been getting help and advice from other people.
11. I've been using alcohol or other drugs to help me get through it.
12. I've been trying to see it in a different light, to make it seem more positive.
13. I've been criticizing myself.
14. I've been trying to come up with a strategy about what to do.
15. I've been getting comfort and understanding from someone.
16. I've been giving up the attempt to cope.
17. I've been looking for something good in what is happening.
18. I've been making jokes about it.
19. I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.
20. I've been accepting the reality of the fact that it has happened.
21. I've been expressing my negative feelings.
22. I've been trying to find comfort in my religion or spiritual beliefs.
23. I've been trying to get advice or help from other people about what to do.
24. I've been learning to live with it.
25. I've been thinking hard about what steps to take.
26. I've been blaming myself for things that happened.
27. I've been praying or meditating.
28. I've been making fun of the situation.

C4. Dysmorphic Concerns
Questionnaire

Have you ever:

1. Been very concerned about some aspect of your physical appearance	Not at all	Same as most people	More than most people	Much more than most people
2. Considered yourself misformed or misshapen in some way (e.g. nose/hair/skin/sexual organs/overall body build)	Not at all	Same as most people	More than most people	Much more than most people
3. Considered your body to be malfunctional in some way (e.g. excessive body odour, flatulence, sweating)	Not at all	Same as most people	More than most people	Much more than most people
4. Consulted or felt you needed to consult a plastic surgeon/dermatologist/physician about these concerns	Not at all	Same as most people	More than most people	Much more than most people
5. Been told by others/doctor that you are normal in spite of you strongly believing that something is wrong with your appearance or bodily functioning	Not at all	Same as most people	More than most people	Much more than most people
6. Spent a lot of time worrying about a defect in your appearance/bodily functioning	Not at all	Same as most people	More than most people	Much more than most people
7. Spent a lot of time covering up defects in your appearance/bodily functioning	Not at all	Same as most people	More than most people	Much more than most people

C5. Maternal Adjustment and Maternal Attitudes Scale

Items

Please complete each question by putting a circle around the answer which most closely applies to you. Work quickly and please remember to answer each question. We want to know how you have been feeling during the past month. If you have not considered some of the questions during the past month, go ahead and answer them on your present feelings.

Here are some examples of completed questions:

IN THE PAST MONTH

- | | | | | |
|---|------------|------------|----------|------------|
| 1. Have you got out of breath easily? | Very often | Often | Rarely | Never |
| 2. Have you felt attractive? | Never | Rarely | Often | Very often |
| 3. Has there been tension between you and your partner - irritability, unpleasant silence, etc.? | Never | Rarely | Often | Very often |
| 4. Have you been perspiring a lot? | Never | Rarely | Often | Very often |
| 5. Have you found your partner sexually desirable? | Never | Rarely | Often | Very often |
| 6. Have you vomited? | Never | Rarely | Often | Very often |
| 7. Have you been worrying that you might not be a good mother? | Not at all | A little | A lot | Very much |
| 8. Have arguments between you and your partner come close to blows? | Very often | Often | Rarely | Never |
| 9. Have you felt faint or dizzy? | Never | Rarely | Often | Very often |
| 10. Have you been worrying about hurting your baby inside you? | Not at all | A little | A lot | Very much |
| 11. Do you think your partner has found you sexually desirable? | Very often | Often | Rarely | Never |
| 12. Have you felt that you smelt nice? | Never | Rarely | Often | Very often |
| 13. Have you looked forward to having sexual intercourse | Not at all | A little | A lot | Very much |
| 14. Has it worried you that you may not have any time to yourself once your baby is born? | Not at all | A little | A lot | Very much |
| 15. Have you found it easy to show affection to your partner? | Never | Very often | Often | Rarely |
| 16. Have you regretted being pregnant? | Never | Rarely | Often | Very often |
| 17. Have you experienced tingling sensations in your breasts? | Very often | Often | Rarely | Never |
| 18. Have you felt that your breasts were too small? | Not at all | A little | A lot | Very much |
| 19. Have you liked the shape of your body? | Not at all | A little | A lot | Very much |
| 20. Have you felt shy about sex? | Very much | A lot | A little | Not at all |
| 21. Have you felt that your face was attractive? | Not at all | A little | A lot | Very much |
| 22. Has the thought of wearing maternity clothes appealed to you? | Very much | A lot | A little | Not at all |
| 23. Have you felt that sexual intercourse might be less private because there is a baby inside you? | Very much | A lot | A little | Not at all |
| 24. Have you been feeling happy that you are pregnant? | Not at all | A little | A lot | Very much |
| 25. Have you enjoyed kissing and petting? | Very much | A lot | A little | Not at all |
| 26. Has your partner helped in the running of the house | Very much | A lot | A little | Not at all |
| 27. Have you suffered from constipation? | Never | Rarely | Often | Very often |
| 28. Has the thought of having several children appealed to you? | Not at all | A little | A lot | Very much |

29. Have you felt that pregnancy was unpleasant? Very much A lot A little Not at all
30. Have you been wondering whether having sexual intercourse might be harmful for the baby? Not at all A little A lot Very much
31. Have you felt that your breasts were too big? Not at all A little A lot Very much
32. Have you felt full of energy? Very often Often Rarely Never
33. Have your ankles swollen up? Very often Often Rarely Never
34. Have you felt that your partner was paying you too little attention? Very often Often Rarely Never
35. Have you felt wide awake in the daytime? Very often Often Rarely Never
36. Has your partner seemed to ignore how you were feeling? Very often Often Rarely Never
37. Has your partner tried to share your interests? Never Rarely Often Very often
38. Have you suffered from indigestion or heartburn? ...Never Rarely Often Very often
39. Have you felt tense and unhappy at the thought of sexual intercourse? Never Rarely Often Very often
40. Have you been looking forward to caring for your baby's needs? Not at all A little A lot Very much
41. Have you felt nauseated (felt sick)? Very often Often Rarely Never
42. Have you felt that sex was unpleasant? Very much A lot A little Not at all
43. Have you felt that your partner went out too often without you? Never Rarely Often Very often
44. Have you felt proud of your appearance? Very much A lot A little Not at all
45. Have you felt you were easily aroused sexually? Never Rarely Often Very often
46. Have you been having pleasurable daydreams about sex? Very often Often Rarely Never
47. Have you felt that your body was soft and cuddly? ... Very much A lot A little Not at all
48. Have you been feeling close to your partner since you became pregnant?Never Rarely Often Very often
49. Have you felt ungainly?Very much A lot A little Not at all
50. Have you felt like putting your arms round your partner and cuddling him? Very much A lot A little Not at all
51. Have you been wondering whether your baby will be healthy and normal? Not at all A little A lot Very much
52. Has your partner shown affection to you? Very often Often Rarely Never
53. Have you felt that your complexion was poor? Very much A lot A little Not at all
54. Have you felt that life will be more difficult after the baby is born? Not at all A little A lot Very much
55. Have you felt that your breasts were attractive?Not at all A little A lot Very much
56. Have you wished you could rely more on your partner to look after you? Very often Often Rarely Never
57. Have you felt that you were too fat? Very much A lot A little Not at all
58. Have you wanted to have sexual intercourse? Not at all A little A lot Very much
59. Have you enjoyed your food? Very much A lot A little Not at all
60. Has the thought of breast-feeding your baby appealed to you? Not at all A little A lot Very much

MAMA Questionnaire (Pregnancy version)

The five sub-scales and the corresponding questions in each are as follows:

Body image: 2, 12, 18, 19, 21, 31, 44, 47, 49, 53, 55, 57

Somatic symptoms: 1, 4, 6, 9, 17, 27, 32, 33, 35, 38, 41, 59

Marital relationship: 3, 8, 15, 26, 34, 36, 37, 43, 48, 50, 52, 56

Attitudes to sex: 5, 11, 13, 20, 23, 25, 30, 39, 42, 45, 46, 58

Attitudes to pregnancy and the baby: 7, 10, 14, 16, 22, 24, 28, 29, 40, 51, 54, 60

MAMA Questionnaire (Postnatal version)

It was necessary to reword or modify 12 of the 60 questions for the postnatal version of the scale. As might be expected most of the changes (9) were in the attitudes to pregnancy/baby sub-scale; there were two alterations in attitudes to sex sub-scale and one in the marital relationship sub-scale. The altered questions are listed below in numerical order.

10. Have you worried about hurting your baby?
14. Have you had enough time for yourself since you had the baby?
16. Have you regretted having the baby?
22. Have you felt proud of being a mother?
23. Have you felt that sexual intercourse is less private now that you have the baby?
24. Have you been feeling happy that you have a baby?
29. Have you felt disappointed by motherhood?
30. Have you felt inhibited about sex since you had the baby?
40. Have you enjoyed caring for your baby's needs?
48. Have you been feeling close to your partner since the baby was born?
54. Has life been more difficult since the baby was born?
60. Have you enjoyed feeding your baby?

Rephrased questions

12. Have you felt that your body smelt nice?
28. Has the thought of having more children appealed to you?
49. Has your body felt awkward and ungainly?

C6. Massachusetts General Hospital (MGH) Hairpulling Scale

1. **Frequency of urges.** On an average day, how often did you feel the urge to pull your hair?
 - 0 This week I felt no urges to pull my hair.
 - 1 This week I felt an **occasional** urge to pull my hair.
 - 2 This week I felt an urge to pull my hair **often**.
 - 3 This week I felt an urge to pull my hair **very often**.
 - 4 This week I felt **near constant** urges to pull my hair.

2. **Intensity of urges.** On an average day, how intense or “strong” were the urges to pull your hair?
 - 0 This week I did not feel any urges to pull my hair.
 - 1 This week I felt **mild** urges to pull my hair.
 - 2 This week I felt **moderate** urges to pull my hair.
 - 3 This week I felt **severe** urges to pull my hair.
 - 4 This week I felt **extreme** urges to pull my hair.

3. **Ability to control the urges.** On an average day, how much control do you have over the urges to pull your hair?
 - 0 This week I could **always** control the urges, or I did not feel any urges to pull my hair.
 - 1 This week I was always able to distract myself from the urges to pull my hair **most of the time**.
 - 2 This week I was able to distract myself from the urges to pull my hair **some of the time**.
 - 3 This week I was able to distract myself from the urges to pull my hair **rarely**.
 - 4 This week I was **never** able to distract myself from the urges to pull my hair.

4. **Frequency of hairpulling.** On an average day, how often did you actually pull your hair?
 - 0 This week I did not pull my hair.
 - 1 This week I pulled my hair **occasionally**.
 - 2 This week I pulled my hair **often**.
 - 3 This week I pulled my hair **very often**.
 - 4 This week I pulled my hair so often it felt like I was **always** doing it.
 - 5

5. **Attempts to resist hairpulling.** On an average day, how often did you make an attempt to stop yourself from actually pulling your hair?
 - 0 This week I felt no urges to pull my hair.
 - 1 This week I tried to resist the urge to pull my hair **almost all of the time**.
 - 2 This week I tried to resist the urge to pull my hair **some of the time**.
 - 3 This week I tried to resist the urge to pull my hair **rarely**.
 - 4 This week I **never** tried to resist the urge to pull my hair.

6. **Control over hairpulling.** On an average day, how often were you successful at actually stopping yourself from pulling your hair?
 - 0 This week I did not pull my hair.
 - 1 This week I was able to resist pulling my hair **almost all of the time**.
 - 2 This week I was able to resist pulling my hair **most of the time**.
 - 3 This week I was able to resist pulling my hair **some of the time**.
 - 4 This week I was **rarely** able to resist pulling my hair.

7. **Associated distress.** Hairpulling can make some people feel moody, “on edge,” or sad. During the past week, how uncomfortable did your hairpulling make you feel?

0 This week I did not feel uncomfortable about my hairpulling.

1 This week I felt **vaguely uncomfortable** about my hairpulling.

2 This week I felt **noticeably uncomfortable** about my hairpulling.

3 This week I felt **significantly uncomfortable** about my hairpulling.

4 This week I felt **intensely uncomfortable** about my hairpulling.

C7. Postpartum Adjustment Questionnaire

We are interested in finding out how you have been doing since the birth of your baby. The particular time period that we would like you to keep in mind is the past month. Various aspects of your life will be covered ranging from household tasks to relationships with your spouse, family, and friends. Circle the number corresponding to the answer that best describes how you have been in the past month.

WORK IN THE HOME-ALL WOMEN

1. How much time do you spend cooking\preparing meals for your family?
 1. Too much time.
 2. About the right amount of time.
 3. Not quite enough time.
 4. Much below what is necessary/desirable.
 5. No time.

2. How would you evaluate your performance in cooking/preparing meals for your family?
 1. Excellent.
 2. Average/good.
 3. Somewhat below average.
 4. Poor.
 5. Very poor.

3. How have others (i.e. spouse, family, and friends) evaluated your performance in cooking/preparing meals for your family?
 1. Others have commented on my good performance.
 2. No one has commented on my performance one way or the other.
 3. It is clear that others have recognized that my performance is below average, but no one has expressed any concern or criticism.
 4. Others have expressed concern or criticism about my poor performance.
 5. Others have expressed significant concern or criticism about my poor performance.

4. How has your performance in cooking/preparing food for your family changed since the birth of your baby?
 1. Better than before.
 2. Same as before.
 3. Slightly worse than before.
 4. Much worse than before.
 5. Very much worse than before.

5. How much time do you spend maintaining your household (i.e. dusting, vacuuming, laundry, grocery shopping)?

1. Too much time.
2. About the right amount of time.
3. Not quite enough time.
4. Much below what is necessary/desirable.
5. No time.

6. How would you evaluate your performance in maintaining your household?

1. Excellent.
2. Average/good.
3. Somewhat below average.
4. Poor.
5. Very poor.

7. How have others (i.e. spouse, family, and friends) evaluated your performance in maintaining your household?

1. Others have commented on my good performance.
2. No one has commented on my performance one way or the other.
3. It is clear that others have recognized that my performance is below average, but no one has expressed any concern or criticism.
4. Others have expressed concern or criticism about my poor performance.
5. Others have expressed significant concern or criticism about my poor performance.

8. How has your performance in maintaining your household changed since the birth of your baby?

1. Better than before.
2. Same as before.
3. Slightly worse than before.
4. Much worse than before.
5. Very much worse than before.

WORK OUTSIDE THE HOME

If you do not work for pay or work less than 15 hours each week, please circle 5 on item 9 and go on to Question 13 on the next page. If you do work 15 hours or more for pay each week, please answer Questions 9-12 about your work.

9. How much time do you spend working outside of the home?

1. Too much time.
2. About the right amount of time.
3. Not quite enough time.

4. Much below what is necessary/desirable.
 5. I do not work outside of the home or I do not work more than 15 hours each week.
10. How would you evaluate your performance in your job outside of the home?
1. Excellent.
 2. Average/good.
 3. Somewhat below average.
 4. Poor.
 5. Very poor.
11. How have others (e.g. spouse, family, friends, and co-workers) evaluated your performance in your job outside of the home?
1. Others have commented on my good performance.
 2. No one has commented on my performance one way or the other.
 3. It is clear that others have recognized that my performance is below average, but no one has expressed any concern or criticism.
 4. Others have expressed concern or criticism about my poor performance.
 5. Others have expressed significant concern or criticism about my poor performance.
12. How has your job performance changed since your baby was born?
1. Better than before.
 2. Same as before.
 3. Slightly worse than before.
 4. Much worse than before.
 5. Very much worse than before.

RELATIONSHIPS

Now we will be asking you about your close friends and casual acquaintances.

- I. Close friends (ones you are able to confide in about yourself and your problems).
13. How much time do you spend with close friend(s) (on the phone or in person)?
1. Too much time.
 2. About the right amount of time.
 3. Not quite enough time.
 4. Much below what is necessary/desirable.
 5. No time.
14. How would you evaluate your relationship(s) with your close friends?
1. Excellent.

2. Average/good.
3. Somewhat below average.
4. Poor.
5. Very poor.

15. How have others (i.e. spouse, family, and friends) evaluated the quality of your relationship(s) with your close friends?

1. Others have commented on how well I get along with my close friends.
2. No one has commented one way or the other on the quality of my relationship(s) with close friends.
3. It is clear that others have recognized that I have had some problems with close friends, but no one has expressed concern or criticism.
4. Others have expressed concern or criticism about the quality of my relationship(s) with close friends.
5. Others have expressed significant concern or criticism about the quality of my relationship(s) with close friends.

16. How have your relationship(s) with your close friends changed since your baby was born?

1. Better than before.
2. Same as before.
3. Slightly worse than before.
4. Much worse than before.
5. Very much worse than before.

II. Casual acquaintances

17. How much time do you spend with casual acquaintances (in person or on the phone)?

1. Too much time.
2. About the right amount of time.
3. Not quite enough time.
4. Much below what is necessary/desirable.
5. No time.

18. How would you evaluate the quality of your relationship(s) with casual acquaintances?

1. Excellent.
2. Average/good.
3. Somewhat below average.
4. Poor.
5. Very poor.

19. How have others (i.e. spouse, family, and friends) evaluated the quality of your relationship(s) with your casual acquaintances?

1. Others have commented on how well I get along with my casual acquaintances.

2. No one has commented one way or the other on the quality of my relationship(s) with casual acquaintances.
3. It is clear that others have recognized that I have had some problems with casual acquaintances, but no one has expressed concern or criticism.
4. Others have expressed concern or criticism about the quality of my relationship(s) with casual acquaintances.
5. Others have expressed significant concern or criticism about the quality of my relationship(s) with casual acquaintances.

20. How have your relationship(s) with your casual acquaintances changed since your baby was born?

1. Better than before.
2. Same as before.
3. Slightly worse than before.
4. Much worse than before.
5. Very much worse than before.

SIBLINGS, PARENTS, IN-LAWS

Answer Questions 21-32 about your sibling(s), parent(s), and in-laws.

I. Siblings (if no living sibling(s) circle 6 on item 21 and go on to item 25).

21. How much time do you spend with your sibling(s) (on the phone or in person)?

1. Too much time.
2. About the right amount of time.
3. Not quite enough time.
4. Much below what is necessary/desirable.
5. No time.
6. No living sibling(s).

22. How would you evaluate the quality of your relationship(s) with your sibling(s)?

1. Excellent.
2. Average/good.
3. Somewhat below average.
4. Poor.
5. Very poor.

23. How have others (i.e. spouse, family, and friends) evaluated the quality of your relationship(s) with your sibling(s)?

1. Others have commented on how well I get along with my sibling(s).
2. No one has commented one way or the other on the quality of my relationship(s) with my sibling(s).

3. It is clear that others have recognized that I have had some problems with my sibling(s), but no one has expressed concern or criticism.
4. Others have expressed concern or criticism about the quality of my relationship(s) with my sibling(s).
5. Others have expressed significant concern or criticism about the quality of my relationship(s) with my sibling(s).

24. How has the quality of your relationship(s) with your sibling(s) changed since your baby was born?
1. Better than before.
 2. Same as before.
 3. Slightly worse than before.
 4. Much worse than before.
 5. Very much worse than before.

II. Parents (If both parents are deceased, circle 6 on item 25 and go on to item 29).

25. How much time do you spend with your parent(s) (on the phone or in person)?
1. Too much time.
 2. About the right amount of time.
 3. Not quite enough time.
 4. Much below what is necessary/desirable.
 5. No time.
 6. Both parents are deceased.

26. How would you evaluate the quality of your relationship with your parent(s)?
1. Excellent.
 2. Average/good.
 3. Somewhat below average.
 4. Poor.
 5. Very poor.

27. How have others (i.e. spouse, family, and friends) evaluated the quality of your relationship(s) with your parent(s)?

1. Others have commented on how well I get along with my parent(s).
2. No one has commented one way or the other on the quality of my relationship(s) with my parent(s).
3. It is clear that others have recognized that I have had some problems with my parent(s), but no one has expressed concern or criticism.
4. Others have expressed concern or criticism about the quality of my relationship(s) with my parent(s).
5. Others have expressed significant concern or criticism about the quality of my relationship(s) with my parent(s).

28. How has the quality of your relationship(s) with your parent(s) changed since your baby was born?

1. Better than before.
2. Same as before.
3. Slightly worse than before.
4. Much worse than before.
5. Very much worse than before.

III. In-Laws (If you have no living in-laws circle 6 on item 29 and go on to item 33).

29. How much time do you spend with your in-laws (on the phone or in person)?

1. Too much time.
2. About the right amount of time.
3. Not quite enough time.
4. Much below what is necessary/desirable.
5. No time.
6. No living in-laws.

30. How would you evaluate the quality of your relationship with your in-laws?

1. Excellent.
2. Average/good.
3. Somewhat below average.
4. Poor.
5. Very poor.

31. How have others (i.e. spouse, family, and friends) evaluated the quality of your relationship(s) with your in-laws?

1. Others have commented on how well I get along with my in-laws.
2. No one has commented one way or the other on the quality of my relationship(s) with my in-laws.
3. It is clear that others have recognized that I have had some problems with my in-laws, but no one has expressed concern or criticism.
4. Others have expressed concern or criticism about the quality of my relationship(s) with my in-laws.
5. Others have expressed significant concern or criticism about the quality of my relationship(s) with my in-laws.

32. How has the quality of your relationship(s) with your in-laws changed since your baby was born?

1. Better than before.
2. Same as before.
3. Slightly worse than before.
4. Much worse than before.
5. Very much worse than before.

NEW BABY

The next set of questions refer to your new baby.

I. Baby Care

33. How much time do you spend caring for your baby's needs (i.e. bathing, feeding, changing diapers)?

1. Too much time.
2. About the right amount of time.
3. Not quite enough time.
4. Much below what is necessary/desirable.
5. No time.

34. How would you evaluate your performance in regard to caring for your baby's needs?

1. Excellent.
2. Average/good.
3. Somewhat below average.
4. Poor.
5. Very poor.

35. How have others (i.e. spouse, family, and friends) evaluated your performance in regard to caring for your baby's needs?

1. Others have commented on my good performance.
2. No one has commented on my performance one way or the other.
3. It is clear that others have recognized that my performance is below average, but no one has expressed any concern or criticism.
4. Others have expressed concern or criticism about my poor performance.
5. Others have expressed significant concern or criticism about my poor performance.

36. How much time do you spend engaging in physical contact with your baby (i.e. holding, rocking, kissing)?

1. Too much time.
2. About the right amount of time.
3. Not quite enough time.
4. Much below what is necessary/desirable.
5. No time.

37. How would you evaluate the quality of the time you spend engaging in physical contact with your baby?

1. Excellent.
2. Average/good.

3. Somewhat below average.
4. Poor.
5. Very poor.

38. How have others (i.e. spouse, family, and friends) evaluated the quality of the time you spend engaging in physical contact with your baby?

1. Others have commented on how well I engage in in physical contact with my baby.
2. No one has commented one way or the other on the quality of the time I spend engaging in physical contact with my baby.
3. It is clear that others have recognized that I have had some problems with the quality of the time I spend engaging in physical contact with my baby, but no one has expressed concern or criticism.
4. Others have expressed concern or criticism about the quality of the time I spend engaging in physical contact with my baby.
5. Others have expressed significant concern or criticism about the quality of the time I spend engaging in physical contact with my baby.

39. How much time do you spend engaging in play activity with your baby (singing, playing patty-cake, etc)?

1. Too much time.
2. About the right amount of time.
3. Not quite enough time.
4. Much below what is necessary/desirable.
5. No time.

40. How would you evaluate the quality of the time you spend participating _ in play activity with your baby?

1. Excellent.
2. Average/good.
3. Somewhat below average.
4. Poor.
5. Very poor.

41. How have others (i.e. spouse, family, friends) evaluated the quality of the time you spend participating in play activity with your baby?

1. Others have commented on how well I participate in play activity with my baby.
2. No one has commented one way or the other on the quality of the time I spend participating in play activity with my baby.
3. It is clear that others have recognized that I have had some problems with the quality of the time I spend participating in play activity with my baby, but no one has expressed concern or criticism.

4. Others have expressed concern or criticism about the quality of the time I spend participating in play activity with my baby.
5. Others have expressed significant concern or criticism about the quality of time I spend participating in play activity with my baby.

CHILDREN IN THE HOME (excluding the new baby)

The next set of Questions apply to other children living with you in the home. Only answer these Questions in regard to them and not the new baby. If you have no other children circle 6 on item 42 and go on to item 50.

42. How much time do you spend taking care of your child(ren)?
 1. Too much time.
 2. About the right amount of time.
 3. Not quite enough time.
 4. Much below what is necessary/desirable.
 5. No time.
 6. No other children.
43. How would you evaluate your performance in regard to caring for your child(ren)?
 1. Excellent.
 2. Average/good.
 3. Somewhat below average.
 4. Poor.
 5. Very poor.
44. How have others (i.e. spouse, family, and friends) evaluated your ability to care for your child(ren)?
 1. Others have commented on my good performance.
 2. No one has commented on my performance one way or the other.
 3. It is clear that others have recognized that my performance is below average, but no one has expressed any concern or criticism.
 4. Others have expressed concern or criticism about the quality of my poor performance.
 5. Others have expressed significant concern or criticism about the quality of my poor performance.
45. How has your performance in regard to caring for your child(ren) changed since your baby was born?
 1. Better than before.
 2. Same as before.
 3. Slightly worse than before.
 4. Much worse than before.
 5. Very much worse than before.

46. How much time do you spend in shared activities with your child(ren)?
1. Too much time.
 2. About the right amount of time.
 3. Not quite enough time.
 4. Much below what is necessary/desirable.
 5. No time.
47. How would you evaluate the quality of the time you spend in shared activities with your child(ren)?
1. Excellent.
 2. Average/good.
 3. Somewhat below average.
 4. Poor.
 5. Very poor.
48. How have others (i.e. spouse, family, and friends) evaluated the quality of the time you spend in shared activities with your child(ren)?
1. Others have commented on how well I participate in shared activities with my child(ren).
 2. No one has commented one way or the other on the quality of the time I spend in shared activities with my child(ren).
 3. It is clear that others have recognized that I have had some problems with the quality of time I spend in shared activities with my child(ren), but no one has expressed concern or criticism.
 4. Others have expressed concern or criticism about the quality of the time I spend in shared activities with my child(ren).
 5. Others have expressed significant concern or criticism about the quality of the time I spend in shared activities with my child(ren).
49. How has the quality of the time you spend in shared activities with your child(ren) changed since your baby was born?
1. Better than before.
 2. Same as before.
 3. Slightly worse than before.
 4. Much worse than before.
 5. Very much worse than before.

SPOUSE

Please answer Questions 50-61 if you are living with your spouse or partner. Otherwise answer 6 on item 50 and you are finished with the questionnaire.

50. How much time do you and your spouse spend displaying affection towards one another (i.e. holding hands, hugging, kissing)?

1. Too much.
 2. About the right amount of time.
 3. Not quite enough time.
 4. Much below what is necessary/desirable.
 5. No time.
 6. No spouse or partner
51. How would you evaluate your efforts to display affection toward your spouse?
1. Excellent.
 2. Average/good.
 3. Somewhat below average.
 4. Poor.
 5. Very poor.
52. How would others (i.e. family and friends) evaluate your efforts to display affection toward your spouse?
1. Others have commented on my good efforts.
 2. No one has commented one way or the other on my efforts in displaying affection to my spouse.
 3. It is clear that others have recognized that I have had some problems with my efforts in displaying affection to my spouse, but no one has expressed concern or criticism.
 4. Others have expressed concern or criticism about my efforts in displaying affection to my spouse.
 5. Others have expressed significant concern or criticism about my efforts in displaying affection to my spouse.
53. How has your display of affection toward your spouse changed since your baby was born?
1. Better than before.
 2. Same as before.
 3. Slightly worse than before.
 4. Much worse than before.
 5. Very much worse than before.
54. How much time do you spend in shared activities with your spouse?
1. Too much time.
 2. About the right amount of time.
 3. Not quite enough time.
 4. Much below what is necessary/desirable.
 5. No time.
55. How would you evaluate your efforts to participate in shared activities with your spouse?
1. Excellent.
 2. Average/good.

3. Somewhat below average.
4. Poor.
5. Very poor.

56. How have others (i.e. family and friends) evaluated the quality of your efforts to participate in shared activities with your spouse?

1. Others have commented on my good efforts to participate in shared activities with my spouse.
2. No one has commented one way or the other on my efforts to participate in shared activities with my spouse.
3. It is clear that others have recognized that I have had some problems with my efforts to participate in shared activities with my spouse, but no one has expressed concern or criticism.
4. Others have expressed concern or criticism about my efforts to participate in shared activities with my spouse.
5. Others have expressed significant concern or criticism about my efforts to participate in shared activities with my spouse.

57. How has the quality of your efforts to participate in shared activities with your spouse changed since your baby was born?

1. Better than before.
2. Same as before.
3. Slightly worse than before.
4. Much worse than before.
5. Very much worse than before.

58. How much time do you spend confiding in your spouse about yourself and your problems?

1. Too much time.
2. About the right amount of time.
3. Not quite enough time.
4. Much below what is necessary/desirable.
5. No time.

59. How would you evaluate the quality of your efforts to confide in your spouse about yourself and your problems?

1. Excellent.
2. Average/good.
3. Somewhat below average.
4. Poor.
5. Very poor.

60. How would others (i.e. family and friends) evaluate the quality of your efforts to confide in your spouse about yourself and your problems?

1. Others have commented on my good efforts to confide in my spouse about myself and my problems.
 2. No one has commented one way or the other on my efforts to confide in my spouse about myself and my problems.
 3. It is clear that others have recognized that I have had some problems with my efforts to confide in my spouse about myself and my problems, but no one has expressed criticism or concern.
 4. Others have expressed concern or criticism about my efforts to confide in my spouse about myself and my problems.
 5. Others have expressed significant concern or criticism about my efforts to confide in my spouse about myself and my problems.
61. How has the quality of your efforts to confide in your spouse about yourself and your problems changed since your baby was born?
1. Better than before.
 2. Same as before.
 3. Slightly worse than before.
 4. Much worse than before.
 5. Very much worse than before.

C8. Savings-Inventory-Revised

Please circle the response that is most appropriate.

1. To what extent do you have difficulty throwing things away?

- 0 = Not at all
- 1 = To a mild extent
- 2 = To a moderate extent
- 3 = To a considerable extent
- 4 = Very much so

2. How distressing do you find the task of throwing things away?

- 0 = No distress
- 1 = Mild distress
- 2 = Moderate distress
- 3 = Severe distress
- 4 = Extreme distress

3. To what extent do you have so many things that your room(s) are cluttered?

- 0 = Not at all
- 1 = To a mild extent
- 2 = To a moderate extent
- 3 = To a considerable extent
- 4 = Very much so

4. How often do you avoid trying to discard possessions because it is too stressful or time-consuming?

- 0 = Never avoid, easily able to discard items
- 1 = Rarely avoid, can discard with a little difficulty
- 2 = Sometimes avoid
- 3 = Frequently avoid, can discard items occasionally
- 4 = Almost always avoid, rarely able to discard items

5. How distressed or uncomfortable would you feel if you could not acquire something you wanted?

- 0 = Not at all
- 1 = Mild, only slightly anxious
- 2 = Moderate, distress would mount but remain manageable
- 3 = Severe, prominent and very disturbing increase in distress
- 4 = Extreme, incapacitating discomfort from any such effort

6. How much of the living area in your home is cluttered with possessions? (Consider the amount of clutter in your kitchen, living room, dining room, hallways, bedrooms, bathrooms or other rooms.)

- 0 = None of the living area is cluttered
- 1 = Some of the living area is cluttered
- 2 = Much of the living area is cluttered
- 3 = Most of the living area is cluttered
- 4 = All or almost all of the living area is cluttered

7. How much does the clutter in your home interfere with your social, work or everyday functioning?

Think about things that you don't do because of clutter.

- 0 = Not at all
- 1 = Mild, slight interference, but overall functioning not impaired
- 2 = Moderate, definite interference, but still manageable
- 3 = Severe, causes substantial interference
- 4 = Extreme, incapacitating

8. How often do you feel compelled to acquire something you see (e.g., when shopping or offered free things)?

- 0 = Never feel compelled
- 1 = Rarely feel compelled
- 2 = Sometimes feel compelled
- 3 = Frequently feel compelled
- 4 = Almost always feel compelled

9. How strong is your urge to buy or acquire free things for which you have no immediate use?

- 0 = Urge is not at all strong
- 1 = Mild urge
- 2 = Moderate urge
- 3 = Strong urge
- 4 = Very strong urge

10. How much control do you have over your urges to acquire possessions?

- 0 = Complete control
- 1 = Much control, usually able to control urges to acquire
- 2 = Some control, can control urges to acquire only with difficulty
- 3 = Little control, can only delay urges to acquire only with great difficulty
- 4 = No control, unable to stop urges to acquire possessions

11. How often do you decide to keep things you do not need and have little space for?

- 0 = Never keep such things
- 1 = Rarely
- 2 = Occasionally
- 3 = Frequently
- 4 = Almost always keep such possessions

12. To what extent does clutter prevent you from using parts of your home?

- 0 = All parts of the home are usable
- 1 = A few parts of the home are not usable
- 2 = Some parts of the home are not usable
- 3 = Many parts of the home are not usable
- 4 = Nearly all parts of the home are not usable

13. To what extent does the clutter in your home cause you distress?

- 0 = No feelings of distress or discomfort
- 1 = Mild feelings of distress or discomfort
- 2 = Moderate feelings of distress or discomfort
- 3 = Severe feelings of distress or discomfort
- 4 = Extreme feelings of distress or discomfort

14. How frequently does the clutter in your home prevent you from inviting people to visit?

- 0 = Not at all
- 1 = Rarely
- 2 = Sometimes
- 3 = Often
- 4 = Very often or nearly always

15. How often do you actually buy (or acquire for free) things for which you have no immediate use or need?

- 0 = Never
- 1 = Rarely
- 2 = Sometimes
- 3 = Frequently
- 4 = Almost always

16. How strong is your urge to save something you know you may never use?

- 0 = Not at all strong
- 1 = Mild urge
- 2 = Moderate urge
- 3 = Strong Urge
- 4 = Very strong urge

17. How much control do you have over your urges to save possessions?

- 0 = Complete control
- 1 = Much control, usually able to control urges to save
- 2 = Some control, can control urges to save only with difficulty
- 3 = Little control, can only stop urges with great difficulty
- 4 = No control, unable to stop urges to save possessions

18. How much of your home is difficult to walk through because of clutter?

- 0 = None of it is difficult to walk through
- 1 = Some of it is difficult to walk through
- 2 = Much of it is difficult to walk through
- 3 = Most of it is difficult to walk through
- 4 = All or nearly all of it is difficult to walk through

19. How upset or distressed do you feel about your acquiring habits?

- 0 = Not at all upset
- 1 = Mildly upset
- 2 = Moderately upset
- 3 = Severely upset
- 4 = Extreme embarrassment

20. To what extent does the clutter in your home prevent you from using parts of your home for their intended purpose? For example, cooking, using furniture, washing dishes, cleaning, etc.?)

- 0 = Never
- 1 = Rarely
- 2 = Sometimes
- 3 = Frequently
- 4 = Very frequently or almost all the time

21. To what extent do you feel unable to control the clutter in your home?

0 = Not at all

1 = To a mild extent

2 = To a moderate extent

3 = To a considerable extent

4 = Very much so

22. To what extent has your saving or compulsive buying resulted in financial difficulties for you?

0 = Not at all

1 = A little financial difficulty

2 = Some financial difficulty

3 = Quite a lot of financial difficulty

4 = An extreme amount of financial difficulty

23. How often are you unable to discard a possession you would like to get rid of?

0 = Never have a problem discarding possessions

1 = Rarely

2 = Occasionally

3 = Frequently

4 = Almost always unable to discard possessions

C9. Skin Picking Scale

1. How often do you feel the urge to pick your skin?

- 1 = Never
- 2 = Rarely
- 3 = Sometimes
- 4 = Frequently
- 5 = Almost always

2. How intense are the urges to pick your skin?

- 1 = No urges
- 2 = Mild
- 3 = Moderate
- 4 = Considerable
- 5 = Extreme

3. How much time do you spend picking your skin?

- 1 = Never
- 2 = Mild, occasional picking
- 3 = Moderate, frequent picking
- 4 = Considerable, very frequent picking
- 5 = Extreme, near constant picking

4. How much does your skin picking interfere with your social or work (or other role) functioning?

- 1 = None
- 2 = To a mild extent
- 3 = To a moderate extent
- 4 = To a considerable extent
- 5 = To an extreme extent

5. How distressed or anxious would you feel if you were prevented from picking your skin?

- 1 = Not at all
- 2 = Mild, only slightly anxious
- 3 = Moderate, anxiety would mount but remain manageable
- 4 = Severe, prominent and very disturbing increase in anxiety
- 5 = Extreme, incapacitating discomfort from any such effort

6. How much have you avoided doing anything, going any place, or being with someone because of your skin picking?

1= Never avoid

2 = Rarely avoid

3 = Sometimes avoid

4 = Frequently avoid,

5 = Almost always avoid

C10. Inventory of Mood and Anxiety Symptoms

Depression

This first group of questions is about feelings of sadness or lack of interest. During **the past month** have you experienced any of the following:

- 1 Have you had a period of time lasting several days or longer when most of the day you felt sad, empty or depressed?
- 2 Have you had a period of time lasting several days or longer when most of the day you were very discouraged about how things were going in your life?
- 3 Have you had a period of time lasting several days or longer when you lost interest in most things you usually enjoy like work, hobbies, and personal relationships?

§ IF RECEIVED A SCORE OF 1 OR 2 ON AT LEAST ONE OF THE ABOVE ITEMS (1-3), ASK:

ASK ABOUT A STATE ENDORSED ABOVE, IF MULTIPLE STATES ARE ENDORSED USE "OR" (E.G. "SADNESS OR LACK OF INTEREST")

- 4 Were your feelings of (sadness/ discouragement/ lack of interest) usually worse in the morning than later in the day?
- 5 Episodes of this sort sometimes happen as a result of physical causes such as physical illness or injury or the use of medication, drugs, or alcohol. Do you think your feelings of (sadness/ discouragement/ lack of interest) occurred as a result of such physical causes?

IF NO SCORE 0, IF YES ASK: How much of these feelings were due to these physical causes: (3) all of them, (2) most of them, (1) some of them?

ASK: Can you tell me what these physical causes were?

- 6 Overall, how many days during **the past month** have you felt (sad/ discouraged / uninterested) **most of the day**: (4) three weeks or more, (3) about two weeks, (2) about one week, (1) a few days, or (0) a day or less?
- 7 When you were feeling (sad/ discouraged / uninterested) did it **usually** last: (4) all day long, (3) most of the day, (2) about half the day, (1) a few hours, or (0) less than a few hours?

§ END OF THE SKIP OUT

Now I am going to ask you whether you experienced certain things for **at least several days during the past month**. Tell me only about experiences that lasted at least several days.

[IF YOU HAVE ANY DOUBTS THAT THE RESPONDENT DOES NOT FOLLOW THE TIME FRAME, REMIND THEM: "Just to remind you, I am only asking about experiences that lasted at least several days; they did not have to last the whole month" SAY IT NO MORE THAN TWICE]

THE FIRST TWO TIMES A PARTICIPANT GIVES A POSITIVE RESPONSE, PROBE: "And was this going on for at least several days during the past month?"

8 Did you feel so sad that nothing could cheer you up for at least several days?

9 Did you feel a lot less close to your friends and relatives for at least several days? 10 Did you lose the ability to take pleasure in having good things happen to you, like winning something or being praised or complimented?

11 Have you had a much smaller appetite than usual?

12 Did you eat a lot less than usual?

13 Have you slept much less than usual?

14 Did you have a lot of trouble falling asleep?

15 Was it difficult to stay asleep?

16 Were you waking up much earlier than you needed?

IF SAYS YES, PROBE: "Was it also much earlier than you wanted?"

IF RESPONDS NEGATIVELY TO EITHER QUESTION, SCORE ZERO

17 Did you sleep a lot more than usual?

IF SAYS YES, PROBE: "And did you sleep much more than you wanted?"

IF RESPONDS NEGATIVELY TO EITHER QUESTION, SCORE ZERO

18 Were you feeling drowsy almost all day long?

19 Have you felt very tired or low in energy even when you haven't been working very hard?

20 Did it take you a lot of effort to do your everyday activities?

21 Did you stop many of your usual activities because you didn't have the energy to do them?

- 22 Did you talk or move more slowly than is normal for you?
- 23 Has anyone noticed that you were talking or moving more slowly?
- 24 Did you feel the need to keep your hands occupied at all times?
- 25 Were you so restless or jittery that you paced up and down or couldn't sit still?
- 26 Has anyone noticed that you were restless?
- 27 Did your thoughts come much more slowly than usual?
- 28 Have you had a lot of trouble concentrating?
- 29 Did you feel that you could not make up your mind about things you ordinarily have no trouble deciding about?
- 30 Did you feel hopeless about the future?
- 31 Did you feel completely worthless?
- 32 Did you feel very guilty?
- 33 Was your self-esteem much lower than usual?
- 34 Did you feel that you had a lot more trouble coping with your everyday responsibilities?
- 35 Did you pay much less attention to your physical appearance?
- 36 Did you feel that you wanted to be alone rather than spend time with friends or relatives much more than usual?
- 37 Were you unable to enjoy the things you used to?
- 38 Did you feel a lot less talkative than usual?
- 39 Were you unable to laugh and see the funny side of things?
- 40 Were you much less interested in sex?
- 41 Were you much less interested in eating?
- 42 Have you felt desperate?
- 43 Were you often thinking about death; either your own, someone else's, or death in general?

Have you experienced any of the following in the past month; it did not have to last for several days

44 Have you thought that it would be better if you were dead?

45 Have you hurt yourself on purpose?

46 Have you seriously thought about committing suicide?

§ IF RECEIVED A SCORE OF 1 OR 2 ON AT LEAST ONE OF THE ABOVE ITEMS (8-41), ASK:

47. IF ONLY ONE QUESTION WAS ENDORSED:

In this section you mentioned a problem that has been bothering you. Overall, how much did this problem interfere with your life while you were having it: (4J extremely, (3J quite a bit, (2J somewhat, (1J a little, or (0J not at all?

IF TWO OR MORE QUESTIONS WERE ENDORSED:

In this section you mentioned some problems that have been bothering you. Overall, how much did these problems interfere with your life while you were having them: (4J extremely, (3J quite a bit, (2J somewhat, (1J a little, or (0J not at all?

Panic

This group of questions is about feeling afraid and experiencing certain bodily sensations. During **the past month**:

- 1 Have you had an-episode of fear or panic when all of a sudden you felt very frightened, anxious, or uneasy?
- 2 Have you had an episode when all of a sudden you became short of breath, dizzy, nauseous, or your heart pounded, (PAUSE) or you thought you might lose control, die, or go crazy?

§ IF RECEIVED A SCORE OF 1 OR 2 ON AT LEAST ONE OF THE ABOVE QUESTIONS:

- 3 Episodes of this sort can happen in three different situations. First, they can happen unexpectedly, or "out of the blue." Second, they can happen when a person has a very strong fear. For example, some people have a terrible fear of bugs or of heights or of being in a crowd. Third, they can happen when a person is in real danger, like a car accident or a bank robbery.
Which of these situations describe your experiences the best - (2) did you have episodes that happened unexpectedly, (PAUSE) (1) happened in a situation that you strongly fear, (PAUSE) (0) or in a situation of real danger?
[RECORD THE HIGHEST SCORE THAT APPLIES]
- 4 Episodes like this sometimes happen as a result of physical causes such as physical illness or injury or the use of medication, drugs, or alcohol. In the past month, do you think these episodes occurred as the result of such physical causes?
IF NO SCORE 0, IF YES ASK: How much of these feelings were due to these physical causes: (3) all of them, (2) most of them, (1) some of them?
ASK: Can you tell me what these physical causes were?
- 5 Did you often worry that you might have another episode?
- 6 Did you often worry that something terrible might happen because of the episode(s), like having a car accident, having a heart attack, or losing control?
- 7 Have you changed your everyday activities because of the episode(s)?
- 8 Did you avoid certain situations because of fear about having another episode(s)?
- 9 In the past month, how much did problems related to this episode(s) interfere with your life: (4) extremely, (3) quite a bit, (2) somewhat, (1) a little, or (0) not at all?

Think of a **typical** episode of this sort that you have had in the past month.
(PAUSE) During that time, which of the following experiences did you have?
(BEGIN ASKING SYMPTOMS)

§ END OF THE SKIP OUT

IF RECEIVED A SCORE OF 0 ON BOTH 01 AND 02:

Think of a time during the past month when you were very nervous or scared.
(PAUSE) Can you think of such an occasion?* During that time, which of the following experiences did you have? (BEGIN ASKING SYMPTOMS)

*IF DENIES BEING "VERY NERVOUS OR SCARED," SAY "Can you think of a time when you were the most nervous that you can remember, even if you were not very nervous? (PAUSE) During that time, which of the following experiences did you have?"

- 10 During that time did your heart pound heavily or race rapidly?
- 11 During that time were you short of breath?
- 12 Did you have nausea or discomfort in your stomach?
- 13 Did you feel dizzy or faint?
- 14 Did you sweat noticeably?
- 15 Did you tremble or shake?
- 16 Did you have a dry mouth?
- 17 Did you feel like you were choking?
- 18 Did you have pain or discomfort in your chest?
- 19 Were you afraid that you might lose control of yourself?
- 20 Were you afraid that you might go crazy?
- 21 Did you feel that you weren't real or that you were disconnected from your body?
- 22 Did you feel that things around you weren't real?
- 23 Were you afraid that you might die?
- 24 Did you have hot flashes or chills?
- 25 Did you have numbness or tingling sensations?
- 26 Did you fear that you might lose control of your bowels or bladder?
- 27 Did you fear that you might throw up?
- 28 Did you feel like you had a lump in your throat?

§ IF RECEIVED A SCORE OF 1 OR 2 ON AT LEAST ONE ABOVE ITEM (10-28), ASK:

- 29 How long did these feelings usually last: (4) a few hours or more, (3) about one hour, (2) about half an hour, (1) about 10 minutes, or (0) a few minutes or less?

Social Phobia

This group of questions is about experiences related to social situations. I am going to give you a list of situations and ask if you **strongly fear** them or find them **very uncomfortable**.

THE FIRST TWO TIMES A PARTICIPANT GIVES A POSITIVE RESPONSE, PROBE: "And do you strongly fear it or find it very uncomfortable?"

- 01 Do you strongly fear or find it very uncomfortable to meet new people?
- 2 Do you strongly fear or find it very uncomfortable to talk to people in authority?
- 3 Talk to people that you are attracted to?
- 4 Speak up in a meeting or class?
- 5 Act, perform, or give a talk in front of an audience?
- 6 Take an important exam or interview for a job, even though you are well prepared?
- 7 Work while someone watches?
- 8 Enter a room where others are already present?
- 9 Having your body exposed, for example when wearing tight clothes or a bathing suit?
- 10 Express disagreement to people you don't know very well?
- 11 Write, read, eat, or drink while someone watches?
- 12 Urinate in a public bathroom or use a bathroom away from home?

Now I am going to ask if you would **avoid** any of these situations **if it at all possible**?

IF SAYS "NO" TO ALL IN ADVANCE SAY "I understand, but I need to read the list to you because you might remember something new as you listen to it"

THE FIRST TWO TIMES A PARTICIPANT GIVES A POSITIVE RESPONSE, PROBE: "And would you avoid it if at all possible?"

- 13 Would you avoid meeting new people if at all possible?
- 14 Would you avoid talking to people in authority if at all possible?

- 15 Talking to people that you are attracted to?
- 16 Speaking up in a meeting or class?
- 17 Acting, performing, or giving a talk in front of an audience?
- 18 Taking an important exam or interviewing for a job, even though you are well prepared?
- 19 Working while someone watches?
- 20 Entering a room where others are already present?
- 21 Having your body exposed, for example when wearing tight clothes or a bathing suit?
- 22 Expressing disagreement to people you don't know very well?
- 23 Writing, reading, eating, or drinking while someone watches?
- 24 Urinating in a public bathroom or using a bathroom away from home?

§ IF RECEIVED A SCORE OF 1 OR 2 ON AT LEAST ONE ABOVE ITEM (01-24), ASK: 25 IF ONLY ONE QUESTION WAS ENDORSED:

In this section you mentioned that you have difficulties with a certain social situation. Do you think that your fear of this situation is much stronger than it should be?

IF TWO OR MORE QUESTIONS WERE ENDORSED:

In this section you mentioned that you have difficulties with certain social situations. Do you think that your fear of these situations is much stronger than it should be?

- 26 Are these difficulties related to embarrassment about having a physical or mental health problem or disability?
- 27 Overall, how much did these difficulties interfere with your life **in the past month**: (4) extremely, (3) quite a bit, (2) somewhat, (1) a little, or (0) not at all?

Agoraphobia

This group of questions is about experiences related to different types of situations. I am going to give you a list of situations and ask if you **strongly fear** them or find them **very uncomfortable**.

THE FIRST TWO TIMES A PARTICIPANT GIVES A POSITIVE RESPONSE, PROBE: "And do you strongly fear it or find it very uncomfortable?"

- 1 Do you strongly fear or find it very uncomfortable using public transportation?
- 2 Do you strongly fear or find it very uncomfortable being in crowds?
- 3 Standing in a line?
- 4 Traveling away from home?
- 5 Being in a department store, shopping mall, or supermarket?
- 6 Crossing a bridge?
- 7 Traveling in a car?
- 8 Being in a **closed space**, like a tunnel, a closet, or an elevator?
- 9 Being in an **open space outdoors**, like in a field or a wide street?
- 10 Being in an **open space indoors**, like in a movie theater, auditorium, or church?
- 11 Being in a **public place**, like a restaurant, classroom, or museum?

Now I am going to ask if you would **avoid** any of these situations **if it at all possible?**

THE FIRST TWO TIMES A PARTICIPANT GIVES A POSITIVE RESPONSE, PROBE: "And would you avoid it if at all possible?"

IF SAYS "NO" TO ALL IN ADVANCE SAY "I understand, but I need to read the list to you because you might remember something new as you listen to it"

- 12 Would you avoid using public transportation if at all possible?
- 13 Would you avoid being in crowds if at all possible?
- 14 Standing in a line?

- 15 Traveling away from home?
- 16 Being in a department store, shopping mall, or supermarket?
- 17 Crossing a bridge?
- 18 Traveling in a car?
- 19 Being in a **closed space**, like a tunnel, a closet, or an elevator?
- 20 Being in an **open space outdoors**, like in a field or a wide street?
- 21 Being in an **open space indoors**, like in a movie theater, auditorium, or church?
- 22 Being in a **public place**, like a restaurant, classroom, or museum?

§ IF RECEIVED A SCORE OF 1 OR 2 ON AT LEAST ONE ABOVE ITEM (01-22), ASK:

People with experiences like this may fear various things about these situations. Which of the following fears do you experience?

- 23 Fear that there is some real danger, like that you might be robbed or assaulted?
 - 24 Fear that you might get sick to your stomach or have diarrhea?
 - 25 Fear that you might have an episode of panic or strong fear?
 - 26 Fear that you might have a heart attack or some other emergency?
 - 27 Fear that you might become physically ill and be unable to get help?
 - 28 Fear that it might be difficult to escape?
 - 29 Fear that it might be embarrassing to escape?
- 30 IF ONLY ONE QUESTION WAS ENDORSED:
 In this section you mentioned that you avoid a certain situation or find it very uncomfortable. Overall, how much does this interfere with your life: (4) extremely, (3) quite a bit, (2) somewhat, (1) a little, or (0) not at all?

IF TWO OR MORE QUESTIONS WERE ENDORSED:

In this section you mentioned that you avoid certain situations or find them very uncomfortable. Overall, how much does this interfere with your life: (4) extremely, (3) quite a bit, (2) somewhat, (1) a little, or (0) not at all?

Generalized Anxiety

This group of questions is about a type of worrying that takes up a lot of time or is hard to control. I am going to ask you whether you experienced certain things **more days than not during the past month**. In other words, this section is about experiences that you had for more than 15 days, but these days don't have to be consecutive. Tell me only about things that you experienced more days than not.

[IF YOU HAVE ANY DOUBTS THAT THE RESPONDENT DOES NOT FOLLOW THE TIME FRAME REMIND THEM: "Just to remind you, I am only asking about experiences that you had more days than not during the past month" SAY IT NO MORE THAN TWICE]

THE FIRST TWO TIMES A PARTICIPANT GIVES A POSITIVE RESPONSE, PROBE: "And did you experience this more days than not during the past month?" Did you worry a lot more days than not?

- 2 Were you nervous or anxious more days than not?
- 3 Were you so nervous or worried that you couldn't think about anything else, no matter how hard you tried?
- 4 Was it very hard for you to control your worry or anxiety?

§ IF RECEIVED A SCORE OF 1 OR 2 ON AT LEAST ONE ABOVE ITEM (01-04), ASK:

- 5 Did you worry so much or so strongly about only one topic?
6. Do you think that during the past month your worry and anxiety was a lot stronger than it should have been?
- 7 Worry and anxiety sometimes happen as a result of physical causes such as physical illness or injury or the use of medication, drugs, or alcohol. Do you think your worry and anxiety was due to such physical causes?
IF NO SCORE 0, IF YES ASK: How much of this worry and anxiety was due to these physical causes: (3) all of it, (2) most of it, (1) some of it?
ASK: Can you tell me what these physical causes were?
- 8 In the past month, how much did worry and anxiety interfere with your life: (4) extremely, (3) quite a bit, (2) somewhat, (1) a little, or (0) not at all?

Now let me ask you if in the past month you've had any of the following experiences **more days than not**:

§ END OF THE SKIP OUT

THE FIRST TWO TIMES A PARTICIPANT GIVES A POSITIVE RESPONSE, PROBE: "And did you experience this more days than not during the past month?"

- 9 Were you restless or fidgety?
- 10 Did you get tired very easily?
- 11 Were you very irritable?
- 12 Did you have difficulty concentrating or keeping your mind on what you were doing?
- 13 Were your muscles tense, sore, or aching?
- 14 Did you have trouble falling or staying asleep?
- 15 Have you felt tense or wound up most of the day?
- 16 Did you have a frightened feeling, as if something awful was going to happen?

Obsessive-Compulsive Disorder

This group of questions is about repetitive thoughts and behaviors. During the past month, have you experienced any of the following:

THE FIRST TWO TIMES A PARTICIPANT GIVES A POSITIVE RESPONSE, PROBE ABOUT FREQUENCY, E.G. "Would you say that you did it often?"

- 1 Did you have thoughts about dirt, germs, or contamination that kept coming back?
- 2 Did you feel the need to wash your hands again and again?
- 3 Did you **repeatedly** avoid physical contact with people because you were concerned about getting dirty or contaminated?
- 4 Would you avoid handling things that were touched by others whenever possible?
- 5 Have you often wondered if everything was right even after you checked it multiple times?
- 6 Did you check things, such as turning off appliances or locking doors, again and again?
- 7 Have you **often** found yourself worrying whether you actually did something that you intended to do, such as turning off lights?
- 8 Were you checking what you were doing for mistakes over and over again (for example, while reading, writing, or using a calculator)?
- 9 Have you **often** experienced thoughts or images that were unpleasant or disturbing?
- 10 Have you **often** had unwanted thoughts or images that you **could not get out of your head**?
- 11 Did you have **repeated** thoughts that something terrible is going to happen, although you knew that it was not likely?
- 12 Did you have **recurring** thoughts involving aggression, injury, or violence?
- 13 Did you have unpleasant or disturbing thoughts involving sex that kept coming back?
- 14 Did you have **recurring** concerns about doing something sinful or evil?
- 15 Have you **often** felt compelled to line things up or arrange them so that they were neat and orderly?
- 16 Did you **repeatedly** feel the need to count objects, such as the books on a shelf, or floor tiles?

- 17 Did you **regularly** perform certain activities in a fixed, exactly defined order?
- 18 Were you repeating certain activities a lot more than you needed to?
- 19 Did you repeat certain **routine** activities to avoid some terrible consequences?

§ IF RECEIVED A SCORE OF 1 OR 2 ON AT LEAST ONE ABOVE ITEM (01-19), ASK:

- 20 In this section you mentioned that you have certain repetitive thoughts and behaviors. Overall, how much do these thoughts and behaviors interfere with your life: (4) extremely, (3) quite a bit, (2) somewhat, (1) a little, or (0) not at all

Specific Phobia

Now I am going to ask you about strong fears of various animals, objects, and situations.

- 1 Would you almost always become very upset or nervous if you were faced with any kind of insect, such as spiders or cockroaches?
- 2 Would you avoid any of these insects whenever you could?
- 3 Would you almost always become very upset or nervous if you were faced with any kind of small animal, such as snakes, snails, or mice?
- 4 Would you avoid any of these animals whenever you could?
- 5 Would you almost always become very upset or nervous if you were faced with any kind of common large animal, such as dogs, cats, or farm animals?
IF SAYS YES PROBE "What kind of animals do you have in mind?" CLEARLY DANGEROUS ANIMALS (E.G. FREE ROAMING BULL, RABID DOG) DO NOT COUNT
- 6 Would you avoid any of these animals whenever you could?
- 7 Would you almost always become very upset or nervous if you were faced with still water, like in a swimming pool or a lake?
- 8 Would you avoid still water whenever you could?
- 9 Would you almost always become very upset or nervous if you were getting a shot or injection?
- 10 Would you avoid getting a shot or injection whenever you could?
- 11 Would you almost always become very upset or nervous at a sight of blood? CLEARLY GORY SCENES DO NOT COUNT
- 12 Would you avoid seeing blood whenever you could?
- 13 Would you almost always become very upset or nervous if you saw injury, even if there was no blood?
- 14 Would you avoid seeing injury whenever you could?
- 15 Would you almost always become very upset or nervous if you were at a high place, like roofs, balconies, bridges, or staircases?
- 16 Would you avoid high places whenever you could?

- 17 Would you almost always become very upset or nervous if you had to fly?
- 18 Would you avoid flying whenever you could?
- 19 Would you almost always become very upset or nervous if you were faced with weather events, like storms, thunder or lightning?
CLEARLY DANGEROUS WEATHER (E.G. TORNADO NEAR PERSON'S HOME) DOES NOT COUNT
- 20 Would you avoid such weather whenever you could?

§ IF RECEIVED A SCORE OF 1 OR 2 ON AT LEAST ONE ABOVE ITEM (01-20), ASK:

- 21 In this section you mentioned that you are afraid of certain things or avoid them. Do you think this fear or avoiding is much stronger than it should be?
- 22 Overall, how much does this fear and avoiding interfere with your life: (4) extremely, (3) quite a bit, (2) somewhat, (1) a little, or (0) not at all?

Irritability

This group of questions is about irritability and feelings of annoyance during the past month. I am going to ask you whether you experienced certain things for **at least several days during the past month**. Tell me only about experiences that lasted at least several days.

[IF YOU HAVE ANY DOUBT THAT THE RESPONDENT DOES NOT FOLLOW THE TIME FRAME, REMIND THEM: "Just to remind you, I am only asking about experiences that lasted at least several days; they did not have to last the whole month" SAY IT NO MORE THAN TWICE]

- 1 Were you very irritable or grumpy most of the day for at least several days?
- 2 Did you find that for at least several days nearly everyone got on your nerves?
- 3 Were you so irritable that you started arguments, shouted at people, or had outbursts of anger?
- 4 Did you find that even little setbacks were very frustrating?
- 5 Were there many things that made you furious?
- 6 Have you lost your temper a number of times during the past month?

§ IF RECEIVED A SCORE OF 1 OR 2 ON AT LEAST ONE ABOVE ITEM (1-6), ASK:

- 7 In this section you mentioned that in the past month you were irritable. Overall, how much did this irritability interfere with your life: (4) extremely, (3) quite a bit, (2) somewhat, (1) a little, or (0) not at all?

Mania

This group of questions is about feeling very happy or excited. I am going to ask you whether you experienced certain things for **at least several days during the past month**. Tell me only about experiences that lasted at least several days.

[IF YOU HAVE ANY DOUBT THAT THE RESPONDENT DOES NOT FOLLOW THE TIME FRAME, REMIND THEM: "Just to remind you, I am only asking about experiences that lasted at least several days; they did not have to last the whole month" SAY IT NO MORE THAN TWICE]

THE FIRST TWO TIMES A PARTICIPANT GIVES A POSITIVE RESPONSE, PROBE: "And was this going on for at least several days during the past month?"

- 1 Were you **extremely** and unusually self-confident or optimistic, **no matter what** was happening, for at least several days?
- 2 Did you feel a lot more hyper or over active than usual for at least several days?
- 3 Have you had a lot more energy than is usual for you?

§ IF RECEIVED A SCORE OF 1 OR 2 ON AT LEAST ONE ABOVE ITEM (1-03), ASK:

ASK ABOUT A STATE ENDORSED ABOVE, IF MULTIPLE STATES ARE ENDORSED USE "OR" (E.G. "CONFIDENT OR HYPER").

- 4 How many days in the past month have you felt unusually (confident/hyper/energetic) for **most of the day**: (4) longer than two weeks, (3) between one and two weeks, (2) four to six days, (1) two to three days, or (0) one day or less?
- 5 When you were feeling unusually (confident/hyper/energetic) did it usually last: (4) all day long, (3) most of the day, (2) about half the day, (1) a few hours, or (0) less than a few hours?
- 6 Experiences of this sort sometimes happen as a result of physical causes such as physical illness or injury or the use of medication, drugs, or alcohol. Do you think your unusual feelings of (confidence/over activeness/energy) occurred as a result of such physical causes?
IF NO SCORE 0, IF YES ASK: How much of these feelings were due to these physical causes: (3) all of them, (2) most of them, (1) some of them?
ASK: Can you tell me what these physical causes were?

Let me ask you a few more questions. Again tell me only about experiences that lasted **at least several days**.

§ END OF THE SKIP OUT

THE FIRST TWO TIMES A PARTICIPANT GIVES A POSITIVE RESPONSE, PROBE: "And was this going on for at least several days during the past month?"

- 7 Were you starting **many** new projects?
- 8 Did you sleep much less than usual and still not feel tired or sleepy?
- 9 Did you often talk a lot more than the situation required or talked so much that it was hard for other people to interrupt you?
- 10 Were you much more distracted by unimportant things?
- 11 Were your thoughts coming to you so quickly that you had trouble putting them into words?
- 12 Did your thoughts race through your head?
- 13 Did your thoughts keep jumping from one thing to another?
- 14 Did you believe that you could do many things you couldn't really do?
- 15 Have you done things that were very unusual for you and could have caused trouble for you or your family (for example: reckless spending, driving, or sexual behavior)?

§ IF RECEIVED A SCORE OF 1 OR 2 ON AT LEAST ONE ABOVE ITEM (1-15), ASK:

- I 6 In this section you mentioned that in the past month you had some feelings and experiences that are not usual for you. How much did they interfere with your life:
(4) extremely, (3) quite a bit, (2) somewhat, (1) a little, or (0) not at all?