Five Facets of Mindfulness in Pregnancy and Postpartum Periods

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School of Interdisciplinary Arts and Sciences, Psychology
June 3, 2021

Faculty Adviser: Dr. Amanda Sesko

Essay completed in partial fulfillment of the requirements for graduation with Global Honors, University of Washington, Tacoma

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Five Facets of Mindfulness for Bipolar Disorder, Depression, and Anxiety in Pregnancy and Postpartum

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Bamford Fellowship Capstone Project

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Abstract

Pregnancy, particularly the postpartum period is high risk for women with preexisting mental disorders such as bipolar disorder, depression, and anxiety. This research investigates if self-reported use of overall mindfulness and individual facets of mindfulness (observe, describe, nonjudging, acting with awareness, and nonreacting), reduce common symptoms associated with these disorders. Pregnant or postpartum participants recruited from social media groups (18+) were asked to self-report symptoms of mania, depression, anxiety, and five facets of mindfulness. Overall mindfulness was significantly negatively correlated with mania, depression, and anxiety, and in particular with *nonjudging* and *acting with awareness.* But symptoms were positively correlated with *observe* and *nonreact*. Postpartum participants showed stronger correlations between mindfulness and symptoms than pregnant participants. Mindfulness appears to be effective during the postpartum but facets and timing of mindfulness practices matter.

Keywords: mindfulness, five facets mindfulness, bipolar, depression, anxiety, pregnancy, postpartum

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Five Facets of Mindfulness for Bipolar Disorder, Depression, and Anxiety in Pregnancy or the Postpartum Period

Pregnancy can be a time for joy but for many women it is a transition that involves extra challenges when mental disorders are a factor. The physical and social changes can prove to be additionally complex and difficult to navigate when suffering from a preexisting mood disorder such as bipolar disorder, depression, or comorbidity of anxiety. Mindfulness, or "intentionally living with awareness in the present moment" (Linehan, 2015, p. 2) has been shown to be useful in addressing these challenges in pregnancy. Mindfulness-based interventions have become popular for various populations including chronic pain (MBSR, Kabat-Zinn, 1982), depression (MBCT, Teasdale et al., 2000) and other applications such as for pregnancy (e.g., CALM, Goodman et al., 2014), and parenting ("Mindful with your Baby," Potharst et al., 2017). These same interventions have shown positive outcomes for severe cases of bipolar disorder, depression, anxiety, and stress (e.g. Ives-Deliperi et al., 2013). Mindfulness-based pregnancy and parenting interventions are also promising with reports of improved psychopathology as well as improvements in other factors that are related to elevated stress and anxiety levels (Luberto et al., 2017; Potharst et al., 2017). This research investigates if mindfulness is useful as an intervention for symptoms of common mental health challenges, particularly symptoms related to bipolar disorder, depression, and anxiety during pregnancy and the postpartum period. Furthermore, this research focuses on the five facets of mindfulness (acting with awareness, non-judging, non-reactivity, describing, and observing) to see which facets are most effective for particular symptoms.

Psychological Disorders during Pregnancy and the Postpartum Period

The recurrence or onset of severe mental disorders during pregnancy or a postpartum period can be a continuation of a preexisting disorder which can escalate or be a rapid onset of a severe episode which is known as postpartum psychosis (Jones & Smith, 2009). Two-thirds of women with a preexisting mood disorder such as bipolar disorder or depression report at least one episode during pregnancy or postpartum and mood disorder episodes are more common in postpartum periods with bipolar disorder I being the most common (Di Florio et al., 2013). Women with bipolar disorder I have close to a 50% risk of a mood disorder episode onset during pregnancy or the postpartum period including hypomania, manic/mixed episode, nonpsychotic depression, or psychotic depression (Di Florio et al., 2013). Women with bipolar disorder II or recurrent major depression have a 40% risk of a mood disorder episode onset during pregnancy (Di Florio et al., 2013). Other studies put recurrence rates of at least one episode of bipolar disorder during the postpartum period as high as 71% (Viguera et al., 2011).

The onset of mood disorder episodes during pregnancy or postpartum vary by disorder. Recurrent major depression is overrepresented in the first four weeks of postpartum and episodes of mania or psychotic depression is overrepresented in women with BD-I in the first month postpartum (Di Florio et al., 2013). Hospital admission for any mental disorder during pregnancy and postpartum periods is highest during the first 0-3 months after conception or giving birth (Munk-Olsen et al., 2006). Increased risk of hospitalization for unipolar depressive disorder is highest within the first five months postpartum and bipolar disorder has heightened risks within the first two months postpartum. (Munk-Olsen et al., 2006). Bipolar disorder has a substantially higher risk of both onset and recurrence than depression with 26.9% of mothers being readmitted to the hospital within one year of childbirth (Munk-Olsen et al, 2006; Munk-Olsen et al., 2009).

Postpartum psychosis generally emerges as mania (high mood), severe depression (low mood) or mixed episodes and many clinicians argue that postpartum psychosis may be other disorders such as bipolar disorder and depression that are triggered by childbirth (Jones & Smith, 2009). More than 50% of symptom onset of postpartum psychosis happens within 1-3 days after childbirth and most of the remaining onsets happening within two weeks after birth (Heron et al., 2008). Jones and Smith (2009) report similar findings however point out that past, well-cited research (Munk-Olsen et al., 2009), has left out a large group of women classified as "puerperal psychosis." Considering this is a catch-all coding for psychosis during pregnancy, and that hospitalization for bipolar disorder happens four times more than schizophrenia (another disorder often attributed to psychosis; Munk-Olsen et al., 2006), it is probable that psychosis due to bipolar disorder is underreported and thus underrepresenting severe cases of bipolar disorder and bipolar psychosis (Jones & Smith, 2009).

Pregnancy seems to be less of a risk factor (compared to postpartum) with 3.5 times less prevalence of mood episodes with bipolar still having the highest risk of episodes (Viguera et al., 2011). Some studies show pregnancy to be protective against episodes such as lower rates of bipolar disorder onset (Munk-Olsen et al., 2006) and relapse (Munk-Olsen et al., 2009). For example, Viguera et al. (2011) found that 23% of women reported bipolar episodes during pregnancy versus 4.6% reporting unipolar episodes like depression. Importantly, there are differences between bipolar depression and unipolar depression during pregnancy: despite low episodes of unipolar depression, the highest reported symptoms of bipolar disorder were depressive symptoms when compared to mania or the comorbidity of anxiety (Viguera et al., 2011). This falls in line with the well-established knowledge of high depression rates, particularly during the first 0-3 month of pregnancy (see Chaudron & Pies, 2003 for a review),

but suggests unipolar depression may often be confused for bipolar depression in which mania and other bipolar symptoms may be missed.

Psychiatric disorders during the postpartum period can have lasting effects on the mother and baby by causing distress and severe bonding issues that negatively affect the baby's psychoaffective development (e.g. Sutter-Dallay et al., 2011). Mortality rates of mothers with psychiatric disorders have been documented at rates four times as high as mothers without psychiatric history; unnatural causes (suicide and accidents) account for 40.6% of deaths in women with psychiatric disorders (Berg et al., 2003). Fetal death and stillbirth are twice as high among mothers experiencing psychosis (Webb et al., 2005). Multiple studies have linked anxiety to negative outcomes in children from pregnant women experiencing high levels of anxiety. These include delays in motor and mental development as well as suggesting higher risk for infants developing psychopathology later in life (Buitelaar et al., 2003), neurological dysfunction (Kikkert et al., 2010), attention deficit/hyperactivity disorder (ADHD; Van den Bergh & Marcoen, 2004), and behavioral and emotional problems (O'Connor et al., 2003). Treatment for mood disorders and the comorbidity of anxiety during pregnancy are recommended but determining what treatment is right becomes challenging when pregnancy is involved.

Treatment for Psychological Disorders during Pregnancy and the Postpartum Period

Non-treatment is not recommended due to mood episode relapse or onset. Furthermore, the comorbidity of severe stress and anxiety in untreated mental disorders during pregnancy or in the postpartum can become especially difficult when stressors such as biophysical changes, role changes in self and family, sleep deprivation, and other demands created by pregnancy or a newborn are experienced (Davidson, et al., 2012, Jones & Smith, 2009). In a Swedish register-based study (N = 332,137), untreated women with bipolar disorder had high risk for cesarean

delivery, preterm birth, babies delivered with small head circumference, and neonatal hypoglycemia (Boden et al., 2012).

Treatment for bipolar disorder generally involves a psychopharmacological approach that carefully balances mood fluctuations from mania to depression or mixed episodes (Bahji et al., 2020), although various types of bipolar disorder will present in different combinations of symptom intensities, time of onset, and length of each symptom (American Psychiatric, 2013). Medications include mood stabilizers that are used to stabilize mood fluctuations. The most effective of this class of drug for bipolar depression is lithium, lamotrigine, and valproate (Bahji et al., 2020; Connolly & Thase, 2011). Anti-depressants are commonly used (Liu et al., 2017) with tranlycypromine, venlafaxine, fluoxetine, and impramine as most effective and most tolerated without triggering mania in monotherapy (Bahji et al., 2020; Connolly & Thase, 2011). Anti-psychotics such as lurasidone, quetiapine, and cariprazine are also used (Bahji et al., 2020; Fornaro, et al., 2016). Combinations of previously listed medications are often used to treat different symptom groupings (mania, hypomania, depression, psychosis, etc). The decision of what medication is right falls to the patient, physician, and sometimes the patient's family.

Importantly, many women must change or quit medications due to teratogenic effects during pregnancy (Galbally et al., 2010; Viguera et al., 2011; Udechuku et al., 2010) and expression of medications through breast milk during the postpartum period (Dodd et al., 2005). Some women may need to make quick decisions about drugs like sodium valproate that have shown severe cognitive defects in fetuses (Epstein et al., 2015; Jones & Smith, 2009). Discontinuation of medications, however, can also be dangerous. Viguera et al. (2007) found that rates of bipolar episodes were reported 2.3 times higher, with 85% of women reporting episodes, when discontinuing mood stabilizers during pregnancy. Women discontinuing mood stabilizers

also reported being ill 40% of their pregnancy versus 8.8% of women who maintained mood stabilizer treatment (Viguera et al., 2007).

Due to these side-effects, psychoeducation about disorders and treatments are heavily emphasized during pregnancy (Goodwin, 2009). These decisions are usually made between the pregnant woman, her family, and her physician using a risk-benefit analysis. Risk-benefit analyses are often used by physicians in many settings but in the context of mental disorders during pregnancy, the risks and benefits of starting or stopping a medication must be considered. In other words, do the benefits of a particular medication for the mother and ultimately the baby outweigh the medication side-effects or mood instability and stress from a change in or discontinuation of medication? Potential benefits of medication during pregnancy and postpartum periods include reduced relapse and recurrence, less or no symptoms, and less interference with attachment and development of the child. Risks include teratogenesis and other side effects that could lead to developmental issues (Goodwin, 2009). This decision in itself can cause extreme distress in the mother in which she may feel as if she is choosing her own health at the possible expense of her baby's wellbeing or choosing her baby's health causing further distress in her own mental wellbeing.

Other therapies such as psychotherapy, cognitive behavioral therapy, family-focused therapy, interpersonal and social rhythm therapy may be effective although most are used adjunctly to psychopharmacological treatment methods. Despite the low risk of these methods, there is little research into which method is best and which works best for depression, mania, or mixed episodes during pregnancy or postpartum (Goodwin, 2009; Epstein et al., 2015). Electroconvulsive therapy has also been toted as a safe and effective treatment method for severe

and treatment-resistant cases of both mania and depression, although there is a lack of research around this procedure during pregnancy or postpartum periods (Goodwin, 2009).

Mindfulness-based Interventions to Reduce Symptoms Associated with Psychological Disorders

Mindfulness is known as *sattipatana vipassana* from its original practice in Theravada Buddhism (Kabat-Zinn, 1982). Other traditions practicing mindfulness include Mahayana Buddhism and Soto Zen practices (Kabat-Zinn, 1982). Mindfulness-based interventions offer options outside of pharmacological treatment methods and could offer solutions for symptom and stress management during pregnancy and postpartum periods. Since abrupt medication changes seem to be a risk factor for increased mood episodes (Viguera, et al., 2011), mindfulness-based interventions could be used adjunctly with medications. They can also be used to help regulate mood instability during decreases in, discontinuation of, or changes to medications.

Two well-established clinical interventions include mindfulness-based stress reduction (MBSR) which was created to address stress related to chronic pain (Kabat-Zinn, 1982) and mindfulness-based Cognitive Therapy (MBCT) that is MBSR adapted for depression (Teasdale et al., 2000). Reviews of mindfulness-based interventions have shown promising results for depression and anxiety, but mixed results for bipolar disorder. In one systematic review of MBCT, researchers reported improvements in reductions of anxiety and depression in bipolar disorder, but no improvement from pre to post mania scores; however, MBCT may be effective for residual mania symptoms (Bojic & Becerra, 2017). Other analyses have shown similar results for bipolar disorder (see Chu et al., 2018 for a meta-analysis), and positive improvements in symptomology in severe cases of bipolar, depression, and anxiety (Ives-Deliperi et al., 2013).

MBCT has also shown to be promising in pregnancy and the postpartum period (MBCT-PD) for a variety of factors from psychopathology to general well-being. Luberto et al., (2017) found a decrease in depression symptoms as well as improvements to anxiety, mindfulness, worry, and self-compassion. These results are in line with other studies that have shown maintained improvements and significantly lower rates of depression symptoms during pregnancy and postpartum (Dimidjian et al., 2015, Dimidjian et al., 2016). Other studies show MBCT to be a protective factor against depressive relapse (Felder et al., 2017); and anxiety symptoms (Dunn et al., 2012).

Other forms of mindfulness-based pregnancy interventions such as CALM have shown promising results in pregnant women with generalized anxiety disorder (GAD) with improvements to anxiety, worry, self-compassion, and mindfulness (Goodman et al., 2014). Another study focusing on benefits to infants with mindful mothers found a negative correlation between mindfulness and anxiety as well as benefits to infant well-being (Van den Heuvel et al., 2014). Mindfulness-based parenting programs such as *Mindful with your Baby* have shown large correlations to improvements in mindfulness, self-compassion, mindful parenting, and medium to large improvements in psychopathology, overall well-being, parental confidence, responsivity, and hostility (Potharst et al., 2017).

Research, however, has focused less on the effectiveness of mindfulness for bipolar, depression, and anxiety symptoms in pregnancy and postpartum periods. Furthermore, most research uses one overall measurement of mindfulness which many scholars and even monks associated with mindfulness research have pointed out is not sufficient in understanding the effects of such practices (e.g. Paunonen & Ashton, 2001; Goleman & Davidson, 2018). Particularly, past research has not investigated what facets of mindfulness (acting with

awareness, non-judging, non-reactivity, describing, and observing) are effective in reducing these symptoms in pregnancy and postpartum.

The five facets of mindfulness include: observing, describing, nonjudgment, nonreactivity, and acting with awareness (Baer et al., 2006). Each facet involves a different way of being mindful. Observing involves noticing sensations, thoughts, feelings, or emotions; describing builds on observing by describing what is being observed in a factual way; non-reactivity involves not reacting to the stimuli of sensations, thoughts, emotions, or behaviors; non-judging involves suspending judgement of oneself or others; and acting with awareness involves continually drawing one's attention to the present and freeing oneself from distractions (Baer et al., 2006). Studying how the five facets of mindfulness influence psychopathology, particularly how each facet influences particular symptoms could help determine what types of mindfulness are most efficient in the treatment of psychological disorders.

In a study measuring general psychological health, Brown et al., (2014) found that *acting with awareness* had significant direct associations with lower levels of depressive and anxiety symptoms; *non-judging* had a moderate direct association with lower levels for depressive symptoms, *non-reactivity* had a modest direct association with lower levels of anxiety but non-significant direct associations with depressive symptoms; *describing* and *observing* did not have any significant direct associations with anxiety or depressive symptoms. In a study of pregnant women (n = 857) that looked at depression and pregnancy specific anxiety, *nonjudging*, and *acting with awareness* had the strongest negative correlations with depression and pregnancy anxiety. *Describing* had a smaller but equally significant correlation with depression while *observing* was non-significant (Kantrowitz-Gordon, 2018). No study, to our knowledge, looks at the five facets of mindfulness during the postpartum period, nor do any measure bipolar disorder.

Overview of Current Research

In the current work we investigate how different facets of mindfulness matter for treatment of symptoms associated with depression, bipolar disorder, and anxiety during pregnancy or the postpartum period. Specifically, we are interested in if alleviation of symptoms of depression, bipolar disorder, and anxiety during pregnancy or the postpartum period, are associated with particular facets of mindfulness.

To test this, pregnant and postpartum women were asked to self-report on their use of mindfulness practices and to report experiences of common symptoms associated with mental health and well-being. We predict that participants who report more use of mindfulness techniques will also report lower levels of depression, bipolar, and anxiety symptoms. Furthermore, we are interested in which facets of mindfulness lead to greatest reduction in reported symptoms.

Methods

Participants and Design

Participants were 779 women that had either given birth within the last 12 months (71%) or were currently pregnant (19.6%; Age $M = 29.4$, $SD = 3.9$, ranged from 18 to 46). The majority were White (52.5%), then Black (11%), Asian (8.2%), Hispanic/Latinx (4.9%); more than one race (4.7%), American Indian or Alaska Native (3.6%), Native Hawaiian or Pacific Islander (.8%), and another race (.1%). Participants had last given birth: 0-3 months (11.3%), 4-6 months (15%), 7-9 months (12.5%), and 10-12 months (12.7%). They were recruited from social media platforms such as Facebook and from online newsletters such as National Alliance on Mental Illness, Washington. Participants were excluded if they were not over 18 years of age and if they were not pregnant or if they had not given birth within the last 12 months. Because we are

particularly interested in participants who have given birth within the last year or are currently pregnant, males (assigned at birth) were also excluded. We did not collect any health information about their pregnancy. Participant were given the opportunity to be included in a raffle in which they were offered the opportunity to receive a $5 Amazon gift card for participating. We then randomly selected 400 participants to receive a gift card at the completion of the study.

The design of the study was correlational and participants were asked to self-report the following: depression, bipolar disorder, and anxiety symptom levels, levels of the five facets of mindfulness, general mindfulness practice information, and general demographic information. Original N = 2524, but 1,745 people were excluded due to reasons such as nonsense answers, taking the survey multiple times, and failing to meet our inclusion criteria but still filling out the survey (e.g., they were not pregnant or postpartum).

Procedures

Participants were told we were interested in understanding techniques women who are postpartum or currently pregnant use to cope with stressors and increase overall health and well-being. All recruitment followed group rules (e.g., on Facebook groups) and was completely anonymous. A link to the survey, administered through Qualtrics, was provided for them to participate on the recruitment post and flyer. We asked participants in the beginning of the survey if they are currently pregnant or had recently given birth in the last year. If they indicated yes, they continued on with the study. If they indicated no, then the survey ended. This is the only screening tool that was used.

Participants first read an information statement. They were then told that they were going to be questioned about their everyday experiences with common mental health challenges in

pregnancy and the postpartum period. They were also informed that they would be asked about their experiences with mindfulness.

Then, participants rated the extent to which they experience bipolar and depression symptoms on the 7 Up 7 Down Inventory (Youngstrom et al., 2013). Examples of questions include “Have there been times of several days or more when you were so sad that it was quite painful or you felt that you couldn't stand it?” for depression and “Have there been times lasting several days or more when you felt you must have lots of excitement, and you actually did a lot of new or different things?” for mania. Each question was rated using a Likert scale ranging from 0 (Never or hardly ever) to 3 (Very often or almost constantly). General anxiety symptoms were measured using the Hospital and Anxiety Scale (Zigmond & Snaith, 1983). Examples of questions include “I feel tense or ‘wound up’” and “I get a sort of frightened feeling as if something awful is about to happen” and a 0-3 Likert scale was used specific to each question (e.g. 0-Not at all, to 3-Very definitely and quite badly).

Participants then rated the extent to which they agree with statements pertaining to mindful thoughts and behaviors on the Five Facet Mindfulness Questionnaire (Baer et al., 2006). A 1 (never or very rarely true) to 5 (very often or always true) Likert scale was used and examples of questions included: “When I’m walking, I deliberately notice the sensations of my body moving” (*observe*); “I’m good at finding words to describe my feelings” (*describe*); “I criticize myself for having irrational or inappropriate emotions” (*nonjudgement)*; “When I do things, my mind wanders off and I’m easily distracted (reverse scored)” (*acting with awareness*); and “I perceive my feelings and emotions without having to react to them (reverse scored)” (*nonreactivity*). Information about formal and informal meditative practices was collected such as hours of practice and types of meditative practices used (i.e. yoga, meditation, etc).

Demographic information was also collected including country of residence, race, ethnicity, age, number of children, and pregnancy or postpartum status. Participants were then debriefed, thanked for their time, and then asked if they would like to be placed into a raffle to receive a gift card for compensation. Those that said yes, were directed to a separate survey to enter their name and email.

Results

Reported Symptoms of Mania, Depression, and Anxiety in Pregnancy and Postpartum

First, to see if participants reported more (or less) symptoms of mania, depression or anxiety across pregnancy through the postpartum period (0-3 months, 4-6 months, 7-9 months, and 10-12 months) data was submitted to a one-way ANOVA, and revealed a significant effect across all symptom categories: mania $F(4, 673) = 3.57$, $p = .007$; depression $F(4, 665) = 3.30$, $p = .011$; anxiety $F(4, 569) = 3.62$, $p = .006$.

Specifically, post-hoc comparisons (Tukey HSD) showed that participants who were 10-12 months postpartum reported ($M = 2.29$, $SD = .48$) significantly less symptoms for mania than participants who were pregnant ($M = 2.48$, $SD = .47$), $p = .001$; 0-3 months ($M = 2.46$, $SD = .45$), $p = .022$; 4-6 months ($M = 2.45$, $SD = .50$) $p = .017$; or 7-9 months ($M = 2.53$, $SD = .51$), $p = .001$. A similar pattern can be seen for depression symptoms in which participants 10-12 months postpartum ($M = 2.23$, $SD = .54$) reported significantly lower symptoms than participants who were pregnant ($M = 2.39$, $SD = .54$), $p = .008$; 0-3 months ($M = 2.40$, $SD = .50$), $p = .025$; 4-6 months ($M = 2.48$, $SD = .48$) $p = .000$; or 7-9 months ($M = 2.39$, $SD = .54$), $p = .030$. Finally, anxiety symptoms also follow this trend in that participants 10-12 months postpartum ($M = 2.01$, $SD = .43$) had significantly lower reported symptoms than participants who were pregnant ($M = 2.17$, $SD = .42$), $p = .002$; 0-3 months ($M = 2.22$, $SD = .44$), $p = .002$; 4-6 months ($M = 2.20$, SD

= .42) p = .003; or 7-9 months (M = 2.21, SD = .48), p = .003. No other significant differences were found, ps > .05.

Correlations between Mindfulness and Mania, Depression, and Anxiety Symptoms

To test our main prediction, that mindfulness will be associated with fewer reported symptoms, but will differ by facet, correlations between mindfulness and symptoms of depression, anxiety, and bipolar disorder were run. As predicted, there was a negative significant relationship between overall mindfulness and all symptom categories was found (see Table 1). Specifically, as mindfulness went up, reported mania $r(632) = -.14$, $p < .001$; depression $r(622) = -.21$, $p <. 001$; and anxiety symptoms $r(527) = -.22$, $p < .001$ decreased. However, as depicted in Table 1, differences were found between facets. As *act with awareness* and *nonjudgement* increased, all symptom categories significantly decreased. *Describe* also showed a negative relationship with all symptoms but only depression symptoms were significant. However, *observe* and *nonreact* were positively associated with all symptom categories, as participants reported more use of observe and nonreact, they also reported *more* symptoms of mania, depression, and anxiety.

Variations between Pregnancy and Postpartum

In addition, as depicted in Table 2 and 3, while the patterns of relationship described above held across pregnancy and the postpartum period, the associations were stronger among postpartum participants. Pregnant women reported overall decreases in mania $r(501) = -.10$, $p = .026$ as did postpartum women $r(108) = -.28$, $p = .003$; depression in pregnancy $r(492) = -.14$, $p = .001$ vs postpartum $r(108) = -.42$. $p < .001$; and anxiety in pregnancy $r(415) = -.13$, $p = .009$ vs postpartum $r(96) = -.47$, $p < .001$. The same patterns were found in in the five facets for both decreases in all symptoms as *act with awareness* and *nonjudgement* increased, smaller decreases

in all symptoms as *describe* increased, and an increase in all symptoms as *observe* and *nonreact* increased, with all correlations being stronger in postpartum participants.

Discussion

Mania, Depression, and Anxiety in Pregnancy and Postpartum

Participants reported less symptoms during 10-12 months postpartum than during pregnancy, or postpartum at 0-3 months, 4-6 months, and 7-9 months. This is similar to previous research in which symptoms for bipolar, depression, and psychosis, fall within the first 0-5 months postpartum (Di Florio et al., 2013; Heron et al., 2008; Jones & Smith, 2009) with hospitalization most prevalent 0-3 months postpartum (Munk-Olsen et al., 2006; Munk-Olsen et al., 2009). While the results of the present research do not distinguish between these earlier periods, results are in line with symptoms being more prevalent in the earlier months of postpartum.

These results should be considered within the context of COVID-19 since this study was executed during a global pandemic. During COVID-19, pregnant and postpartum women have reported high levels of depression and anxiety (Ceulemans et al., 2021) and increases in anxiety and depression with preexisting mental disorders being risk factors (Brik et al., 2021). Therefore, results pertaining to symptomology could be explained by this factor. For example, perhaps the inability of the present research to find differences in reported symptoms between early postpartum periods (e.g. 0-6 moths vs. 7-9 months) as found in previous research (e.g. Di Florio, et al., 2013), could be due to worsening stressors and symptoms caused by COVID-19 throughout the postpartum period. These findings should not be at odds with previous research but should instead inform future research in how COVID-19 has affected mental health in pregnant and postpartum women.

Correlations between Mindfulness and Symptoms of Mania, Depression, and Anxiety

The present research found that when overall mindfulness went up, all symptom categories (mania, depression, and anxiety) decreased. More importantly, results show variations between facets and symptoms. *Acting with awareness* and *nonjudgement* both had stronger negative correlations with all symptoms than overall mindfulness. Conversely, *observe* and *nonreact* had positive correlations with all symptoms. This suggests that certain facets are more effective at decreasing symptoms. However, *observing* and *nonreacting* are essential practices to learn how to be mindful. Individuals must learn to observe stimuli, thoughts, and emotions, then practice not reacting to them (Linehan, 2015). However, the results of this research suggest that this may not be enough to lessen symptoms and could potentially exacerbate them. By using an additive approach, *acting with awareness* and *nonjudgement* provide a way to practice observing and nonreacting that improves symptoms. Being nonjudgmental of others and self, as well as being aware of how one is responding to stimuli, become important additions when considering depression, bipolar, and anxiety symptoms.

Some therapies, such as Dialectical Behavioral Therapy (DBT) may offer some insight into why this is. DBT was first created for individuals with chronic suicidal ideations (Linehan, 1987) and is often used for behavioral and emotional regulation, particularly borderline personality disorder. Some studies have shown DBT to be somewhat effective in reducing bipolar mania severity (Zargar et al., 2019). DBT separates mindfulness practices into skills and considers observing while not reacting to the stimuli a “what” skill, or what one is doing to be mindful. Acting with awareness (close to one-mindfully in DBT) and nonjudgement are considered “how” skills (Linehan, 2015). Patients in DBT learn the *what* skills first and then apply the *how* skills to the *what* skills. This provides a possible explanation for the variations in

symptom relief or exacerbation found in the five facets. Perhaps there are different effects of mindfulness based on how the skills are used together in order to relieve emotional distress. Further research is needed to categorize the facets that don't directly transfer to DBT skills. However, considering the results of the current research, further research into individual characteristics of various practices of mindfulness could offer suggestions about how to better use the five facets of mindfulness when considering psychiatric symptoms during pregnancy.

Differences in Mindfulness between Pregnancy and Postpartum Periods

Postpartum women reported stronger negative correlations of overall mindfulness, *nonjudging*, and *acting with awareness* and positive correlations of *observe* and *nonreact* than pregnant women. Considering the higher risk for onset, relapse and worsening symptoms during the postpartum period (e.g. Di Florio et al., 2013), and protective factors of pregnancy (e.g. Viguera et al., 2011), these results suggest that mindfulness is most useful during the postpartum period. As symptoms become more severe, mindfulness becomes more effective for mania, depression, and anxiety. This is consistent with research that shows mindfulness to be most effective in severe cases of depression and anxiety (e.g. Ives-Deliperi et al., 2013). However, considering mindfulness needs to be practiced often to see results (Goleman & Davidson, 2018), this does not mean women should wait until the postpartum period to start practicing. Common mindfulness practice calls for practice during non-stressed periods to prepare for stressed periods (Linehan, 2015). Starting mindfulness during or even before pregnancy would be most beneficial so mothers can be prepared for any influx or onset of symptoms postpartum.

Global Implications

Mindfulness is widely available and free. However, it runs the risk of decontextualization in modern practice. In many traditions of Buddhism, monks and yogis are required to draw on

the “Three Refuges” or “Three Treasures” when practicing mindfulness to ensure safety to the practicing (MacPhillamy, 2003). The first of these is the “Buddah” or the inner nature similar but more encompassing than intuition. The next is “Dharma,” or the totality of Buddhist teachings, and last is “Sangha” which is drawing upon the wisdom of teachers and students practicing today (MacPhillamy, 2003). All three of these entities are required for safe and effective practice. However, modern practitioners often teach bits and pieces of these practices without adequate knowledge around them. Buddhist practitioners recognize many types of mindfulness practices with a variety of outcomes, however modern interpretations are often decoupled from traditional practices, and thus run the risk of being less effective or even harmful.

This is not to say, however, that mindfulness should not be practiced, only that further research should look at how these practices affect symptomology, especially in vulnerable populations such as those with mental disorders and pregnant women. Mindfulness-based approaches can offer beneficial outcomes and some studies show pregnant women prefer them to psychopharmacological approaches. Dimidjian et al., (2015) found that pregnant women had higher satisfaction with MBCT-PD than their previous treatments. In another study, pregnant women with depression reported more favorable attitudes toward psychotherapy, particularly mindfulness-based cognitive therapy, than toward pharmacological approaches when considering depression relapses and recurrence prevention (Dimidjian & Goodman, 2014).

In fact, mindfulness has already been widely accepted globally in pregnancy, although somewhat unintentionally and indirectly. Lamaze was created by Dr. Fernand Lamaze in 1951 and has been a staple in childbirth since creation and has many similarities to mindfulness practices. Lamaze is a psychoprophylaxis approach to childbirth that teaches breathing and relaxations techniques to change perception around the pain of childbirth (Lothian, 2011).

Lamaze centers focused breathing and deliberate relaxation which are both foundations of meditative and mindful approaches to pain. Lamaze has since spread across the globe and Lamaze International now offers certifications worldwide (Lamaze International, 2021). Given this, mindfulness practices could be widely accepted and applied during pregnancy and postpartum periods since a culture of such already exists.

Clinical Implications

Clinicians should be aware of how various facets or other mindfulness approaches affect their patients. Further research is needed to understand how clinical adaptations and inclusion of mindfulness in mindfulness-based therapies (MBSR, MBCT, DBT) affect patients through dose-response relationships involving individual facets based on how mindfulness is taught in that particular therapy (e.g. *what* vs *how* skills in DBT). Furthermore, mindfulness-based therapies often teach facets/practices with very little distinction as to their efficacy (Linehan, 2015). Facets and skills are taught days or weeks apart which can be problematic if the first facets learned are those that are associated with increases in symptoms. However, it takes time to teach the various skills of mindfulness and they build upon each other, so all facets are needed for productive practicing (Linehan, 2015; Segal et al., 2018). Clinicians should offer information around how facets will make patients feel when beginning practice. This could help with patient expectations since initial facets taught, like *observe,* are associated with increases in symptoms. In addition, by informing individuals about the outcomes associated with different facets, it could also help patients better prepare for possible increases in symptomology while simultaneously educating them about eventual improvements.

Local Implications

Considering the risk factors for the onset, relapse, or increase in mental disorder symptoms early in postpartum periods, programs that bridge hospital stays with transitioning home are vital for providing support for struggling mothers. At-home nursing and social work groups can utilize mindfulness practices in their programs. For example, Maternal and Child Health Services through Public Health and Social Services, Thurston County, offers in-home visits from public health nurses. Nurses provide child developmental screening, and resources around childbirth education (Public Health, 2020). Their goals include healthy pregnancies, improved parenting, and providing access to medical, educational, and community resources (Public Health 2020). One of these resources includes Nurse-Family Partnership which is a free program for women having their first child and they offer services for the first two years of the child's life (Public Health, 2021). They seek to help women have healthy pregnancies and babies, become better parents, build strong support systems, and provide referrals to services in Thurston County (Public Health, 2021). These two programs provide one-on-one nursing support for pregnant and new mothers. Nurses have opportunities to screen for mental disorders and provide medical support for mothers experiencing distress. Furthermore, both programs provide referrals that could expand to include mindfulness-educated practitioners, either therapists, teachers, or programs to teach mindfulness in pregnancy and parenting.

Parents as Teachers (PAT) Mason Thurston County, a program funded through Community Youth Services in Thurston and Mason County, provides social workers to families during pregnancy or with children 0-5 (Community Youth, 2017). It is designed to help educate parents about child development, provide support for familial challenges, and identify concerns that parents may have with their children (Community Youth, 2017). PAT also screens for

common mental health challenges to provide resources for family needs. PAT already provides some mindfulness-based resources such as books and practices involving children. These resources could be extended to include adult-based practices, especially during the postpartum period. Social-work programs like PAT have a unique experience in helping the entire family instead of focusing primarily on the mother. Social support is especially important in pregnancy and the postpartum period so providing mindfulness-based practices to the whole family could be beneficial to ultimately support the mother.

Limitations

Interpretations of this research should consider the following limitations. Causality cannot be inferred due to the correlational nature of the analyses. The targeted sample pool was of pregnant and postpartum women in social media groups that involved mental disorders, however, recruitment did not select for specific mental health disorders or symptoms, nor did it select for elevated symptoms. Generalizations should only be considered based on the sample in which this data was collected. Minorities were underrepresented and the survey was only offered in English. Potential confounds can be seen when analyzing mania within the context of *nonjudging*. In mania, where inflated self-esteem, grandiosity, and impulsivity are criteria for a mania diagnosis (American Psychiatric, 2013), *nonjudging* may not be from mindfulness, but a characteristic of mania itself. Other mediating factors such as disordered sleep were not measured and may influence symptoms.

Conclusion: Hope for Mothers with Preexisting Mental Disorders During Pregnancy and Postpartum

Mindfulness practices overall have promising results and are preferred over psychopharmacological approaches by pregnant and postpartum women (Dimidjian & Goodman,

2014; Dimidjian et al., 2015). Based on the findings of the current research, understanding the various facets of mindfulness is important for practitioners and clinicians to understand how each facet influences mania, depression, and anxiety symptoms. Some facets appear to have more effective relationships with symptoms than others. *Nonjudging* and *acting with awareness* had the largest reduction in symptoms but generally come after more foundational facets such as *observe* and *nonreact* which showed increases in symptoms, and *describe*, which was more neutral. This means practitioners and clinicians should be aware and educated about the effects of mindfulness facets as to not do harm, but more importantly, provide effective options for women experiencing distress during pregnancy and the postpartum period.

More so, the findings from this research provide persuasive justification for the use of mindfulness practices during pregnancy and postpartum periods. Considering the critical nature of this time for fetal and infant development, as well as the risk factors associated with the onset, relapse, or heightening of mental disorder symptoms, this research may have public health implications for the care and wellbeing of women with preexisting mental disorders and their babies.

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Tables

Table 1

Five Facets of Mindfulness by symptom category in all participants

	Overall Mindfulness	Observe	Describe	Act with Awareness	Nonjudgement	Nonreact
Mania	-.14**	.33**	-.01	-.43**	-.48**	.40**
Depression	-.21**	.36**	-.09*	-.51**	-.43**	.33**
Anxiety	-.22**	.32**	-.07	-.46**	-.44**	.31**

* Indicates $p < .05$; ** $p < .01$; ***$p < .001$

Table 2

Five Facets of Mindfulness by symptom category in pregnant participants

	Overall Mindfulness	Observe	Describe	Act with Awareness	Nonjudgement	Nonreact
Mania	-.10*	.31***	-.23	-.38***	-.42***	.37***
Depression	-.14***	.36***	-.04	-.48***	-.40***	.31***
Anxiety	-.13**	.26***	-.00	-.40***	-.40***	.35***

* Indicates $p < .05$; ** $p < .01$; ***$p < .001$

Table 3

Five Facets of Mindfulness by symptom category in postpartum participants

	Overall Mindfulness	Observe	Describe	Act with Awareness	Nonjudgement	Nonreact
Mania	-.28**	.39***	-.07	-.54***	-.66***	.44***
Depression	-.42***	.39***	-.26**	-.64***	-.55***	.37***
Anxiety	-.47***	.45***	-.26**	-.72***	-.53***	.17

* Indicates $p < .05$; ** $p < .01$; ***$p < .001$