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EXAMINING THE RELATIONSHIP BETWEEN FIVE FACTORS OF MINDFULNESS AND
PARENTING STRESS: A CORRELATIONAL STUDY OF NEW MOTHERS

A Dissertation

Presented to the Faculty of
Antioch University Seattle

In partial fulfillment for the degree of
DOCTOR OF PSYCHOLOGY

by

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June 2021

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PARENTING STRESS: A CORRELATIONAL STUDY OF NEW MOTHERS

This dissertation, by Jessica L. Lazaro, has
been approved by the Committee Members signed below
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Antioch University Seattle
in partial fulfillment of requirements for the degree of

DOCTOR OF PSYCHOLOGY

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ABSTRACT

EXAMINING THE RELATIONSHIP BETWEEN FIVE FACTORS OF MINDFULNESS AND PARENTING STRESS: A CORRELATIONAL STUDY OF NEW MOTHERS

Jessica L. Lazaro

Antioch University Seattle

Seattle, WA

It can be tempting to want to dissociate from the stress of parenting. The implication being that the early years of parenthood are meant to simply be endured. In contrast, mindfully embracing all aspects of parenthood, including the difficult moments, may allow the appreciation of beauty, growth, and connection, which is so essential to the human experience, especially as it relates to the parent-child relationship. As the popularity of mindfulness research increases, so does the information we have about using it with parents in general, and mothers in particular. The current study explores what, if any, relationship exists between levels of mindfulness and levels of parenting stress in new mothers. The author hypothesized that as mindfulness levels increase, parental stress levels will decrease. A total of 144 new mothers (“new mothers” was defined as mothers with children younger than 4 years old) participated in an online survey that included basic demographics, two formal measures including a mindfulness measure, the Five Factor Mindfulness Questionnaire (FFMQ), and a measure of parenting stress, the Parenting Stress Index, 4th edition, short form (PSI-4-SF). Results demonstrated a statistically significant negative correlation between mindfulness and parenting stress. Further analysis of the mindfulness factors indicated that all factors were significantly correlated to parental stress and that nonjudgment of inner experience had the strongest negative correlation, followed by acting with awareness, non-reactivity to inner experience, observing, and describing. Given the

statistically significant negative correlation between mindfulness and parenting stress, it appears that clinical interventions aimed at increasing a person's level of overall mindfulness may be a good choice for working with new mothers whether or not parenting stress is the primary presenting concern for a new mother. Furthermore, if we can inform and more successfully provide mindful clinical interventions for new mothers, the outlook for children may be more positive as mothers are able to remain more present in their parenting role.

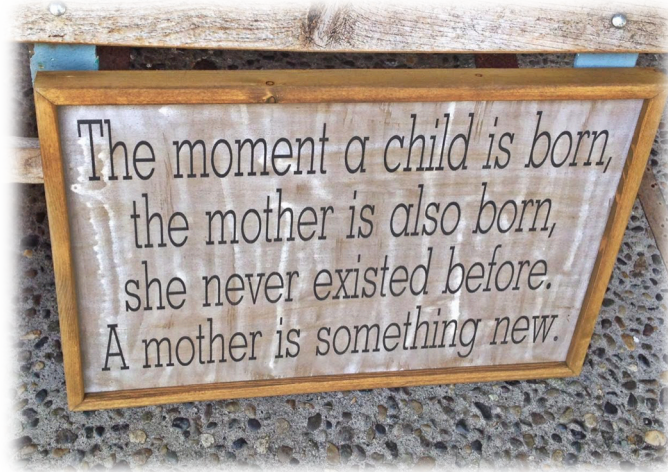
This dissertation is available in open access at AURA (<https://aura.antioch.edu>) and OhioLINK ETD Center (<https://etd.ohiolink.edu>).

Keywords: FFMQ, PSI-4-SF, mindfulness, parenting stress, new mothers, correlational study

Dedication

This project is dedicated to my daughter, Charlie. Thank you for making me a mother and reminding me every day to live in the present moment. You bring so much joy, wonder, silliness, creativity, and sensitivity to this world. Being your mom is my greatest honor.

And to my own mom, for the lifetime job that requires giving of oneself more than you ever knew possible, my deepest gratitude.



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CHAPTER I: INTRODUCTION

The most precious gift we can offer others is our presence. When mindfulness embraces those we love, they will bloom like flowers.

–Thich Nhat Hanh

It can be tempting to want to dissociate from the stress of parenting. Some parents might even receive this advice from others. Well intentioned, someone might try to encourage by saying, “you’ll get through this, it will be over soon.” The implication with these words is that these early years of parenthood are meant to simply be endured. In enduring or surviving, however, we often miss out on living. The author’s hope is to encourage parents to mindfully embrace all aspects of parenthood, including the difficult moments, understanding there is beauty, and growth in these moments that could be so easily missed if one is trying to just “get through it.” One might also miss out on connecting, which is so essential to the human experience, especially as it relates to parent-child interactions.

There has been growing interest in the field to use mindfulness as a way to improve well-being. Kabat-Zinn (1994) indicated that mindfulness is a fundamentally simple concept. He defined it as “paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally” (p. 4). Mindfulness is said to nurture greater awareness and acceptance of moment-to-moment reality (Baer, 2003; Kabat-Zinn, 1994). This can be useful in a variety of ways and has been indicated as an effective option for decreasing many clinical symptoms, which will be discussed in more detail below (Grossman et al., 2004). When situated in the parenting context, however, the concept of mindfulness may become particularly important. If one is parenting in a way to “just get through” the early years, three important problems could occur: (a) Missing out on the fullness and richness of life because of avoidance, (b) The potential

to increase negative emotions (e.g., stress) by fighting these emotions, and (c) A potentially negative impact on the attachment relationship, and therefore the child.

This research project was inspired by the author's personal experience using meditation to stabilize blood sugar levels throughout pregnancy. Diagnosed with gestational diabetes, the researcher was on a quest to find a remedy that did not include medication. Once a daily 15-minute meditation session was added to the regimen, blood sugar levels were within the normal range on a daily basis. This experience, along with using a hypnobirthing method for natural childbirth, peaked the interest in the usefulness of mindfulness interventions in new motherhood. If this firsthand experience was so useful in pregnancy, maybe it would also be important for parents and children during the first years of life?

The purpose of this study is to build on work done by Corthorn and Milicic (2016), as well as others, and further examine the relationship between mindfulness and parenting stress. Because mindfulness has been used as a helpful intervention to combat other types of stress, it is hypothesized that an increased level of mindfulness would correlate with a reduced level of parenting stress. The intention of this study is to show the clinical usefulness of developing mindfulness interventions geared toward new mothers, and potentially uncover what aspect(s) of mindfulness would be most important to address.

Research Question

The present study is designed to investigate the following question:
Are higher levels of overall mindfulness associated with lower levels of parenting stress in mothers of children ages one month to three years old? The hypothesis for this question is that the two variables would be negatively correlated. If a correlation is found based on the main research question, the relationship will be further examined to explore if any of the identified

facets of mindfulness have a stronger correlation with parenting stress. These identified facets of mindfulness will be described in more detail later in this paper and include observing, describing, acting with awareness, nonjudging of inner experience, and nonreactivity to inner experience.

Parenting stress will be measured using the Total Stress score.

CHAPTER II: LITERATURE REVIEW

The following literature review provides background information on the impact of stress, parenting, maternal stress, attachment, mindfulness, specific mindfulness interventions, and how these relate to the mindfulness and parenting topics. Additionally, mindfulness and parenting stress are further discussed in their relation to one another, bringing the reader up to date on current research and providing a rationale for the present study.

The Impact of Stress

Stress can be defined as “a state of mental or emotional strain or tension resulting from adverse or very demanding circumstances” (Dictionary.com, 2017). Using this definition, stress is being thought of as a response to external events, not the external events themselves. Common language may refer to stress as the stimulus, such as “I’ve got a lot of stress in my life,” but it is important to note that it is the stress response being discussed (Kabat-Zinn, 1990). By definition, and how it is used in this paper, stress is the physical and psychological response to a perceived stressor (Kabat-Zinn, 1990; Selye, 1973). Hans Selye (1973) discussed how specific events and hormones have a specific effect on the body, yet stress tends to have a nonspecific effect. It increases the demand placed on the body, thus forcing it to readjust. He stated, “in addition to their specific actions, all agents to which we are exposed produce a nonspecific increase in the need to perform certain adaptive functions and then reestablish normalcy” (Selye, 1973, p. 693). Selye referred to this nonspecific demand of activity on the body as the essence of stress. He went on to say that it does not matter whether the stressor is pleasant or unpleasant, the body’s reaction to this demand may be the same. In adjusting to the new normal, the body is working to keep up with the demands of the environment. The strain and tension that occurs during this process can have both physical and psychological ramifications. Groer et al. (2010) discussed

stress and the effect that it has on the body when the sympathetic adrenomedullary system is overactive, resulting in a chronic fight or flight state. In this state, heart rate is increased, fuel sources are made available, and the central nervous system is on high alert and arousal.

Another definition of stress is one that physiologists and psychologists have agreed upon and is stated, “conditions where an environmental demand exceeds the natural regulatory capacity of an organism” (Persson & Zakrisson, 2016, p. 149). Studies have shown that stress is prevalent in today’s society and should be considered a global health issue as it contributes to a multitude of physical and psychological difficulties (Khoury et al., 2015). As the demands of our lives increase, it becomes more difficult to manage the physical and psychological symptoms of stress.

Parenting Stress

It is no surprise that parents are at an increased risk for experiencing stress. As Deater-Deckard (2004) described, the transition to parenthood is full of many emotions including joy, excitement, and stress, as this new child who has entered the world is completely dependent on the parents for survival and well-being, and “presents an ever changing bundle of demands for attention and care” (p. 28). These demands have always existed, but some would say that parenting stress has increased in the modern day. In explaining the evolutionary process of parenting, Bogels and Restifo (2015) wrote:

compared to our hunter-gatherer ancestors, our childcare burden is *higher* (our children are more closely spaced) and our childcare resources are *lower* (we have less support from other caretakers, we live in relative social isolation, and we have less time for caring for our children due to demands of work). (p. 21)

In examining the differences in the times, a lesson the authors emphasized was the importance of

self-care and community, meaning that parents can only care for children when they have sufficient resources to care for themselves and for their children. In this text, parents are encouraged to become aware of and acknowledge their parenting stress, so that they can accept it with self-compassion and make room for their own needs, rather than becoming self-critical in an increasingly demanding world.

Maternal Stress and Instinct

This study focuses on the specific experience of new motherhood. Becoming a mother is a unique experience, full of beautiful emotions, as well as some difficult ones. It is a transition that does not happen overnight, but rather, a mother is constantly evaluating and reforming her identity as a mother (Stern et al., 1998). However the mother views her new role, whether it is seen as a positive or negative experience, it is clear that having a child is life changing. In *The Birth of a Mother: How the Motherhood Experience Changes You Forever*, Stern et al. (1998) wrote:

After many years of talking with women about their motherhood experiences, it is clear to me that almost without exception, the birth of her baby (especially the first one) is a central event in a woman's life, in equal parts miraculous and traumatic, packed with unforgettable emotions and implications. (p. 57)

Some of these unforgettable emotions are unpleasant, and can be interpreted by the mother as distressful (Kabat-Zinn & Kabat-Zinn, 1997). Research has shown that increased maternal stress has direct and indirect effects on parenting behavior. Rodgers (1993) studied a sample of 85 mothers who had a child enrolled in either a Head Start preschool or kindergarten program. The researchers measured parenting stress, social support (both independent variables), parental symptomatology (intervening variable), and parenting behavior (dependent variable).

They found that elevated stress increased undesirable parenting behaviors. A relationship between parental symptomatology (meaning the extent to which one is distressed by physical and psychological challenges) and the use of undesirable parenting strategies was also observed, which was hypothesized to be a managerial strategy used when psychological overload occurs. Social support was not found to directly or indirectly affect parenting behaviors, but it did moderate the relationship between both parenting stress and parental symptomatology with parenting behavior. Although a causal relationship cannot be determined based on this study, it highlights the important relationship that parenting stress, symptomatology, and social support has with parenting behavior and the importance of paying attention to these variables when working with clients.

Stress may also impact a person's ability to tune into his or her feelings. Lipsky and Burk (2009) noted the importance of attuning to one's "felt sense" (p. 131). In this case, the authors were referring to the importance of body awareness as it relates to dealing with trauma and feelings of numbness, but the importance of body awareness and moment-to-moment authentic living can be applied to any human experience. "While it is subtle and we often take it for granted, it is an extremely powerful first step to 'trust your gut'" (Lipsky & Burk, 2009, p. 130).

The same would go for maternal instinct, a woman's inclination to listen to her own body for information about motherhood (Pearce, 2005). Shapiro and White (2014) asserted that, "Deep inside every parent's heart lies the wisdom and compassion needed to nourish our children" (p. 36). One could argue, however, if your body was in high stress (i.e., fight, flight, or freeze mode), it may be harder to listen to these inclinations. If bodily signals are being ignored while mothering, valuable cues will likely be missed. As a result, as will be discussed further, this impacts not only the mother but the mother-child relationship, and ultimately, the child.

Attachment

The discussion of early motherhood brings up an important topic: attachment. Bowlby (1969) defined attachment as an innate human propensity to seek proximity with a caregiver, or “lasting psychological connectedness between human beings” (p. 194). Bowlby’s core contribution is thought to have been his recognition of “the biologically based evolutionary necessity of the attachment of a child to its caregiver” (Wallin, 2007, p.11). From an evolutionary perspective, proximity of the infant to caregiver increases the chance of survival. It is not just physical proximity, however, that matters. Bowlby (1982, 1988) highlighted both the primary and secondary need for an infant to be close to his or her mother, both for food and the personal relationship. This personal relationship, or connectedness, plays an important role in the child’s development. The idea of the importance of proximity and psychological connectedness formed the foundation of attachment theory, which was built upon by many researchers, such as Mary Ainsworth, Magda Gerber, and others (Mooney, 2009).

Mary Ainsworth (1989), most well-known for her work of the “Strange Situation,” further developed attachment theory by introducing three categories of attachment that are still referenced today. Ainsworth began her work with Bowlby in 1953, in which they primarily studied the effects of mother-child separation and maternal deprivation (Ainsworth & Bowlby, 1991). After moving to Uganda with her husband, Ainsworth’s interest in the mother-infant relationship continued. She initially noticed infants using their mothers as a “secure base” during observations in Uganda, and later recorded the same behaviors with mother and infant pairs in the United States, supporting her theory that these behaviors transcend culture (Ainsworth, 1989; Ainsworth & Bowlby, 1991; Mooney, 2009). She studied pairs of mothers and infants, and based on how the infant responded to his or her surroundings in an unfamiliar situation, his or her

reaction to a stranger, and his or her reaction when the parent left and later returned. Ainsworth paid particular attention to the amount of exploration the infant engaged in throughout the process, and the infant's reaction upon the mother's return (Ainsworth & Bowlby, 1991; Mooney, 2009).

Results of the Strange Situation described above led to these three categories of attachment: anxious-avoidant insecure attachment, anxious-ambivalent insecure attachment, and secure attachment (Mooney, 2009). The anxious-avoidant insecure attachment category, often referred to as avoidant attachment, consisted of infants who were seemingly indifferent to the absence or return of their mother. These infants did not exhibit visible distress when the caregiver left, and often ignored the caregiver upon her return, although this seemingly unruffled behavior does not mean the infant is not experiencing distress (Ainsworth & Bell, 1970). This attachment style is theorized to be the result of a caregiver-child relationship in which the infant believes his or her needs will not be met (Main, 1979). The anxious-ambivalent insecure attachment category, or ambivalent attachment, consisted of infants who were so preoccupied with their mother's whereabouts that they did not engage in exploration of their environment because they were so distressed, either angrily or passively (Ainsworth & Bell, 1970; Ainsworth & Bowlby, 1991; Mooney, 2009). This remains one of the less understood attachment types, and is thought to be the result of unpredictably responsive caregiving (Main, 1979). Finally, the infants in the securely attached category appeared to have "equal access to their impulses to explore when they feel safe and to seek solace in connection when they do not" (Wallin, 2007, p. 19). The caregiver is thought of as the safe base from which to explore, and the infant's sense of security may be bolstered when the caregiver responds adequately to his or her needs.

Since this earlier research of Bowlby and Ainsworth, work has continued in the area of

attachment. Siegel and Hartzell (2014) indicated that the presence of a secure attachment as described above “enables children to develop well and explore the world around them” (p. 105). This ability to freely explore the world supports the idea that Schore (2001) brought up years before, that a secure attachment facilitates a child’s later independence and expansion of coping strategies as well as affect regulation capacities.

One can see that these early years are important across the developmental lifespan. Just as becoming a mother can be a monumental time in an adult woman’s life, the first few years of life are monumentally important for a child. Not only are infants and toddlers developing in massive ways that can be seen on the outside, but the first three years of life are a time of rapid brain development as well (Siegel, 1999; Siegel & Hartzell, 2014). This can be seen in MRI scans of infants, which showed a rapid increase in brain volume during the first two years of life, and by three years old, all the major fiber tracts that are seen in adults could be identified (Matsuzawa et al., 2001). This overlap between attachment development and brain development contributes to the importance of the first few years of life, and as Schore (2003) described, “the early social environment, mediated by the primary caregiver, directly influences the final wiring of the circuits of the infant brain that are responsible for the future social and emotional coping capacities of the individual” (p. 112).

Daniel Stern (1977) discussed the importance of the infant and mother relationship in his book *The First Relationship*. He described the process of the infant learning about social interaction within the first six months of life. Attachment can be thought about in many different ways, but one way it is relevant to this study is the effect that stress has on the parent-child relationship and therefore the opportunity for a more secure attachment to be formed.

Past research has found a negative correlation between aspects of parenting stress and

secure attachment in the mother-child relationship (Hadadian & Merbler, 1996). In this study, the authors looked at 33 mothers of children age 36–54 months who were enrolled at a preschool program for high-risk families. Using attachment and parenting stress measures, the researchers found higher child security scores among the group of mothers with stress levels that were lower. Although this is a small study and cannot be generalized beyond high-risk families with children of preschool age, it is good support for early intervention for stress management in order to foster healthy attachment (Hadadian & Merbler, 1996).

There is evidence to suggest the importance of attachment on infant mental health. Shore (2001) for example, emphasized the importance of a secure attachment to facilitate growth of children's capacity to cope with life. In addition, he noted that the primary caregiver plays an important role in the development of an infant's limbic system by modeling psychobiological regulation (Shore, 2001). If this process is interfered with by stress, the impact on the infant could be detrimental. This is thought to be the origination of an attachment disorder, which is a set of symptomologies described in the *DSM-5*, in which people have difficulty forming lasting relationships (American Psychiatric Association, 2013). Fortunately, there is considerable research that focuses on preventative care for disorders like this. In the field of Infant Mental Health, professionals use interventions based in attachment theory to strive for optimal infant socio-emotional and cognitive development (McComish, 2015). McComish (2015) described an intervention called "Circle of Security" which is used to "help parents understand and respond sensitively to the behavior of their young children" (p. 63). Powell et al. (2014) developed this intervention as part of their work for Early Head Start in Spokane, Washington. In this model, the parent is thought of as both the secure base that supports the infant in exploration, and the safe haven that provides protection and comfort in the infant's return (Powell et al., 2014). The

results of interventions like this contribute to the positive development of infants and young children (McComish, 2015).

Impact of Attachment Disruptions

Disruptions in the development of a secure attachment have been found to be associated with psychopathology. For example, maltreatment of children (such as abuse or neglect) during the early years has been found to be associated with increased risk for developing a personality disorder in early adulthood (Johnson et al., 1999). This study used data from a longitudinal study in which psychosocial and psychiatric interviews were done with 639 families in New York between the years of 1975–1993. Results of this study by Johnson et al. (1999) showed that a person with documented childhood abuse or neglect was four times more likely to develop a personality disorder later in life compared to others, and of the 12 categories of personality disorder symptoms they looked at (from the *DSM-IV*), 10 were associated with childhood abuse or neglect.

If the stress response can have a negative impact on a mother's parenting behavior, as mentioned previously (Rodgers, 1993), and therefore increase less optimal parenting behaviors, it would be important to look at parenting stress and its relationship to psychopathology more closely. Schwartz (2015) argued that “psychopathology is to be located in the vicissitudes of attachment, separation, and loss” when he brought to light the similarities between attachment theory and psychoanalysis (p. 260). It is clear that attachment theory and early childhood development has played a major role in how mental health problems are conceptualized. According to Amaya-Jackson (2016), adverse childhood experiences have an impact on the developing child, which means child psychiatrists and pediatricians need to be aware and actively seeking to intervene appropriately. Looking back at the original adverse childhood

experiences (ACE) study by Felitti et al. (1998), researchers surveyed 13,494 adults and found a relationship between the number of childhood exposures to negative experiences and increased physical and psychological symptoms later in life. Adverse childhood experiences included things such as psychological, physical, and sexual abuse, exposure to substance abuse and maternal mental illness, violent treatment of the mother, and criminal behavior in the household. Results showed that individuals who had experienced four or more of these had an increased risk for alcoholism, drug abuse, depression, suicide attempts, smoking, poor self-rated health, sexually transmitted diseases, and severe obesity. The seven areas of adverse childhood experiences examined were strongly interrelated and individuals with more than one category of childhood exposure were more likely to have many health risk factors in adulthood (Felitti et al., 1998).

The importance of minimizing negative experiences for people early in life is clear. Even as therapists, we are often actively working to repair insecure attachment styles that began in childhood (Wallin, 2007). Cozolino (2010) argued that psychotherapy is a neural reshaping of the brain and that we as humans were meant to link with and regulate one another, as a path to healing. This affect regulation is also seen in the mother-child relationship, often referred to as attunement (Siegel, 1999).

The Caregiver's Role: Attunement

Attunement is an additional aspect of forming a positive attachment relationship in which awareness plays a big part. Throughout the dance of communication between infant and caregiver, in this case the mother, the two are constantly noticing, re-evaluating, and engaging with one another. This is thought to be in part, to help the infant learn to regulate his or her emotions (Siegel, 1999). As described by Schore (2003):

In order to enter into this communication, the primary caregiver must also monitor her own internal signals and differentiate her own affective state, as well as modulate nonoptimal high or low levels of stimulation which would induce supra-heightened or extremely low levels of arousal in the infant. (p. 116)

This maternal sensitivity acts as an external organizer of the infant's internal world.

Schore (2016) has updated his original work and continues to discuss the neurobiological ways attunement happens, using current research as a reference to show how the connection between mother and child actually influences the way the child's brain develops. Other authors and researchers have noted the importance of Schore's (2001, 2003) contribution to the field, as good attunement is frequently discussed in the field of psychology. Between caregiver and child, it is thought to be developed by an understanding of appropriate levels of touch, eye contact, and empathetic response, based on the infant's needs (Boadella, 2005). Boadella (2005) also described an important aspect of attunement which is the "dance-like interaction between mother and baby" and noted that this happens within the first three years of life, which are primarily nonverbal and are therefore a "somatic foundation of the verbal self" (p. 14).

Beebe et al. (2016) have elaborated on the past work done by others, and set out to capture the subtle details of mother-infant interactions on video. With the use of video microanalysis, they studied the nonverbal language between a mother and her four-month-old child, which is said to predict a range of future attachment styles. Through this "social microscope," researchers have a deeper glimpse into mother-child interactions and attunement (Beebe et al., 2016, p. 1).

Work continues in the important area of attachment research, infant mental health, and caregiver-infant relationships. Although many factors contribute to the development of a child, the mother's ability to attune to, and in turn teach her child self-regulation is an important role (Siegel, 1999). As described by Olson et al. (2008), "The foundation for emotional regulation and secure attachment between a mother and her child stems from the mother's capacity to adapt and attune to her child's maturational needs" (p. 313). This highlights the importance of a mother having the emotional and mental availability to be present with her child, especially during the early years of life.

Mindfulness

Mindfulness is a concept that has been increasing in popularity both clinically and in the mainstream culture. The roots of the term dates back 2500 years to the practice known as Vipassana, a form of insight meditation within the school of Buddhism, a philosophy developed as a path toward the alleviation of suffering (Thera, 1962). The practice focuses on meditation to cultivate a state of mind that can be translated into any context (Gunaratna, 2002). Kabat-Zinn (2003) suggested that this state of mind is actually universal, and that the concept of slowing down and paying attention likely dates back to as long as human kind has existed. In his earliest research, Kabat-Zinn (1982) integrated the concept into Western medicine for pain management. He later popularized the term with his first two books, *Full Catastrophe Living: Using the Wisdom of Your Body and Mind to Face Stress, Pain, and Illness* and *Wherever You Go, There You Are: Mindfulness Meditation in Everyday Life* (Kabat-Zinn, 1990, 1994).

Mindfulness is often used as a general term, and at times refers to specific meditation practices. The term mindfulness also refers to a state-of-being or attitude. There is a form of "informal" mindfulness, sometimes referred to as "flow" where a person is so completely and

presently engaged in an activity that he or she loses track of time (Foxman, 2007; Race, 2013).

In this study, mindfulness refers to the state-of-being or attitude, which is recognized as trait mindfulness, and can be informally cultivated during daily routines and activities such as washing dishes, walking, brushing teeth, etc. (Esch, 2014). Continuing to build on Kabat-Zinn's definition, mindfulness is "a moment to moment awareness that is cultivated by purposefully paying attention to the present experience, with a nonjudgmental attitude" (Khoury et al., 2015). Specific mindfulness practices will be discussed and referred to as the activity (e.g., yoga, body scan, progressive muscle relaxation, or guided imagery).

Mindfulness is a state-of-being that embodies observing one's experiences in a nonjudging, nonattached, and compassionate manner (Frewen et al., 2008; McKay et al., 2007). It is an "awareness that emerges when we learn to pay deliberate and open-hearted attention to the moment-by-moment unfolding of the external and internal world" (Hughes et al., 2009, p. 630). When one pays close attention to their inner and outer experience, many more aspects of their lives are brought into awareness. This enhanced awareness offers the opportunity to meet all of their experiences with an accepting and nonjudgmental attitude. The human mind often struggles, however, with automatic judgment and non-acceptance.

Psychological theories, such as Acceptance and Commitment Therapy (ACT) and the work of Byron Katie, suggest ways to shape this response to become more open and flexible, which can be a lifelong journey of cultivation (Hayes, 2005; Katie, 2003). One of Byron Katie's (2003) most popular books, *Loving What Is: Four Questions That Can Change Your Life*, details a method of changing ways of thinking about a situation, which ultimately brings more peace and acceptance of what is. ACT will be discussed more in depth in the "Mindfulness as a Clinical Intervention" section, and is also a psychological intervention that encourages

acceptance (Hayes, 2005). Particularly relevant to this study, consistent mindfulness practice is thought to enable a more flexible attitude toward difficult experiences (Baer, 2007). Although practicing mindfulness can sometimes be difficult and is something that can continue to be cultivated throughout a person's lifetime, there are benefits of this open and nonjudgmental mindset, especially as it relates to an experience such as parenting.

Mindfulness and the Brain

In the last half of the 20th century, scientists began to consider that the brain is not static. The term used to describe the brain's ability to grow and change is neuroplasticity (Siegel, 2007). Work by Lazar et al. (2005) showed structural changes in the brain as a result of experience. According to Kristen Race (2013), author of *Mindful Parenting: Simple and Powerful Solutions for Raising Creative, Engaged, Happy Kids in Today's Hectic World*, "Neuroscientists are finding that mindfulness changes how our brain works" (p. 20). Mindfulness is a type of experience that has been shown to increase synaptic densities in specific areas of the brain (Siegel, 2007). In their *Mindfulness and Neuroimaging* chapter, Fayed et al. (2015) detailed the brain mechanisms hypothesized to be at play during mindfulness meditation to include the anterior cingulate cortex, the insula, and various sections of the prefrontal cortex. The latter has previously been linked to the regulation of emotions (Farb et al., 2012). These claims are backed up by a multitude of recent studies, one of which described the antidepressant effect that mindfulness meditation has on neuroplasticity. Yang et al. (2016) used functional magnetic resonance imaging (fMRI) brain scans to demonstrate this neuroplasticity by showing the change in neural networks (i.e., the anterior cingulate cortex) of chronically depressed patients after a 40-day mindfulness training program, which more closely resemble the neural networks of randomized clinical trial healthy controls.

Stuart Shanker (2017) discussed the idea of a child's capacity to adapt to stress throughout life, which he calls stress reactivity. Shanker emphasized that this stress reactivity is being shaped during the first years of life, especially the 12 months where rapid neural growth occurs. He explained that connections between different parts of the brain are made, which is called exuberant synaptogenesis, and how these synaptic connections are formed "depends vitally on a child's interactions with her caregivers" (p. 51). This supports the claim that early caregiving plays a role in the neurological processes that occur in the first years of life, and emphasizes the importance of close, nurturing parent-child interactions in those early years.

Cozolino (2010) not only discussed the importance of co-regulation as a path to healing, as referenced previously in regards to attachment disruptions and repair, but he also talked about the role of mirror neurons in human relationships. Mirror neurons were first discovered through primate behavior, when premotor areas of the brain were firing based on the observation of an experimenter or another primate demonstrating specific behaviors, like using a hand to grasp an object (Jeannerod et al., 1995). This understanding has led to hypotheses about the potential for humans to learn through observation. In addition, it demonstrates the potential for empathic responses based on observation of facial expressions and emotion, which is a key component in psychotherapy and empathic attunement (Cozolino, 2010). Cozolino (2010) stated, "These structures are at the core of our ability to develop intimate relationships, be attuned to one another, and aid our children in shaping a healthy and balanced sense of self" (p. 189). Based on this theory, mirror neurons play an important role in our ability to attune to one another, because a caregiver's noticing the emotions of a child, for example, and responding empathically allows that child to know that they are seen, and the caregiver's response serves as a "mirror" that reflects back the same emotion the child is experiencing. This relates to mindfulness and the

brain, because as Siegel (2007) proposed, “In mindfulness we direct our attention to our intention. Where attention goes, neurons fire. And where neurons fire, they can rewire” (p. 291). Mindful attention combined with the natural mirror neuron system helps humans resonate with one another and exist in shared connection. This shared connection promotes healing, and while this is at the heart of therapeutic change, it is also of utmost importance that this type of attunement exists within our most intimate relationships. As has been discussed previously in the attunement section of this paper, the parent-child relationship is where this starts. Siegel (2007) also pointed out that “attunement not only feels good in the moment, it likely alters the self-regulatory integrative fibers of the brain, especially in the middle aspects of the prefrontal cortex” (p. 291). Therefore, mindful attention is important for human relationships and brain development.

Mindfulness as a Clinical Intervention

Since Jon Kabat-Zinn’s (1990) introduction of mindfulness as a western concept, it has been increasingly used as a clinical intervention (Marlatt & Kristeller, 1999). As Kabat-Zinn (2003) described, the first generation of studies including mindfulness were more descriptive, and we are now coming to a time when it is important to understand the clinical utility of mindfulness. Recent studies, as discussed in the following three sections, show the effectiveness of mindfulness in many ways and for a multitude of psychological conditions. Mindfulness is a key component in psychological interventions such as mindfulness-based stress reduction, acceptance and commitment therapy, and dialectical behavior therapy.

Mindfulness Based Stress Reduction

Mindfulness-based stress reduction (MBSR) was developed in 1979 at the University of Massachusetts Medical Center, and has demonstrated efficacy in the treatment of a variety of

ailments such as chronic pain, anxiety, and depression (Grossman et al., 2003). Carmody and Baer (2008) found that participating in a mindfulness-based stress reduction program resulted in participants' reporting less perceived stress, and there was an increase in their overall reports of psychological well-being. Furthermore, mindfulness practices led to a decrease in symptoms of anxiety. MBSR has been shown to be effective not only with anxiety disorders in general, but specific symptoms such as worry (Vollestad et al., 2011). In a more recent article on mindfulness and stress management, Keng et al. (2012) found that level-of-mindfulness was a key process in a person's level of stress reduction, using MBSR.

Acceptance and Commitment Therapy

Acceptance and Commitment Therapy (ACT) is another mindfulness-based clinical intervention that is relevant to this topic. Created by Steven Hayes, ACT mixes acceptance and mindfulness techniques with behavior change strategies, with a goal of increasing psychological flexibility (Hayes & Pierson, 2005). ACT has been shown to be effective in a number of studies for relief of both physical and psychological symptoms such as pain, anxiety, and depression (Ruiz, 2010). The therapeutic process consists of six core therapeutic processes including: acceptance, being present, defining valued directions, cognitive defusion, self as context, and committed action (Luoma et al., 2007). The most relevant to the concepts of mindfulness are acceptance, being present, and self as context.

It is proposed in ACT that once a person forms internal states based on his or her environment, the internal states unconsciously act as cues for how to respond to the environment (Hayes & Pierson, 2005). This becomes important to clinical psychology when people begin to avoid situations and feelings because of these learned cues. For example, if a parent's self-worth is contingent on their child's good behavior, the parent might avoid people or places that may

trigger a child's misbehavior or distress rather than allowing and accepting developmentally appropriate levels of distress. Based on the principles of ACT, we know that fighting an emotion often makes it more difficult with which to deal. Dahl and Lundgren (2006) emphasized that, "A great deal of research has proven that avoiding a situation, taking steps to escape from it, or numbing yourself to the feelings brought up by that experience actually makes you more mentally averse to the situation" (p. 17). This aversion to the feelings eventually results in experiential avoidance. Hayes and Pierson (2005) define experiential avoidance as "Any behavior that functions to avoid or escape from unwanted experiences despite psychological costs for doing so" (p. 4). This directly relates to parenting when someone has a survival mentality. If a parent is attempting to avoid his or her experience, rather than cultivate awareness, he or she may be missing out on internal cues that could inform reactions and understanding. In this way, these avoidance attempts could potentially make problems worse (Dahl & Lundgren, 2006; Hayes & Pierson, 2005). From an acceptance and mindfulness perspective, even if the beauty is not immediately visible, there is still power and benefit in allowing oneself to fully experience negative emotions (Chödrön, 2001; Kabat-Zinn, 1990).

Coyne and Murrell (2009) wrote a book about the specific application of ACT in early year parenthood. There is a chapter on mindfulness and acceptance, which gives advice about appreciating your child for their whole being, even in difficult times. The authors argue that cultivating mindfulness skills can increase awareness and increase one's ability to see the wholeness of a situation, rather than be bothered by what seems like just bad behavior. "For example, you might notice your child misbehaving but not the color of his eyes, how he's looking at you, what happened to trigger his actions, or your own behavior in response to his" (Coyne & Murrell, 2009, p. 86).

Dialectical Behavior Therapy

Dialectical Behavior Therapy (DBT) is a cognitive behavioral treatment that was developed by Marsha Linehan in the 1980s (Linehan, 2014). It is based on a theory that emphasizes the importance of emotion regulation and behavior control. As described in the manual, “Emotion dysregulation has been linked to a variety of mental health problems stemming from patterns of instability in emotion regulation, impulse control, interpersonal relationships, and self-image. DBT skills are aimed directly at these dysfunctional patterns” (Linehan, 2014, p. 3). The research suggests that pervasive dysregulation of emotions results from a combination of vulnerable biology and an invalidating social environment (Koerner, 2012; Linehan, 2014). Palmer (2002) discussed this concept as it relates to borderline personality disorder (BPD) and stated, “People with BPD are seen as being unusually emotional by temperament but as having had this trait rendered maladaptive by a serially invalidating environment” (p. 12). As Linehan (2014) suggested, the invalidating environment may have been one that consisted of neglect or maltreatment, which she considers the “disorganized family” (p. 7). Additionally, Linehan (2014) described that one of the main characteristics of an invalidating environment is a caregiver’s tendency to respond unpredictably and in a non-attuned way. If a child’s private experience does not match up with what is being described for them and responded to, this does not provide them with an optimal learning environment for emotion regulation. Persistent discrepancies in this area can lead to behavior problems associated with emotional difficulty (Linehan, 2014).

DBT has been shown to be successful for developing effective and healthy emotional regulation. Two of the core skills taught in DBT are mindfulness and distress tolerance. Mindfulness and Distress Tolerance skills help people become more aware of their thoughts,

feelings, and experiences. Awareness then offers them the opportunity to practice being with difficult experiences rather than struggling against or avoiding them. DBT emphasizes teaching both change-oriented and acceptance-oriented skills (Koerner, 2012). One might wonder, if these skills were fostered in an infant via a caregiver who models mindfulness and distress tolerance, would they have better emotional regulation as an adult? These types of questions emphasize the importance of developing interventions that can help new mothers raise healthy children, while increasing or maintaining their own health as well, in the midst of a potentially stressful experience.

Mindfulness and Parenting

An article discovered in the early phases of this study is titled “Mindful parenting: A call for research” in which the authors noted that there is a need for more good research in the area of mindful parenting (Sawyer et al., 2010). At that time, much of the research on mindful parenting had to do with identifying specific guidance for interventions for special populations such as parents of children with autism or ADHD (Singh et al., 2006; Singh et al., 2010). Additionally, parental mindfulness has been shown to be associated with a decrease in children’s problem behaviors such as aggression and non-compliance and an increase in more positive social interactions (Singh et al., 2006). Furthermore, Emerson et al. (2019) looked into how predictors such as parental experiential avoidance and over-reactivity are related to mindfulness and child outcomes. Reductions in experiential avoidance and parental over-reactivity were associated with improvements in child internalizing and externalizing problems after an 8-week mindful parenting training. Results of this 89-participant study added support for mindful parenting training as a way to improve child outcomes. Furthermore, Perez-Blasco et al. (2013) investigated how the use of mindfulness affects maternal well-being. Snyder’s doctoral

dissertation (2010) explored the phenomenon of mindful mother-child experiences and the perceived value of this practice to the mother. She looked at regulation of emotions and thoughts, attachment, intersubjectivity, and the challenges and realities of practicing mindfulness as a new mother. Finally, a recent literature review by Rayan and Ahmad (2018) examined studies that used mindfulness-based interventions with parents of children with disabilities. Although practicing mindfulness was found to be an appropriate intervention for reducing the high level of stress and the negative impacts on the family system, researchers highlighted the need to fill gaps in the research as well as a need to find ways to “effectively integrate mindfulness practices into parenting skills” (Rayan & Ahman, 2018, p. 328).

The Present Study

It is clear that mindfulness as it relates to parenting is a topic that deserves greater exploration. As the popularity of mindfulness research increases, so does the information we have about using it with parents in general, and mothers in particular. Corthorn and Milicic (2016) demonstrated the timeliness, importance, and scholarly interest in mindfulness and parenting stress. The authors studied non-meditating mothers of preschool children (age 2–5) and found that higher mindfulness levels were associated with mothers’ health. Additionally, they studied which aspects of mindfulness predicted lower levels of parenting stress, depression, anxiety, and general stress. The ability to be nonjudgmental about herself as a mother appeared to be a key factor in this study (Corthorn & Milicic, 2016). These findings are consistent with the original hypothesis for this dissertation. Although the previous study was done on mothers from Chile and included only preschool children, it will be interesting to compare the current study of new mothers in the United States. This research study seeks to add to the body of literature by exploring the potential positive effects of mindfulness interventions with new mothers,

specifically.

This study aims to explore quantitative evidence to support or refute claims such as this one made by Olson et al. (2008): “Mindfulness helps mothers more effectively attune to their children. If mothers engage in mindfulness practice, they will be more likely to modulate their emotional experiences and help their children be emotionally modulated as well” (p. 312). This study aims to contribute to current and past research exploring whether mindfulness is a mitigating factor for maternal stress. It appears there is room for the relationship between mindfulness and maternal stress to continue to be explored. The purpose of this study is to explore what, if any, relationship exists between levels of mindfulness and levels of parenting stress. The author hypothesizes that as mindfulness levels increase, parental stress levels will decrease. If a significant negative relationship is found, it would be useful to understand which facets of mindfulness are more highly correlated with lower parenting stress. Doing this could increase the effectiveness of clinical interventions used. Furthermore, if we can inform and more successfully provide clinical interventions for new mothers, the outlook for children will be more positive.

CHAPTER III: METHODOLOGY

Participants

This study examined parental stress and mindfulness levels in new mothers. For the purposes of this study, a new mother is defined as a biologically female caregiver who has given birth to her first child within the last three years of the date data collection began (11/9/2020). The study was open to any new mother who would like to participate, regardless of age and geographic location, as long as she could read English and access the survey online. Adoptive mothers and gender fluid or transsexual individuals were excluded because although this would be an interesting study in itself, it is unclear how much these factors might impact the results. The final number of participants included was 144 new mothers. Information on excluded participants and incomplete data will be discussed in more detail in the results section.

Instrumentation

Two formal measures were given to participants of this research project, including a measure of mindfulness and a measure for parenting stress. In addition to the mindfulness measure and parenting stress index, demographic data was collected. The two measures are described below, and examples of demographic questions are included as an appendix (Appendix A). Due to the number of questions to be answered in the formal measures (75 total), demographic information collected was kept to a minimum, and included the mother's age, number of children, child (or children)'s age, geographic location, ethnicity, marital status, education, occupation, and household income. Information about the mother's past experience with mindfulness was also collected.

Parenting Stress

The Parenting Stress Index, fourth edition, short form (PSI-4-SF) was used for assessing levels of parenting stress. This 36-item measure is designed for parents of children age birth to twelve years old. It focuses on three major domains of stress including child characteristics, parent characteristics, and situational/demographic life stress. The original 120-item PSI was developed in 1983 by Richard Abidin, EdD and is currently in the fourth edition. The PSI is commonly used by mental health professionals, and is considered a valid and reliable measure of parents' level of distress (see specific validity and reliability information and references below). Because of the lengthiness of the original instrument; however, the 36-item short form was created, which is designed to take about 10 minutes to complete. It was developed based on factor analyses of the full length PSI, and uses items drawn verbatim from that measure (Barroso et al., 2016; Solis & Abidin, 1991). Answers to items on the PSI-4-SF are recorded on a 5-point Likert scale generally ranging from 5 (strongly agree) to 1 (strongly disagree); although, items 22 and 33 are reverse scored. A Total Stress score is derived as well as three subscale scores including: Parental Distress (PD), Parent-Child Dysfunctional Interaction (P-CDI), and Difficult Child (DC). The raw scores obtained can be translated into T-scores and percentiles. According to the interpretive manual, the normal range for scores falls within the 16th to 84th percentiles (Abidin, 2012). The fact that this measure has been normed and data can be examined in terms of percentiles was a deciding factor for using this well-established measure. A \$250 minimum purchase was required for the licensing agreement with Psychological Assessment Resources, Inc. (PAR), which allowed up to 104 administrations of the test. The cost per additional administration was \$2.40, which included a 40% student discount. There is an interpretive report available for purchase, which is commonly used for clinical work and individual intervention,

but only a total score is necessary for looking at the relationship between parenting stress and mindfulness.

Validity & Reliability

In order to reduce the chance of measurement error in research, it is important to look at the validity and reliability of the instruments. Validity speaks to whether an instrument is actually measuring what it is set out to measure, and reliability speaks to the extent an instrument can be interpreted consistently across various situations (Field, 2009). The validity of the PSI as an evidence-based assessment has been established in approximately 250 studies reviewed in the PSI manual (Abidin, 1995). Since then, additional studies have been published demonstrating the validity, reliability, and cultural norms of the PSI in various languages and cultures (e.g., Chinese, Spanish, Japanese, German, etc.). Finally, Abidin (1995) noted “the PSI has displayed predictive validity in studies with Chinese, Portuguese, French-Canadian, and inner-city African-American populations, among others” (p. 50). The correlation between the PSI-4 and the PSI-4-SF has been demonstrated as exceptionally high. In a normative sample ranging from $N = 1,047$ to $1,056$ (variation due to missing item responses), the PSI-4 and PSI-4-SF Total Stress scales had a .98 correlation. Furthermore, the PSI-4-SF subscales of Parental Distress, Parent-Child Dysfunctional Interaction, and Difficult Child were correlated to the PSI-4 Total Stress at .89, .91, and .89 respectively.

In regards to the reliability of this measure, the most recent version of the PSI manual (4th edition) indicated the original PSI short form (PSI-SF) had a test-retest reliability over a 6-month period was .84 for the Total Stress scale, .85 for Parental Distress, .68 for Parent-Child Dysfunction Interaction, and .78 for Difficult Child (Abidin, 2012). Additionally, Roggman et al. (1994) .90 for Total Stress, .79 for Parental Distress, .80 for Parent-Child Dysfunction

Interaction, and .78 for Difficult Child. In a study with abusive parents over a 12-month period, Haskett et al. (2006) found a test-retest reliability of .75 for the Total Stress scale.

Mindfulness

After reviewing many of the existing mindfulness measures, the researcher decided to use the Five Factor Mindfulness Questionnaire (FFMQ) developed by Dr. Ruth Baer (Baer et al., 2006) to assess participants' level of general mindfulness. This measure includes 39-items and is based on a factor analytic study of five independently developed mindfulness questionnaires (Baer et al., 2006). Because the psychometrically strongest items were selected from five different independently created measures, the FFMQ is considered one of the strongest measures of mindfulness. It asks participants to endorse statements using a 5-point Likert scale ranging from 1 (never or very rarely true) to 5 (very often or always true). The FFMQ measures a "trait-like general tendency to be mindful in daily life" (Carmody & Baer, 2008, p. 26) based on five elements of mindfulness: observing, describing, acting with awareness, nonjudging of inner experience, and non-reactivity to inner experience (Baer et al. 2006; Carmody & Baer, 2008). Examples of questions are: "I pay attention to physical experiences, such as the wind in my hair or sun on my face" (observation), "I make judgments about whether my thoughts are good or bad" (nonjudgment, reverse scored), and "I find it difficult to stay focused on what's happening in the present moment" (acting with awareness, reverse scored). Items on this measure are arranged in a way that roughly alternates which category the question relates to.

Validity & Reliability

In regards to internal consistency of the mindfulness measure, Baer et al. (2006) reported alpha coefficients ranging from .75 to .91, suggesting adequate to good internal consistency. In a study comparing experienced meditators versus non-meditating comparison groups, Baer et al.

(2008) found alpha coefficients in the adequate to good range (.72 to .92) for all facets of the measure except for the non-reactivity facet, which had an alpha of .67 in one of the samples (other samples had alpha levels of .81 to .86 for this subscale). Additionally, Vollestad et al. (2011) reported a Cronbach's alpha for the FFMQ total mindfulness score was 0.90, demonstrating good internal reliability. It should be noted; however, that mindfulness is a difficult construct to measure, and the controversies and limitations of using self-report to measure mindfulness continues to be discussed (Baer, 2016). The measurement of mindfulness in research remains active and productive though, and the FFMQ proved as an excellent choice to be used in this study.

Procedures

Recruitment

Recruitment and data collection occurred during an eight-week period that began on November 9, 2020 and concluded on January 9, 2021. The goal was to have at least 40–60 completed surveys, not counting any surveys with response errors (Fowler, 2009). This target number was based on results from a statistical calculator created by QFAB.org, which suggested a sample size of 29 participants to achieve 80% power at the .05 level of significance, based on an anticipated effect size of $r = .5$. Participants were recruited via online advertising methods such as posting on social networking and other media websites (e.g., Facebook pages, Reddit parenting forums) and through emailing friends and colleagues, with the hope of snowball sampling. Social media posts were not only made on general pages, but efforts were focused on groups specific to parenting and/or motherhood as well. Advertising text on these sites included the main goal of the study, inclusion criteria, participation incentive, and a link to the online screener. In-person recruitment methods such as posting flyers at pediatric offices, midwifery

clinics, new parent support groups (e.g., PEPS), and yoga studios were planned but were not utilized for this study due to the COVID-19 pandemic and subsequent shutdown. In order to minimize in-person contact, all recruitment for this study was done online.

Recruitment materials provided a brief description of the study (explanation of the main goal, inclusion criteria, and mention of participation incentive; see Appendix B, for example) and the link to the online screening questions. Participants completed the screener, consent, and measures online via the Research Electronic Data Capture (REDCap; <https://www.iths.org/investigators/services/bmi/redcap/>). When a potential participant clicked on the REDCap link, they were provided an additional description of the study. The online screener (Appendix C) asked about a person's ability to read English, their biological sex, gender identity, age of their oldest child, and if any of their children were adopted. Through the screening process, information was also collected about how a person learned about the study. Of the various advertising methods used, 35.7% reported hearing about the study through a Facebook post or Facebook message, 7.1% reported hearing about it through an advertisement on a webpage, 12.5% heard about it through an email from a friend or colleague, .5% through a listserv or flyer, and 45.2% selected "other," most of whom identified Reddit.

Enrollment

Participants who were screened in to the study were provided the consent form (Appendix D) which explained the purpose, risks, and benefits of participation in this research project as well as contact information for the principle investigator, dissertation chairperson, and the university's internal review board. If participants screened out or declined to participate in the study after reading the consent form, they were thanked for their interest and provided with links to various mindfulness resources. If participants agreed to participate, they were asked for

their email address.

Data Collection

Online data collection was used in order to reach a wide variety and higher number of new mothers. Additionally, the hope was to minimize participant burnout for busy mothers, given they could complete the survey at a time and place that was convenient for them. Furthermore, online data collection accommodates the inherent potential interruptions of new mothers by allowing them to save their progress and return at a later time. Finally, REDCap is accessible via computers, tablets, and smart phones allowing for easy and convenient access to the data collection instruments. Permission was given for each instrument to be translated to an online format, and special care was given to ensure the wording (verbatim) and format was as consistent to the paper versions as possible. Once the survey was programmed, it was beta tested to review for errors, ease of use, and to confirm that the advertised survey time was accurate.

The original study design was such that after a participant screened in *and* consented to the study, they automatically gained access to the survey; therefore, no email addresses were collected except as part of the optional incentive raffle. However, due to the licensing agreement with PAR for use of the PSI-4-SF, additional security measures had to be implemented to safeguard the survey. The new design required each participant to be individually emailed the survey link with a unique passcode in order for the participant to access the survey. This is why email addresses were collected as part of the consenting process. Each approved participant was assigned a unique Personal Identification Number (PIN) so that they may return to the survey, if needed. Survey responses could not be changed after a survey had been completed.

Within 24 hours of a participant enrolling, they were emailed a personalized REDCap invitation, which included scheduled pre-programmed reminders to begin the survey.

Participants who started the survey but did not complete it received a reminder approximately two weeks to one month after they started the survey and an additional final reminder one week prior to the survey going offline.

When participants clicked on the personalized REDCap link, they navigated to a welcome page where they entered their unique passcode. Following the passcode, they answered demographic questions, followed by the PSI-4-SF, and finally the FFMQ. After completing all of the instruments, participants were given the option to enter a raffle for a \$50 Amazon gift card. If they opted in, their email address was collected. Participants were notified that their email address would be deleted once the raffle is completed, by 5/31/2021. Amazon was selected as the vendor due to its nationwide accessibility and the variety of products—participants could select from groceries to childcare or self-care items.

Data Analysis

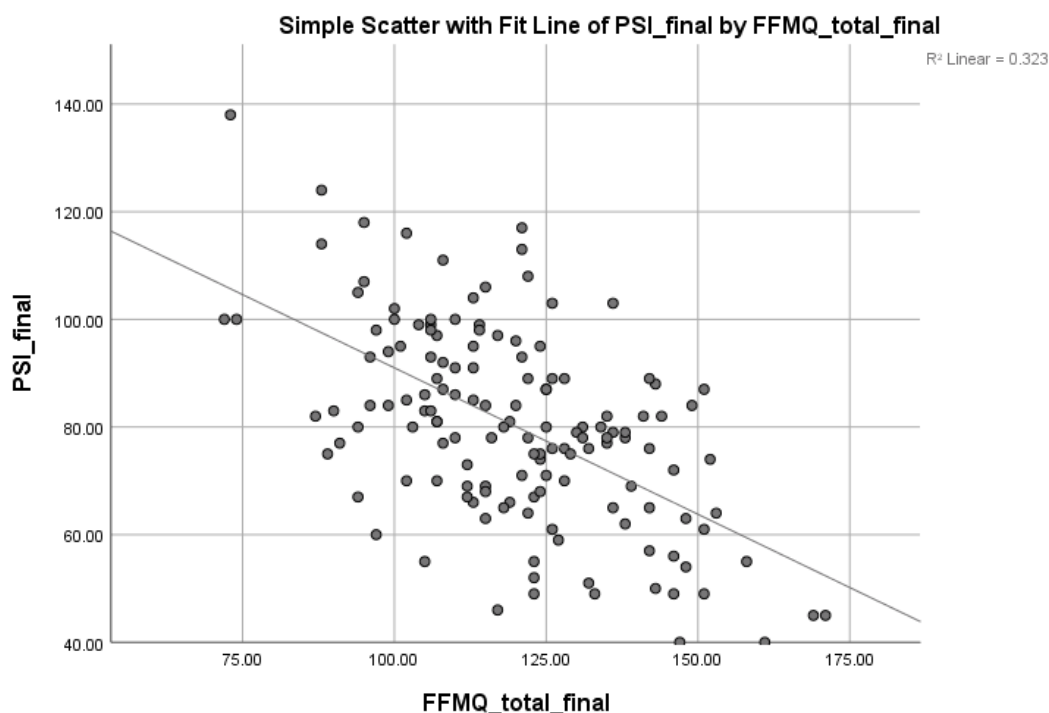
A total of 154 participants completed the survey. Of those, 10 participants were removed because they reported having children who were older than four years of age or for incomplete responses. Their responses were removed from the dataset via listwise deletion. The total number of participants used for analyses was thus 144. The responses from these participants were downloaded from REDCap into an Excel spreadsheet and then organized and imported into the Statistical Package for the Social Sciences (SPSS, version 24.0) where data was coded and analyzed. Descriptive statistics were computed for all sociodemographic and study variables. The statistical analysis of the data was completed under the guidance of a professional statistician.

The author conducted several tests to ensure that data met assumptions of correlational statistics. First, it was verified that the data were interval and continuous. Second, the author

reviewed a scatterplot between PSI-4-SF and FFMQ total scores to ensure there was a linear relationship between two variables. The scatterplot in Figure 3.1 demonstrates a clear linear relationship.

Figure 3.1

Scatterplot for PSI-4-SF and FFMQ Total. N = 144.



Third, the author reviewed the scatterplot and noted no significant outliers that needed removal. One single outlier was detected, but it was decided that this outlier was not divergent enough to warrant removal. Fourth, the author conducted several specific tests to ensure that data were approximately normally distributed. The first of these tests was a graphical review of the variable scores via histogram. Figures 3.2 and 3.3 depict the spread of data for both the PSI-4-SF and the FFMQ. Data appeared to conform to the normal curve. Note that skewness appeared within normal range for the PSI-4-SF (.14, SE = .20) and FFMQ (.12, SE = .20). Kurtosis was

within normal range for the PSI-4-SF (.06, SE = .40) and within normal range for the FFMQ (.08, SE .40).

Figure 3.2

Distribution of PSI-4-SF Total Scores for the Dataset.

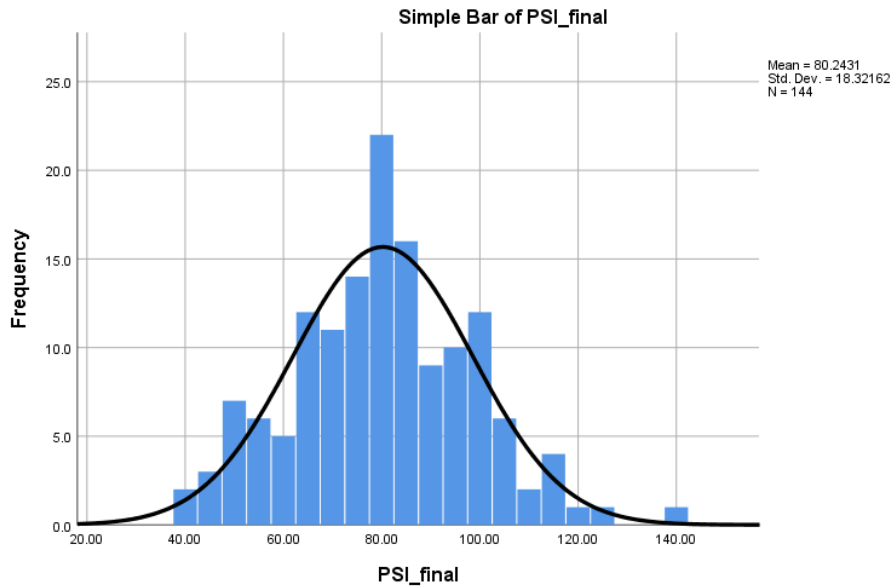
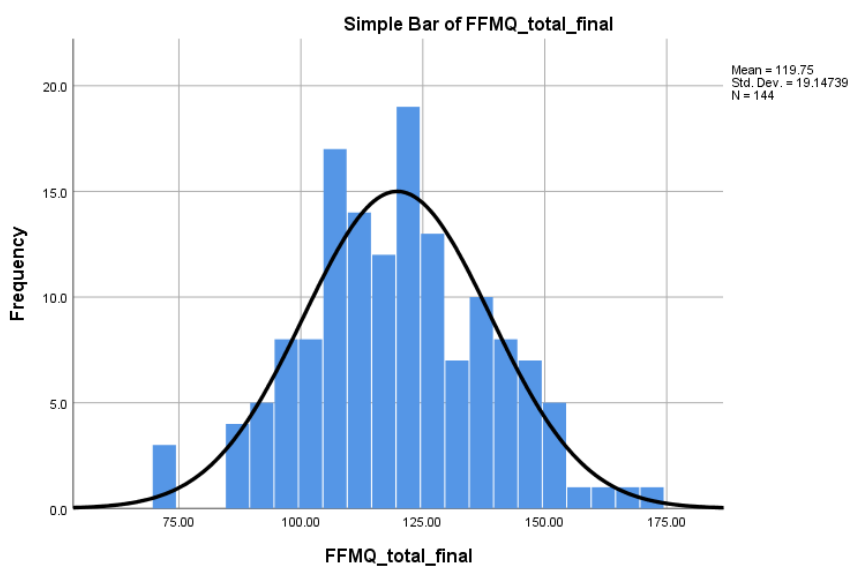


Figure 3.3

Distribution of FFMQ Total Scores for the Dataset.



Additionally, the author conducted two statistical tests to ensure that data met assumptions of normality and fit a normal distribution. For both the PSI-4-SF and FFMQ total scale scores, the author computed the Shapiro-Wilk and Lilliefors correction of the Kolmogorov-Smirnov tests for normality. Both the Shapiro-Wilk and Lilliefors correction of the Kolmogorov-Smirnov tests were insignificant for the PSI-4-SF ($p = .66$ and $.20$ respectively) and for the FFMQ ($p = .74$ and $.20$ respectively), indicating that the assumption of normality had been met for both variables. As indicated in Figures 3.4 and 3.5, the Q-Q plots for the PSI-4-SF and FFMQ also indicated that data met the assumption of normality. Because data appeared to approximate the normal curve within acceptable parameters, parametric statistics could be performed and the author proceeded with the inferential statistics.

Figure 3.4

Q-Q Plot for the PSI-4-SF Total Score.

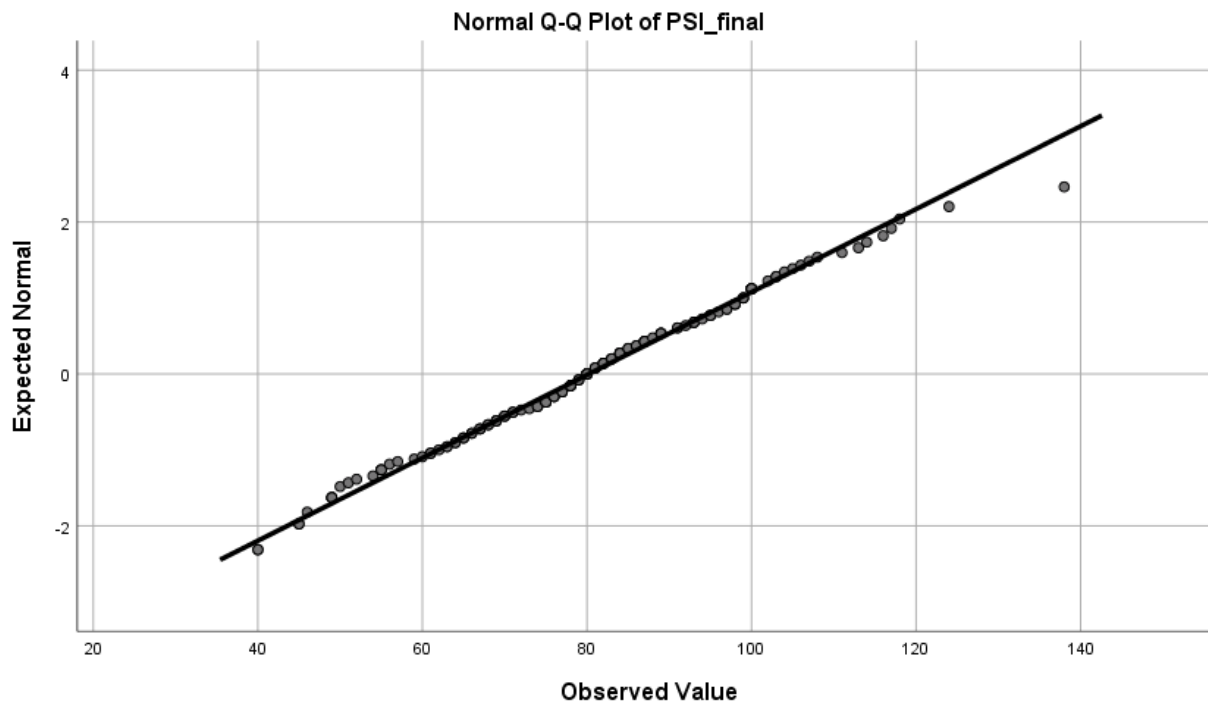
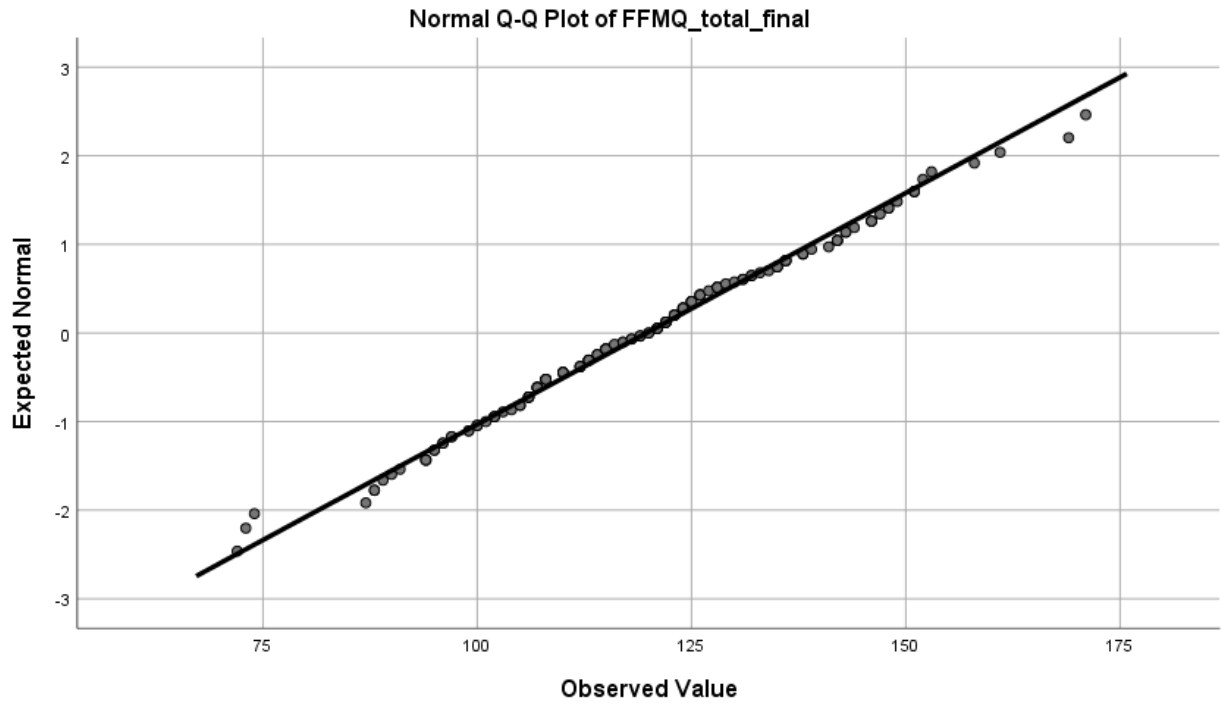


Figure 3.5

Q-Q Plot for the FFMQ Total Score.



CHAPTER IV: RESULTS

Demographic Characteristics of the Sample

Participants provided self-reported demographic information that included age, race/ethnicity, geographical location, marital status, education level, household income, age of children, experiences of post-partum depression, and prior exposure to and practice of mindfulness. The mean age for the sample was 32.59 years ($SD = 4.53$, range = 20–45 years). The self-identified racial/ethnic demographics for the sample were, in order of most frequent, White (84.0%, $n = 121$), Asian (10.4%, $n = 15$), Hispanic or Latinx (6.9%, $n = 10$), Black or African-American (3.5%, $n = 5$), American Indian (0.7%, $n = 1$), and other race/ethnicity (3.5%, $n = 5$). No participants identified as Alaskan Native or Native Hawai’ian. Participants were allowed to self-identify with multiple racial/ethnic demographic categories, and thus these statistics exceed 100%.

Participants reported their geographical location, with 123 providing information about current country and place of residence. Twenty-one participants did not report geographical location. Of the 123 participants reporting geographical location, 71.5% lived in the United States ($n = 103$) and internationally (13.9%, $n = 20$). Of the 103 participants who reported living in the United States, participants hailed from, in order of frequency, Washington (34.0%, $n = 35$), California (8.7%, $n = 9$), Virginia (4.9%, $n = 5$), Massachusetts (3.9%, $n = 4$), Michigan (3.9%, $n = 4$), Texas (3.9%, $n = 4$), Florida (2.9%, $n = 3$), Illinois (2.9%, $n = 3$), Maryland (2.9%, $n = 3$), Colorado (2.9% , $n = 2$), Georgia (2.9% , $n = 2$), Iowa (2.9% , $n = 2$), Missouri (2.9% , $n = 2$), New York (2.9% , $n = 2$), North Carolina (2.9% , $n = 2$), Pennsylvania (2.9% , $n = 2$), South Carolina (2.9% , $n = 2$), Utah (2.9% , $n = 2$), Arkansas (1.9% , $n = 1$), Arizona (1.9% , $n = 1$), Hawai’i (1.9% , $n = 1$), Indiana (1.9% , $n = 1$), Kansas (1.9% , $n = 1$), Louisiana (1.9% , $n = 1$),

Minnesota (1.9%, $n = 1$), New Hampshire (1.9%, $n = 1$), New Jersey (1.9%, $n = 1$), New Mexico (1.9%, $n = 1$), Ohio (1.9%, $n = 1$), South Dakota (1.9%, $n = 1$), and Wisconsin (1.9%, $n = 1$).

Participants were living in other countries that included Canada (4.9%, $n = 7$), Australia (1.4%, $n = 2$), Austria (0.7%, $n = 1$), Belgium (0.7%, $n = 1$), England (0.7%, $n = 1$), France (0.7%, $n = 1$), Germany (0.7%, $n = 1$), Japan (0.7%, $n = 1$), Jordan (0.7%, $n = 1$), Netherlands (0.7%, $n = 1$), Singapore (0.7%, $n = 1$), Switzerland (0.7%, $n = 1$), and United Kingdom (0.7%, $n = 1$).

The marital status of the sample was, in order of frequency: married (90.3%, $n = 130$), in a committed relationship, living together (4.9%, $n = 7$), single (3.5%, $n = 5$), in a committed relationship, not living together (0.7%, $n = 1$), and divorced (0.7%, $n = 1$).

The highest degree of education achieved by participants was, in order of frequency, master's degree (30.6%, $n = 44$), bachelor's degree (41.7%, $n = 60$), professional degree, e.g., MD or JD (6.3%, $n = 9$), some college (6.3%, $n = 9$), technical school certificate (4.9%, $n = 7$), high school diploma or GED (4.9%, $n = 7$), associates degree (3.5%, $n = 5$), and doctoral degree (2.8%, $n = 4$).

Participants also ranged in their reported total household estimated income per year. Twenty-six participants did not respond to this question, leaving a total of 118 participants who reported total household income. In order of frequency, participants reported most commonly earning \$45,000–99,999 (23.2%, $n = 28$), \$100,000–139,999 (19.5%, $n = 23$), \$200,000 or more (19.5%, $n = 23$), \$150,000–199,999 (16.1%, $n = 19$), \$20,000–44,999 (9.3%, $n = 11$), \$140,000–\$149,999 (8.5%, $n = 10$), and less than \$20,000 (3.4%, $n = 4$).

Self-reported employment status of participants was, in order of frequency, full time employment defined as 35+ hours per week (47.9%, $n = 69$), homemaker (22.9%, $n = 33$),

part-time employment defined as less than 35 hours per week (19.4%, $n = 28$), unemployed and looking for work (3.5%, $n = 5$), unemployed and not looking for work (2.1%, $n = 3$), unemployed and disabled (0.7%, $n = 1$), unemployed and retired (0.7%, $n = 1$), and other/unspecified (2.8%, $n = 4$).

The majority of participants had one child three years of age or younger (86.8%, $n = 125$), with 19 participants having two children three years of age or younger (13.2%). No participants had more than two children less than four years of age, and participants with any children over four years of age were excluded from analyses because of the inclusion/exclusion criteria of the study. Caregivers of one child under four years of age ($n = 125$) reported that the average age of the only child was 15.62 months ($SD = 9.95$ months, range = 0–45 months). Caregivers of two children under four years of age ($n = 19$) reported that the average age of the first (oldest) child was 30.37 months ($SD = 6.82$, range = 16–44 months) and the average age of the second child was 10.26 months ($SD = 10.13$, range = 1–36 months).

The age of children and sex of the child (or children) was asked in a branched question format using skip logic. This meant that respondents were asked either, (a) what is the age/sex of your child or, (b) what is the age/sex of your first child and what is the age/sex of your second child, based on how many children the respondent reported having in an earlier question. Caregivers of one child three years of age or younger ($n = 125$) reported that the biological sex of their only child was 49.3% female ($n = 71$) and 37.5% male ($n = 54$). Caregivers of two children three years of age or younger ($n = 19$) reported that the biological sex of the first (oldest) child was 68.4% male ($n = 13$) and 31.6% female ($n = 6$). The biological sex of the second child was 57.9% female ($n = 11$) and 42.1% male ($n = 8$).

In addition to common demographic questions, participants were also asked about their experiences of post-partum depression following the birth of their child or children. Of caregivers who had one child under four years of age ($n = 125$), nearly one-third (29.2%, $n = 42$) self-reported having experienced post-partum depression. Of these single-child caregivers who experienced depression ($n = 42$), nearly half received mental health services (47.6%, $n = 20$). Of caregivers who had two children under four years of age ($n = 19$), 10.5% ($n = 2$) experienced post-partum depression after the birth of their first child and 15.8% ($n = 3$) experienced post-partum depression after the birth of their second child. Of two-child caregivers who experienced post-partum depression, no participants received mental health services after the birth of their first child (0 of 2 participants) and one received mental health services after the birth of their second child (50%; 1 of 2 participants). Of all participants who reported receiving mental health services to address post-partum depression, no participants reported receiving mindfulness as part of their mental health treatment.

Participants were asked about their past exposure to mindfulness prior to the study. A total of 123 participants responded to this question (21 participants had missing data). The majority of participants (80.49%, $n = 99$) had heard about mindfulness previously. Participants were also asked to estimate the amount of time per week they had spent in formal mindfulness practice, such as meditation, yoga, breathwork, and body scanning. Participants reported spending an average of 37.38 minutes per week in mindfulness practice, with a large standard deviation (67.61 minutes). The number of minutes per week ranged from 0 to 420 minutes. The median amount of time spent was 15 minutes, and 90% of the respondents reported between 0–60 minutes in formal mindfulness practice.

Excluded Participants

The author compared demographics for participants ($n = 7$) who completed the survey and were excluded from analyses because they did not meet inclusion criteria of having no children above the age of three years old. Demographics for the excluded participants were largely comparable with included participants, with a few differences. Excluded participant age was very similar ($M = 33.86$, $SD = 4.14$), as was marital status (85.7% married, $n = 6$) and most common total household income (\$45,000–\$99,999; 28.6%, $n = 2$). Racial/ethnic background did differ somewhat, with a greater proportion of excluded participants who identified as Asian (28.6%, $n = 2$) and Black or African-American (14.3%, $n = 1$). The other four excluded participants identified as White (57.1%, $n = 4$). More excluded participants reported working part time (42.9%, $n = 3$) and fewer worked full-time (28.6%, $n = 2$). Fewer excluded participants also reported obtaining master's degrees or higher (14.3%, $n = 1$), with most participants having a bachelor's degree (42.9%, $n = 3$) followed by technical school certificate (28.6%, $n = 2$). One participant had pursued some college (14.3%, $n = 1$), and no excluded participants had professional degrees or doctorates. All excluded participants had more than one child (hence the older age of the first child), and may have misunderstood the directions of the study as they reported having another child who was below four years of age. All excluded participants resided in the United States, and all had heard about mindfulness prior to the initiation of the study. The research team felt that none of these differences was striking enough to warrant including these participants in the dataset, considering they did not meet inclusion criteria.

Scale Reliability

To ensure the dataset conformed to previous parameters of acceptable reliability, a test of internal consistency for the PSI-4-SF and the FFMQ was conducted. Cronbach's alpha is used to

evaluate internal consistency for scales with likert-scale items. A Cronbach's alpha of .70 is the typical minimum threshold for acceptable internal consistency according to experts (Nunnally & Bernstein, 1994). In prior studies of reliability and validity, the PSI had a total scale alpha of .95 (Reitman et al., 2002) and the FFMQ had a total scale alpha of .90 (Vollestad et al., 2011). For this study, the PSI had a total scale alpha of .90 and the FFMQ had a total scale alpha of .91. Four of the five FFMQ subscales also had acceptable alphas, with observing subscale $\alpha = .75$, describing subscale $\alpha = .83$, acting with awareness subscale $\alpha = .91$, and nonjudgment subscale $\alpha = .91$. The non-reactivity subscale was $\alpha = .66$, which is below but approaching the threshold of an acceptable alpha. In previous research, Baer et al. (2006) found subscale alphas ranging from .75 to .91 and Baer et al. (2008) found subscale alphas ranging from .72 to .92, with the exception of the non-reactivity subscale in one sample, which was .67. All Cronbach's alphas in this study, therefore, were consistent with reported alphas of prior studies.

Mean Scale Scores

The PSI average total score for the sample ($n = 144$) was 80.24 ($SD = 18.32$). The FFMQ average total score was 119.75 ($SD = 19.15$). For FFMQ subscales, the average scores were as follows: observing ($M = 25.71$, $SD = 4.91$), describing ($M = 26.56$, $SD = 5.53$), acting with awareness ($M = 23.94$, $SD = 6.54$), nonjudgment ($M = 23.14$, $SD = 6.90$), and non-reactivity ($M = 20.02$, $SD = 3.69$). This sample's mean scores were comparable with PSI and FFMQ mean normative scores, with one exception. The PSI total score was higher for this sample ($M = 80.24$, $SD = 18.32$) than the normative sample, 73.44 ($SD = 25.56$; Reitman et al., 2002).

Research Question

To answer the research question, we conducted a one-tailed Pearson product moment correlation coefficient to ascertain whether mindfulness ability (as measured by the FFMQ) had

a negative correlation with parenting stress (as measured by the PSI-4-SF). One-tailed tests are used to test a directional hypothesis, such as the one presented in the present study (Field, 2009). A large and statistically significant correlation was found between total scores on the FFMQ and PSI-4-SF, $r = -.57, p < .01$. This represented a large effect size, $R^2 = .32$.

Exploratory Analysis

Because the main research question was answered and the hypothesized negative correlation was found, we also explored whether components of mindfulness were differentially related to parenting stress, by computing one-tailed correlations between FFMQ subscales and the PSI-4-SF total score. As seen in Table 4.1, all subscales were negatively correlated with parenting stress. Four of five subscales had statistically significant negative relationships, with the fifth subscale approaching significance ($p = .014$). Nonjudgment of inner experience had the strongest negative correlation ($r = -.60, p < .01$), followed by acting with awareness ($r = -.46, p < .01$), non-reactivity to inner experience ($r = -.37, p < .01$), observing ($r = -.23, p < .01$), and describing ($r = -.18, p = .014$).

Table 4.1*Correlations between PSI-4-SF, FFMQ, and FFMQ Subscale Total Scores*

	1	2	3	4	5	6	7
1	-	-.57*	-.23*	-.18	-.46*	-.60*	-.37*
2	-.57*	-	.54*	.58*	.75*	.81*	.70*
3	-.23*	.54*	-	.26*	.20*	.19	.40*
4	-.18	.58*	.26*	-	.21*	.26*	.29*
5	-.46*	.75*	.20*	.21*	-	.57*	.39*
6	-.60*	.81*	.19	.26*	.57*	-	.56*
7	-.37*	.70*	.40*	.29*	.39*	.56*	-

Note. 1 = PSI-4-SF total, 2 = FFMQ total, 3 = FFMQ observing subscale, 4 = FFMQ describing subscale, 5 = FFMQ acting with awareness subscale, 6 = FFMQ nonjudgment subscale, 7 = FFMQ non-reactivity subscale. * $p < .01$

CHAPTER V: DISCUSSION

The results of this study found a negative correlation between levels of overall mindfulness (as measured by the FFMQ) and parenting stress (as measured by the PSI-4-SF) in new mothers of children three years old or younger. This means that in this sample of 144 new mothers across the United States and internationally, those who are more generally mindful (i.e., able to pay attention in the present moment, nonjudgmentally) appear to have lower levels of stress, as it relates to parenting. The PSI-4-SF focuses on child characteristics, parent characteristics, and situational/demographic life stress. So, although it cannot be concluded that being more mindful is a sole factor that results in a less stressful parenting experience, the results of this study show that women who are generally more mindful overall, do appear to experience less stress within the experience of being a parent.

As previously mentioned, prior literature, such as a study by Carmody and Baer (2008), have found that mindfulness interventions can help reduce levels of perceived stress (as measured by the Perceived Stress Scale; PSS) and improve levels of psychological well-being. Overall, in the literature, mindfulness-based interventions are supported for reducing stress, and these two variables are often correlated. Keng et al. (2012) found a person's mindfulness level was an essential part of stress reduction. Prior literature has also found these same types of results as it relates to the relationship between levels of mindfulness and parenting stress. For example, Moreira and Canavarro (2018) examined self-critical rumination and parenting stress to see if dimensions of mindful parenting played a mediating role in this association. When looking at mindful parenting dimensions in relation to these variables, the authors found two significant mediators: nonjudgmental acceptance of parental functioning and emotional awareness of the child. These results in particular are supported by the present study, as nonjudgment of inner

experience was the facet of mindfulness most significantly correlated with lower parenting stress. Additionally, Perez-Blasco et al. (2013) demonstrated the effectiveness of mindfulness-based interventions in breast-feeding mothers, using a randomized controlled, between group design that included pretest and posttest measures. Not only did the mothers who received treatment exhibit less stress, but they also had statistically significant higher scores on four dimensions of mindfulness (observing, acting with awareness, nonjudging, and non-reactivity) and self-compassion.

Results from the present study in combination with results from previous studies show a clear relationship between mindfulness-based interventions and perceived reduced stress levels. The exploratory analysis in the present study examined the five facets of mindfulness in greater detail, as they related to overall levels of parenting stress. Of the five facets of mindfulness (observing, describing, acting with awareness, nonjudging of inner experience, and non-reactivity to inner experience), nonjudging of inner experience has the strongest inverse correlation with parenting stress. This means the new mothers in this study who were the least judgmental of their thoughts and feelings also had lower levels of overall parenting stress. An example of a question from this subscale is, “I think some of my emotions are bad or inappropriate and I shouldn’t feel them.” The more a person agrees with this statement, the lower their mindfulness score would likely be in this category. Based on this understanding, it would be important to work with new moms to accept their thoughts and feelings as they are, without making a judgment as to whether their thoughts and feelings are good or bad.

The second highest negative correlation with parenting stress within the subscales was acting with awareness. An example of a question in this category is, “It seems I am ‘running on automatic’ without much awareness of what I’m doing.” Similarly to the previously described

category, if a participant responded as strongly agreeing with this statement, they would likely have a lower mindfulness score on this facet. The non-reactivity to inner experience scale was the next strongest correlation. This asks questions about being able to perceive feelings and emotions without having to react to them. It also takes into consideration one's ability to "pause" before reacting, or "step back" from a thought or image. This is the facet of mindfulness that was not examined in earlier mindfulness measures, and offers a great deal of clinical usefulness. It assesses a person's ability to remain calm in the midst of distressing thoughts or images, as well as being able to notice these things and let them go. Using this skill, one is not only aware of the present moment, but they are simultaneously not attached to it. One might conclude that the ability to do this would lead to increased acceptance and self-compassion.

The observing and describing subscales were less strongly correlated with parenting stress in this particular sample. An example of an observing question is, "I notice the smells and aromas of things" and an example of a describing subscale item is, "I'm good at finding words to describe my feelings." It appears that fostering these skills in mindfulness intervention training might be less impactful for use with new moms, but observation training might be more useful than describing. This might be particularly true because observation, or noticing, is part of grounding techniques that are useful for many different types of psychological concerns. For example, there is a "senses" exercise that is useful for anger, anxiety, and to increase focus. In this exercise, one is asked to stop and take note of the following: five things you see, four things you feel, three things you hear, two things you smell, and one thing you taste. By purposefully taking in the details of one's surroundings in this way, the person is encouraged to be focused on the present moment. When noticing and paying attention to these details in this way (e.g., the feeling of your feet on the floor, the sound of a clock ticking, or smelling something nearby), a

person is not only reducing anxiety and increasing focus, but they are practicing an important aspect of mindfulness (observation). Although the describing subscale is the least correlated with lower parenting stress, this could be incorporated as well, if the exercise were to be done out loud.

In addition to looking at the main research question and subsequent exploratory research, the overall average scores found in this study are interesting to compare with previous research studies. While this sample's FFMQ mean scores were comparable with prior studies (e.g., Williams et al., 2014), the PSI-4-SF average total score for this sample 80.24 ($SD = 18.32$) was higher than the original norm group, which was 73.44 ($SD = 25.56$; Reitman et al., 2002), suggesting greater overall parenting stress and less variability compared to the normative sample. This might suggest that the sample surveyed in this study, which consisted of new mothers ranging from 20–45 years of age with one or two children three years old or younger, had higher overall parenting stress levels than those of the general population. It is hard to say what contributes to this difference in score, but some reasons might include gender or age of the child at the time of the survey. The norms were done on both males and females and included parents of children aged birth to twelve years. It would also be interesting to consider other factors such as employment status, education and income levels, or marital status. Additionally, it is important to note that data collection for this study took place during the COVID-19 worldwide pandemic and subsequent quarantine restrictions. This was not a factor when the test was created and normed, and it might be the case that most people have a generally higher level of stress at this time, which would most likely impact how a person perceives their experience as a parent. In particular, it is a very different experience to become a new mom during a time when you are less able to engage and be social with other people. For the researcher, socializing with other

new moms was an invaluable part of the parenting experience, especially in the early years of new parenthood. It would be difficult to tease out what factors contribute to new mothers in this study having a higher than normal level of parenting stress, but future research may want to focus on investigating these questions.

Although this study hoped to include a great deal of diversity within who was able to be included as a participant, there were a few things that would exclude a person from participating. The first was if a person was not born biologically female and also identified as female. This means that transgender individuals were excluded from this study. While the researcher originally did want to include transgender individuals, it was decided by the committee that there are variables within this population that would differentiate them to the extent that it would be difficult to include them within this study's definition of "new mom." It would be interesting and is encouraged to conduct research that would help understand what, if any, differences there are in mindfulness and parenting stress levels between a cisgender and transgender individual. The second population that was excluded from this study was adoptive mothers. If a new mother interested in the study did not physically give birth to her child, she was not eligible to participate in this study. This is not to say that adoptive mothers are not interesting or important to study, but this research project needed to identify a specific (narrow) population, and including adoptive mothers could have influenced or confounded the data, without understanding what influence this aspect of new motherhood may have. It would be interesting to do a comparative study, to see if either levels of mindfulness or levels of parenting stress differ between adoptive mothers and biological mothers.

Clinical Implications

Although it cannot be concluded that having higher levels of mindfulness causes one to have a lower level of parenting stress, there is a clear relationship between these two variables, which may be used to inform clinical interventions. The successful use of mindfulness-based stress reduction (MBSR) for many conditions contributed to the hypothesis that an increased level of mindfulness would correlate with a reduced level of parenting stress. Based on what we know from previous studies about the benefit of mindfulness practice for stress in general (Carmody & Baer, 2008; Grossman et al., 2003), and given the statistically significant negative correlation between mindfulness and parenting stress, it can be assumed that clinical interventions aimed at increasing a person's level of overall mindfulness would be a good choice for working with new mothers. If parenting stress is a primary presenting concern for a new mother in therapy, tailoring interventions that include mindfulness practice could be a good choice. As discussed previously, nonjudgment of inner experience appears to be an important aspect of mindfulness as it relates to parental stress and would be worth evaluating with new parents who present for treatment.

In the demographics questionnaire for this study, information was collected about women's experience with post-partum depression. As noted previously in the results section, nearly one-third ($n = 42$) of the new mothers with one child reported experiencing post-partum depression. Of the mothers with more than one child ($n = 19$), 10.5% ($n = 2$), and 15.8% ($n = 3$) reported experiencing post-partum depression after the birth of either their first or second child. About half ($n = 20$) of the mothers with one child received mental health services, and one mother of two children received mental health services for post-partum depression. None of the participants reported receiving mental health treatment that included mindfulness training or

education. Although the present study was not looking at the specific relationship between mindfulness and depression, it has been suggested that people with higher stress levels are more likely to experience depression (Leonard, 2002). As discussed previously in this paper, interventions such as MBSR have been shown to be effective as a treatment intervention for depression (Carmody & Baer, 2008; Grossman et al., 2003). Additionally, mindfulness based interventions, such as an 8-week mindfulness-based cognitive therapy (MBCT) done by Luberto et al. (2018) showed improvements in levels of depression with pregnant women. Not only does this data clearly demonstrate an increased need for women who experience postpartum depression to receive mental health services, there is an opportunity to more frequently integrate mindfulness as part of the treatment intervention.

Another possible clinical implication to think about is “frontloading” mindfulness training. If mindfulness education and practice was more predominant in prenatal healthcare and childbirth classes, it would allow women the opportunity to cultivate a habit of mindfulness practice before they are overwhelmed with the changes and challenges that will inevitably come with new motherhood. Pregnancy is a time of preparation and while it is a change in and of itself, generally a pregnant mother might have more resources such as time and energy prior to the birth of her new child. While mindfulness can be taught anytime, it might be unrealistic to expect a new mom to learn and trust this new skill while she is sleep-deprived and adjusting to new parenthood. Furthermore, it could be helpful to increase overall well-being by potentially decreasing stress, increasing acceptance and nonjudgment for themselves, their partners, and their experience, and therefore contributing to a more positive parent-child relationship.

Limitations

This study has several limitations that should be noted including issues related to a fairly homogenous participant sample, particularly in relation to socio-economic status (SES). Additionally, there are limitations with how participants were recruited, measurement requirements, and the impact of the global pandemic. These limitations are explored in more detail below.

First, the demographics of the sample collected are not representative of a wide variety of populations. In particular, the sample was predominately highly educated white mothers who are married and employed at least part time with higher than average household incomes. The household income was collected in categories or “bins,” based on common ways to categorize income, such as used in the United States (US) Census. This data could look different if exact numbers were requested or if the categories were separated differently. For example, the researcher attempted to address concerns of an over inclusive range by breaking down “middle class” into two categories (\$45,000–\$99,999 and \$100,000–\$139,999), rather than using the larger category of \$45,000–\$139,999. Another limitation for household income is that the question was asked based on US currency, and some participants who responded were from or living outside the US. It is unclear if those participants ($n = 20$) converted their household income to US dollars or if they may have disregarded the currency.

Although this was a study that included participants from a variety of countries, there are several factors that may contribute to the homogenous nature of the sample collected. One of these factors is that this was a strictly online survey. This means that the only people who had access to the survey were people who had access to computer, phone, or tablet technology as well as Internet access. Not only was the survey exclusively online, but all advertising for the

project was also online. The study design was to administer the survey online, but the reason for online advertising was due to the COVID-19 pandemic. Given that only people with resources to pay for technology services could even hear about the study, it limits the demographic breadth of the sample, especially in regards to socioeconomic status. If advertising and recruitment could have been done in-person, it would have potentially allowed more access to a wider variety of new mothers. Participants could hear about the study and potentially go to a library or other public facility to access the survey. This is a limitation of this study that future research in this area should keep in mind.

As with all publicly available surveys, the results of this study should be interpreted with caution because of the possibility of self-selection bias. Self-selection bias happens when the participants choose to participate in a study, rather than being randomly selected. This could influence the results if data collected from those who chose to participate was significantly different from what the responses would have been of those who opted out of the study. Based on review of the data and the reported information about mindfulness practice, it does not appear that this sample has more experience with mindfulness practice than the average person. Given this, one can imagine that this sample is fairly representative of the general population in regards to mindfulness practice. It therefore seems unlikely that a self-selection bias towards mindfulness practice was present. However, as previously noted, this sample's PSI-4-SF total score was higher than the norm group, suggesting that this sample ($M = 80.24$, $SD = 18.32$) was more stressed than the normative sample ($M = 73.44$, $SD = 25.56$). There are a variety of reasons for why this may have occurred. One possible reason is that participants took the survey during the COVID-19 pandemic and this study did not include any measures to account for higher overall stress or COVID-19 related stress. Another reason could be that the survey was distributed

through online parenting groups, and it is possible that parents with higher degrees of stress may access these sites more frequently. It is also possible that a self-selection bias occurred whereby people with higher degrees of stress chose to participate in the study. This may have impacted the results, because the correlation between mindfulness and stress may have been weaker if the average level of stress was lower.

This study used instruments that relied on participant self-report. As with all studies that use self-reported data, it is impossible to know whether data reported by participants reflected actual experience or characteristics. For example, participants could have intentionally or unintentionally reported a higher or lower level of mindfulness or parenting stress than was actually experienced. The objective measurement of phenomenological experiences such as mindfulness and stress is a grand challenge and some would argue not fully possible. Measuring social desirability as a covariate in future studies could be a vehicle for reducing the potential confound of self-report limitations.

Finally, as indicated earlier, the COVID-19 pandemic may have had an impact on these results. While on the one hand the pandemic may have increased participation because people could have been more available to take the survey while in quarantine and potentially having more time to spend online, the pandemic may have also impacted the results in ways that are unclear. For example, people could be more stressed in general due to financial constraints, limited support from others, health concerns, balancing multiple responsibilities, and future uncertainty. It is difficult to say, but it is possible people could have also been less stressed due to slowing down, connecting more with those they live with, and practicing gratitude for what they have. If it were the case that overall stress was lower due to the pandemic, it would make the negative correlation found in this study even more interesting, especially given the PSI-4-SF

scores in this sample being higher than the scores of the norm groups. While COVID-19 adds an interesting element to think about in relation to these results, it is impossible to know the impact that it had, given that this study did not measure this specifically.

Suggestions for Future Research

Because this was a correlational study, further research is needed to evaluate the relationship between mindfulness and parenting stress using experimental studies. The causal relationship between mindfulness ability and parenting stress is unknown. Regression analyses could also be useful in appraising the relative importance of potential contributing and confounding factors. There are a number of potential confounds that could be explored. Some examples of these variables were asked about in the demographic portion of this survey and include things such as amount of time spend in mindfulness, age of the mother, age of the child or children, number of children, and socioeconomic status (SES) information.

In addition to regression analysis, one area of analysis with this data set that would be very interesting to explore is how some of the demographic information collected correlates with the scores on each of the measures. For example, does a new mother with a full time job have higher stress levels than one who does not? Does stress level decrease when income increases? Does marital status make a difference? If one were to explore any of these areas, it would be important to narrow the research question in order to avoid validity fishing and the error rate problem or alpha inflation (Marascuilo & Serlin, 1988). This is when the results found come up with a statistically significant result, just by chance, and can happen more easily if repeated statistical analyses are run without accounting for the number of tests.

Another interesting area of analysis that could be explored with this data set would be to break down the PSI-4-SF Total Score into its subscale scores, which are: parental distress (PD),

Parent-Child Dysfunctional Interaction (P-CDI), and Difficult Child (DC). The PD subscale looks at personal factors directly related to parenting, the P-CDI scale “assesses the extent to which the parent perceives the child as not meeting expectations and finds that interactions with the child are not reinforcing his or her parenting role,” and the DC scale looks at child temperament and characteristics that affect the parent-child relationship (Abidin, 2012, p. 3).

Breaking the total stress score down into subscales would help give more information about what specific aspects of parenthood are most stressful for the new mothers surveyed in this research project. This might be useful in understanding the types of stress new mothers face, and therefore interventions could be tailored to target those issues, in particular. These subscales could then be compared with the mindfulness composite score (as measured by the FFMQ) as well as the mindfulness subscales, to see if mindfulness might be related to parenting stress in a more nuanced way.

Based on the homogenous nature of the SES demographics in the sample discussed in the present study, it would be important to look into these variables with individuals of lower socioeconomic status. Research has shown differences in the type of stress that first time mothers of varying SES face. For example, Banik (2015) compared new mothers categorized as either low or high SES based on household income, and found that mothers of higher SES reported more stress related to career maintenance and advancement and mothers of lower SES reported stress related to securing financial resources to meet fundamental needs such as food and housing. This research also showed fewer protective factors for first time mothers of lower SES, such as stability and predictability in life circumstances and more reliable social support (Banik, 2015). Given the environmental stressors that mothers of a lower income bracket can face, trying to provide for the basic needs of their family, it would be interesting to see if mindfulness levels

and parenting stress levels have a negative correlation within this demographic. In a version of this study with an aim at this demographic, it could potentially still be done online, but might be useful to bring a laptop computer or tablet for in-person recruitment and measure completion.

Finally, because this was a correlational study, it would likely be productive to do an experimental study in the future. A randomized controlled trial (RCT) could test the effectiveness as mindfulness as an intervention for new moms. In this type of experimental study, participants could be given pre- and post-intervention measures to see the effectiveness of mindfulness training or mindfulness education as compared to a control group who would receive current care as usual. For the experimental group, a specific mindfulness intervention could be used, such as MBSR, or they could receive general psychoeducation about mindfulness, similar to what could be given at doctor's offices, midwifery clinics, or parenting classes. Measures might be similar to those of this study, using self-report to assess mindfulness and parenting stress levels, or biological measures could be used as well, such as heart rate monitoring or fMRI brain imaging. It would be interesting to study the same population (new moms), or potentially measure parenting stress at a different stage, such as with older children or even testing mindfulness as an intervention in pregnancy.

In summary, future research could address the limitations of this study such as expanding the range of participants in regards to socioeconomic status. As discussed, using in-person advertising and recruitment and relying less on snowball sampling and technology could expand the sample, although other positive aspects such as variety within geographic location would be lost. Future research could also expand on these results by adding additional self-report measures, running more statistical analyses to account for confounding variables with this data set, and testing the causal relationship of mindfulness interventions using experimental design.

Parenthood can simultaneously be a time of great joy and great stress. Parental stress has been demonstrated to impact the parent-child relationship in a number of ways. Fortunately, mindfulness practice appears to be negatively correlated with parental stress suggesting an increase in mindfulness practice may be a protective factor for new mothers and therefore a protective factor for the mother-child relationship. Teaching and promoting mindfulness for new mothers is another tool doctors and therapists can provide mothers as they embark in the wonderfully harrowing journey of parenthood.

References

- Ainsworth, M. S. (1989). Attachments beyond infancy. *American Psychologist*, *44*(4), 709–716. doi:10.1037/0003-066X.44.4.709
- Ainsworth, M. D., & Bell, S. M. (1970). Attachment, exploration, and separation: Illustrated by the behavior of one-year-olds in a strange situation. *Child Development*, *41*, 49–67.
- Ainsworth, M. S., & Bowlby, J. (1991). An ethological approach to personality development. *American Psychologist*, *46*(4), 333–341. doi:10.1037/0003-066X.46.4.333
- Abidin, R. A. (1995). Parenting stress index professional manual (3rd ed.). PAR.
- Abidin, R. A. (2012). Parenting stress index professional manual (4th ed.). PAR.
- Amaya-Jackson, L. (2016). The adverse childhood experiences study and beyond. *Journal of The American Academy of Child & Adolescent Psychiatry*, *55*(10), S67. doi:10.1016/j.jaac.2016.07.700
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Author.
- Baer, R. (2003). Mindfulness training as a clinical intervention: A conceptual and empirical review. *Clinical Psychology: Science and Practice*, *10*(2), 125–143.
- Baer, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using self-report assessment methods to explore facets of mindfulness. *Assessment*, *13*, 27–45.
- Baer, R. A., Smith, G. T., Lykins, E., Button, D., Krietemeyer, J., Sauer, S., Walsh, E., Duggen, D., & Williams, J. M. G. (2008). Construct validity of the five-facet mindfulness questionnaire in meditating and nonmeditating samples. *Assessment*, *15*(3), 329–342.
- Baer, R. (2016). Assessment of mindfulness and closely related constructs: Introduction to the special issue. *Psychological Assessment*, *28*(7), 787–790. doi:10.1037/pas0000309
- Barroso, N. E., Hungerford, G. M., Garcia, D., Graziano, P. A., & Bagner, D. M. (2016). Psychometric properties of the Parenting Stress Index-Short Form (PSI-SF) in a high-risk sample of mothers and their infants. *Psychological Assessment*, *28*(10), 1331–1335.
- Beebe, B., Cohen, P., & Lachman, F. (2016). *The mother-infant interaction picture book: Origins of attachment*. W. W. Norton & Company, Inc.
- Boadella, D. (2005). Affect, attachment, and attunement: Thoughts inspired in dialogue with the three volume work of Allan Schore. *Energy & Character*, *34*, 13–23.
- Bogels, S., & Restifo, K. (2015). *Mindful parenting: A guide for mental health practitioners*. W. W. Norton & Company, Inc.

- Bowlby, J. (1969). *Attachment and loss* (Vol. 1). Basic Books.
- Bowlby, J. (1982). Attachment and loss: Retrospect and prospect. *American Journal of Orthopsychiatry*, 52(4), 664–678. doi:10.1111/j.1939-0025.1982.tb01456.x
- Bowlby, J. (1988). *A secure base: Parent child attachment and healthy human development*. Basic Books.
- Bruin, E. I., Topper, M., Muskens, J. G. A. M., Bogels, S. M., & Kamphuis, J. H. (2012). Psychometric properties of the Five Facets Mindfulness Questionnaire (FFMQ) in a meditating and a non-meditating sample. *Assessment*, 19(2), 187–197. doi: 10.1177/1073191112446654
- Carmody, J., & Baer, R. A. (2008). Relationships between mindfulness practice and levels of mindfulness, medical and psychological symptoms and well-being in a mindfulness-based stress reduction program. *Journal of Behavioral Medicine*, 31, 23–33. doi: 10.1007/s10865-007-9130-7
- Chödrön, P. (2001). *The places that scare you: A guide to fearlessness in difficult times*. Shambhala Publications, Inc.
- Cohen, J., & Semple, R. J. (2010). Mindful parenting: A call for research. *Journal of Child and Family Studies*, 19(2), 145–151. doi:10.1007/s10826-009-9285-7
- Cozolino, L. (2010) *The neuroscience of psychotherapy: Healing the social brain* (2nd ed.). W. W. Norton & Company.
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). Sage.
- Dahl, J., & Lundgren, T. (2006). *Living beyond your pain: Using acceptance & commitment therapy to ease chronic pain*. New Harbinger Publications, Inc.
- Deater-Deckard, K. (2004). *Parenting stress*. Yale University Press.
- Emerson, L. M., Aktar, E., Bruin, E., Potharst, E., & Bögels, S. (2019). Mindful parenting in secondary child mental health: Key parenting predictors of treatment effects. *Mindfulness*, 12, 532–542. doi:10.1007/s12671-019-01176-w
- Esch, T. (2014). The neurobiology of meditation and mindfulness. In S. Schmidt & H. Walach (Eds.), *Meditation: Neuroscientific approaches and philosophical implications* (pp. 153–173). Cham, Switzerland: Springer International Publishing.
- Farb, N. A. S., Anderson, A. K., & Segal, Z. V. (2012). The mindful brain and emotion regulation in mood disorders. *The Canadian Journal of Psychiatry*, 57(2), 70–77. <https://doi.org/10.1177/070674371205700203>

- Fayed, N., Cifre, I., Garcia-Campayo, J., & Viguera, L. (2015). Mindfulness and neuroimaging. In *Psychiatry and neuroscience update: Bridging the divide* (pp. 389–401). Springer International Publishing. doi:10.1007/978-3-319-17103-6_27
- Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., Koss, M. P., & Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The adverse childhood experiences (ACE) study. *American Journal of Preventative Medicine, 14*(4), 245–258.
- Field, A. (2009). *Discovering statistics using SPSS* (3rd ed.). Sage Publications Inc.
- Fowler, F. J. (2009). *Survey research methods: Applied social research methods series* (4th ed.). Sage.
- Foxman, P. (2007). *Dancing with fear: Controlling stress and creating a life beyond panic and anxiety* (2nd ed.). Hunter House.
- Frewen, P. A., Evans, E. M., Maraj, N., Dozois, D. J. A., & Partridge, K. (2008). Letting go: Mindfulness and negative automatic thinking. *Cognitive Therapy and Research, 32*(6), 758–774. doi:10.1007/s10608-007-9142-1
- Groer, M., Meagher, M. W., & Kendall-Tackett, K. (2010). An overview of stress and immunity. In K. Kendall-Tackett (Ed.), *The psychoneuroimmunology of chronic disease: Exploring the links between inflammation, stress, and illness* (pp. 9–22). American Psychological Association.
- Grossman, P., Niemann, L., Schmidt, S., & Walach, H. (2003). Mindfulness-based stress reduction and health benefits: A meta-analysis. *Journal of Psychosomatic Research, 57*(1), 35–43. doi: 10.1016/S0022-3999(03)00573-7
- Gunaratana, B. H. (2002). *Mindfulness in plain English*. Wisdom.
- Hadadian, A., & Merbler, J. (1996). Mother's stress: Implications for attachment relationships. *Early Child Development & Care, 125*, 59–66.
- Haskett, M. E., Ahern, L. S., Ward, C. S., & Allaire, J. C. (2006). Factor structure and validity of the Parenting Stress Index-Short Form. *Journal of Clinical Child and Adolescent Psychology, 35*(2), 302–312.
- Hayes, S. C., & Pierson, H. (2005). Acceptance and commitment therapy. In A. Freeman, S. H. Felgoise, A. M. Nezu, C. M. Nezu, & M. A. Reinecke (Eds.), *Encyclopedia of cognitive behavioral therapy* (pp. 1–4). Springer.
- Hughes, A., Williams, M., Bardacke, N., Duncan, L. G., Dimidjian, S., & Goodman, S. H. (2009). Mindfulness approaches to childbirth and parenting. *British Journal of Midwifery, 17*(10), 630–635. doi:10.12968/bjom.2009.17.10.44470

- Jeannerod, M., Arbib, M. A., Rizzolatti, G., & Sakata, H. (1995). Grasping objects: The cortical mechanism of visuomotor transformation. *Trends in Neurosciences*, *18*, 314–320.
- Johnson, J. G., Cohen, P., Brown, J., Smailes, E. M., & Bernstein, D. P. (1999). Childhood maltreatment increases risk for personality disorders during early adulthood. *Archives of General Psychiatry*, *56*, 600–606.
- Kabat-Zinn, J. (1990). *Full catastrophe living: Using the wisdom of your body and mind to face stress, pain, and illness*. Delta.
- Kabat-Zinn, J. (1994). *Wherever you go there you are: Mindfulness meditation in everyday life*. Hyperion Pub. Co.
- Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clinical Psychology: Science and Practice*, *10*(2), 144–156.
- Kabat-Zinn, J., & Kabat-Zinn, M. (1997). *Everyday blessings: The inner work of mindful parenting*. Hyperion Press.
- Keng, S-L., Smoski, M. J., Robins, C. J., Ekblad, A. G., & Brantley, J. G. (2012). Mechanisms of change in mindfulness-based stress reduction: Self-compassion and mindfulness as mediators of intervention outcome. *Journal of Cognitive Psychotherapy: An International Quarterly*, *26*(3), 270–280.
- Khoury, B., Sharma, M., Rush, S. E., & Fournier, C. (2015). Mindfulness-based stress reduction for healthy individuals: A meta-analysis. *Journal of Psychosomatic Research*, *78*, 519–528.
- Leonard, B. E. (2002). Stress, norepinephrine and depression. *Acta Neuropsychiatrica*, *14*(4), 173–180. doi:10.1034/J.1601-5215.2002.140403.X
- Linehan, M. (2014). *DBT® skills training manual, second edition*. The Guilford Press.
- Lipsky, L. v. D., & Burk, C. (2009). *Trauma stewardship: An everyday guide to caring for self while caring for others*. Berrett-Koehler Publishers.
- Luberto, C. M., Park, E. R., & Goodman, J. H. (2018). Postpartum outcomes and formal mindfulness practice in mindfulness-based cognitive therapy for perinatal women. *Mindfulness*, *9*(3), 850–859. doi:10.1007/S12671-017-0825-8
- Luoma, J. B., Hayes, S. C., & Wasler, R. D. (2007). *Learning ACT: An acceptance and commitment therapy skills-training manual for therapists*. New Harbinger Publication, Inc.
- Main, M. (1979) The “ultimate” causation of some infant attachment phenomena. *Behavioral and Brain Sciences*, *2*, 640–643.

- Marascuilo, L. A., & Serlin, R. C. (1988). *A series of books in psychology: Statistical methods for the social and behavioral sciences*. W H Freeman/Times Books/ Henry Holt & Co.
- Marlatt, G. A., & Kristeller, J. L. (1999). Mindfulness and meditation. In W. R. Miller (Ed.), *Integrating spirituality into treatment: Resources for practitioners* (pp. 67–84). American Psychological Association.
- Matsuzawa, J., Matsui, M., Konishi, T., Noguchi, K., Gur, R. C., Bilker, W., & Miyawaki, T. (2001). Age-related changes of brain gray and white matter in healthy infants and children. *Cerebral Cortex*, *11*, 335–342.
- McComish, J. F. (2015). Infant mental health and attachment. *Journal of Child & Adolescent Psychiatric Nursing*, *28*(2), 63–64. doi:10.1111/jcap.12114
- McKay, M., Davis, M., & Fanning, P. (2007). *Thoughts & feelings: Taking control of your moods & your life*. New Harbinger Publications.
- Mooney, C. G. (2009). *Theories of attachment: An introduction to Bowlby, Ainsworth, Gerber, Brazelton, Kennell, & Klaus*. Redleaf Press.
- Moreira, H., & Canavarro, M. C. (2018). The association between self-critical rumination and parenting stress: The mediating role of mindful parenting. *Journal of Child and Family Studies*, *27*, 2265–2275. doi:10.1007/s10826-018-1072-x
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). McGraw-Hill.
- Olson, E. A., Unger, H., Kaklauskas, F. J., & Swann, L. E. (2008). Mothering in the moment: Explorations on mindfulness in mothering and therapeutic experiences. In F. J. Kaklauskas, S. Nimanheminda, & L. Hoffman (Eds.), *Brilliant sanity: Buddhist approaches to psychotherapy* (pp. 309–334). University of the Rockies Press.
- Pearce, L. (2005). Maternal instinct. *Nursing Standard*, *19*(17), 18.
- Perez-Blasco, J., Viguer, P., & Rodrigo, M. F. (2013). Effects of a mindfulness-based intervention on psychological distress, well-being, and maternal self-efficacy in breast-feeding mothers: Results of a pilot study. *Archives of Women's Mental Health*, *16*(3), 227–236. doi:10.1007/s00737-013-0337-z
- Persson, P. B., & Zakrisson, A. (2016). Stress. *Acta Physiologica*, *216*(2), 149–152. doi:10.1111/apha.12641
- Powell, B., Cooper, G., Hoffman, K., & Marvin, B. (2014). *The circle of security intervention: Enhancing attachment in early parent-child relationships*. Guilford.
- Race, K. (2013). *Mindful parenting: Simple and powerful solutions for raising creative, engaged, happy kids in today's hectic world*. St. Martin's Griffin.

- Rayan, A., & Ahmad, M. (2018). Mindfulness and parenting distress among parents of children with disabilities: A literature review. *Perspectives in Psychiatric Care*, 54(2), 324–330. doi:10.1111/ppc.12217
- Reitman, D., Currier, R. O., & Stickle, T. R. (2002). A critical evaluation of the Parenting Stress Index-Short Form (PSI-SF) in a head start population. *Journal of Clinical Child and Adolescent Psychology*, 53, 31(3), 384–392. doi:10.1207/S15374424JCCP3103_10
- Rodgers, A. Y. (1993). The assessment of variables related to the parenting behavior of mothers with young children. *Child and Youth Services Review*, 15, 385–402.
- Roggman, L. A., Moe, S. T., Hart, A. D., & Forthun, L. F. (1994). Family leisure and social support: Relations with parenting stress and psychological well-being in Head Start Parents. *Early Childhood Research Quarterly*, 9, 463–480.
- Ruiz, F. J. (2010). A review of acceptance and commitment therapy (ACT) empirical evidence: Correctional, experimental psychopathology, component and outcome studies. *International Journal of Psychology and Psychological Therapy*, 10(1), 125–162.
- Salkind, N. J. (2010). *Statistics for people who (think they) hate statistics* (2nd ed., Excel ed.). Sage.
- Schore, A. N. (2001). Effects of a secure attachment relationship on right brain development, affect regulation, and infant mental health. *Infant Mental Health Journal*, 22(1-2), 7–66.
- Schore, A. N. (2003). Early relational trauma, disorganized attachment, and the development of a predisposition to violence. In M. F. Solomon & D. J. Siegel (Eds.), *Healing trauma: Attachment, mind, body, and brain* (pp. 107–167). W. W. Norton & Company.
- Schore, A. N. (2016). *Affect regulation and the origin of the self: The neurobiology of emotional development* (Classic edition). Routledge.
- Schwartz, J. (2015). The unacknowledged history of John Bowlby's attachment theory. *British Journal of Psychotherapy*, 31(2), 251–266. doi:10.1111/bjp.12149
- Selye, H. (1973). The evolution of the stress concept. *American Scientist*, 61(6), 692–699.
- Shanker, S. (2017). *Self-Reg: How to help your child (and you) break the stress cycle and successfully engage with life*. Penguin Books.
- Shapiro, S., & White, C. (2014). *Mindful discipline: A loving approach to setting limits and raising an emotionally intelligent child*. New Harbinger Publications, Inc.
- Siegel, D. J. (1999). *The developing mind: How relationships and the brain interact to shape who we are*. The Guilford Press.
- Siegel, D. J. (2007). *The mindful brain: Reflection and attunement in the cultivation of well-being*. W. W. Norton & Company, Inc.

- Siegel, D. J., & Hartzell, M. (2014). *Parenting from the inside out: How a deeper self-understanding can help you raise children who thrive*. New York, NY: Penguin Group, LLC.
- Singh, N. N., Lancioni, G. E., Winton, A. W., Fisher, B. C., Wahler, R. G., McAleavey, K., & Singh, J., & Sabaawi, M. (2006). Mindful parenting decreases aggression, noncompliance, and self-injury in children with autism. *Journal of Emotional and Behavioral Disorders, 14*(3), 169–177. doi:10.1177/10634266060140030401
- Singh, N. N., Singh, A. N., Lancioni, G. E., Singh, J., Winton, A. W., & Adkins, A. D. (2010). Mindfulness training for parents and their children with ADHD increases the children's compliance. *Journal of Child And Family Studies, 19*(2), 157–166. doi:10.1007/s10826-009-9272-z
- Snyder, R. A. (2010). *Mindful mamas: A phenomenological study of mindfulness in early motherhood* (Publication No. 219998471). [Doctoral Dissertation, California Institute of Integral Studies]. PQDT Open. <http://search.proquest.com.antioch.idm.oclc.org/docview/219998471?accountid=26438>
- Solis, M. L., & Abidin, R. R. (1991). The Spanish version of the Parenting Stress Index: A psychometric study. *Journal of Clinical Child Psychology, 20*, 372–378.
- Stern, D. N. (1977). *The first relationship: Infant and mother*. Harvard University Press.
- Stress. (2017). *Dictionary.com*. Retrieved from <https://www.dictionary.com/browse/stress>
- Sue, V. M., & Ritter, L. A. (2007). *Conducting online surveys*. Sage.
- Thera, N. (1973). *The heart of Buddhist meditation: The Buddha's way of mindfulness*. Samuel Weiser, Inc.
- Vollestad, J., Sivertsen, B., & Nielsen, G., H. (2011). Mindfulness-based stress reduction for patients with anxiety disorders: Evaluation in a randomized controlled trial. *Behaviour Research and Therapy, 49*, 281–288.
- Wallin, D. J. (2007). *Attachment in psychotherapy*. The Guilford Press.
- Williams, M. J., Dalgleish, T., Karl, A., & Kuyken, W. (2014). Examining the factor structures of the five facet mindfulness questionnaire and the self-compassion scale. *Psychological Assessment, 26*(2), 407–418. <https://doi.org/10.1037/a0035566>
- Yang, C-C., Barrós-Loscertales, A., Pinazo, D., Ventura-Campos, N., Borchardt, V., Bustamante, J. C., Rodríguez-Pujadas, A., Fuentes-Claramonte, P., Balaguer, R., Ávila C., & Walter, M. (2016). State and training effects of mindfulness meditation on brain networks reflect neuronal mechanisms of its antidepressant effect. *Neural Plasticity, 2016*, 9504642, 1–14. doi:10.1155/2016/9504642

Appendix A: Demographic Questionnaire

What is your date of birth? (MM/DD/YYYY)

How old are you today?

What race do you consider yourself? Please select all that apply for you.

- Alaska Native
- American Indian
- Asian
- Black or African American
- Native Hawaiian or other Pacific Islander
- White
- Other (please describe)

Are you Hispanic or Latino?

- Yes
- No

Do you currently live in the United States of America?

- Yes
- No

If yes, What is your 5-digit residential zip code? (If you'd rather not respond, please type 99999).

If no, In what country do you currently live?

What is your marital status?

- Single
- Married (legally)
- In a committed relationship, not living together
- In a committed relationship, living together
- Widowed
- Divorced
- Other (please describe)

What is the highest degree or level of education you have completed?

- Less than 12th grade
- High school diploma or GED
- Some college
- Technical school certificate
- Associate Degree (for example: AA, AS)
- Bachelor's degree (for example: BA, AB, BS)
- Master's degree (for example: MA, MS, MEng, MEd, MSW, MBA)
- Professional degree (for example: MD, DDS, DVM, LLB, JD)
- Doctoral degree (for example: PhD, PsyD, EdD)

What is your estimated total household annual income?

- Less than \$20,000
- \$20,000 - \$44,999
- \$45,000 - \$99,999
- \$100,000 - \$139,000
- \$140,000 - \$149,000
- \$150,000 - \$199,999
- \$200,000+
- Would rather not say

Employment status

- Employed full time (35+ hrs per week)
- Employed part-time
- Unemployed, looking for work
- Unemployed, disabled
- Unemployed, volunteer work
- Unemployed, retired
- Unemployed, not looking for work
- Homemaker
- Other (please describe)

How many children do you have?

- 1 child
- 2 children
- 3 children
- 4 children
- 5 or more children

How old is your child?

What is the sex of your child(ren)? (This question was in branched format, depending on the response to “how many children,” the participant was asked the age and sex of each child, and if they experienced post partum depression after each child)

Did you experience post partum depression after the birth of your child? (Or “first child,” “second child,” etc.)

Did you receive any treatment after the birth of your child?

Did your postpartum depression treatment after the birth of your child include mindfulness?

Had you heard about the concept of mindfulness prior to being introduced to this study?

- Yes
- No

How much time would you estimate you spend per week doing formal mindfulness practice (e.g. meditation, yoga, breath work, body scan)?

a. (Enter time in minutes)

Appendix B: Sample Recruitment Advertisement

reddit r/beyondthebump Search Get Coins Jess_Laz 0 karma

r/beyondthebump

Posts

Posted by u/Jess_Laz just now

1

New Moms Needed for Research Study!

Hi there, new moms of Reddit <3

I'm looking for **new moms (children ages 0-3)** who would be willing to take a 15-30 minute online survey. This study is part of my dissertation for a clinical psychology program at Antioch University Seattle. I'm looking at the relationship between mindfulness and parenting stress.

At the end of the survey, you have the option to enter to **win a \$50 Amazon gift card**.

To see if you qualify, or to pass this on to someone you think might be interested, please see the following link: https://redcap.link/mindfulness_and_parenting_stress-screener

Thank you for your interest and for reading. I have a 6-year-old daughter, and I have a fond place in my heart for new parenthood. Wishing you all the best!

0 Comments Share Edit Post Save Hide ... 100% Upvoted

Comment as Jess_Laz

B *i* ... Markdown mode COMMENT

About Community

r/beyondthebump

A place for new parents, new parents to be and old parents who want to help out. Posts focusing on the transition into living with your new little one and any issues that may come up. Ranting and gushing is welcome!

144k Members 864 Online

Created Apr 29, 2012

JOIN

CREATE POST

Appendix C: Online Screening Questions

Thank you for your interest in participating in this research study. We are interested in finding out if there is a relationship between levels of mindfulness and levels of parenting stress in new mothers.

If the study is a good match for you, and you decide to participate, you will be asked to complete an online survey which will take approximately *15 minutes* to complete. If you'd like, you can provide your email address at the end of the survey to be entered into a raffle for a \$50 Amazon gift card.

How did you hear about this research study?

- Saw a flyer
- Ad on a webpage
- Email on a listserv
- Facebook message
- Facebook ad
- Email from a friend or colleague
- Other (please describe)

To see if you are a good fit for the study, please answer the following questions:

1. Are you able to read and understand questions presented in English?
2. Are you biologically female?
3. Do you identify as the female gender?
4. Was your first child born after March 3, 2017 [or applicable date]?
5. Are any of your children adopted?
6. Have you been diagnosed with post partum depression?

(If screened in →)

Thank you for taking the time to complete the initial screening! It appears you are a good fit for this study. Please click forward to review the informed consent to participate.

(If screened out→)

We appreciate you taking the time to answer these questions. Unfortunately, there are some ways this study may not be a good fit for you.

Appendix D: Consent Form

CONSENT FORM

Examining the Relationship Between Five Factors of Mindfulness and Parenting Stress: A Correlational Study of New Mothers

Project Investigator: Jessica Lazaro, MA, LMHC, XXX-XXX-XXXX, jlazaro@antioch.edu
Dissertation Chair: William Heusler, PsyD, XXX-XXX-XXXX, wheusler@antioch.edu

Thank you for considering participation in this research project. The PsyD Program at Antioch University Seattle supports the practice of protection for human participants in research and related activities. The following information is provided so that you can decide whether you wish to participate in the present study.

My signature below represents that I acknowledge the following:

1. I understand that this study is of a research nature. It may offer no direct benefit to me.
2. Participation in this study is voluntary. I may refuse to enter it or may withdraw at any time without creating any harmful consequences to myself.
3. This project is for the purpose of scholastic research. The goal of this study is better understand the relationship between levels of mindfulness and levels of parenting stress in new mothers.
4. As a participant in the study, I will be asked to take part in completing some demographic information and two formal measures. Participation in the study will take approximately 15-30 minutes of my time and will take place online.
5. The risks, discomforts and inconveniences of the above procedures might be:
 - a. Time spent answering questions online.
 - b. Feeling uncomfortable about some of the questions being asked
 - c. Possibly questioning how you react to stress or how stress impacts your behavior.
6. The possible benefits of the procedure might be:
 - a. Direct benefit to me: I might learn about myself and my behaviors. I may benefit from learning that I am not alone in my parenting stress. I may also feel good about helping in a research effort aimed at reducing parenting stress in new mothers and improving the parent-child relationship. There may also be no direct benefit to me.
 - b. Benefits to others: Others might benefit from my participation in this study if the community better understands ways to support to new mothers.

7. I understand that after completing the survey, I may choose to enter my email address for the chance to win a \$50 Amazon gift card. This information will not be linked to my survey results, but could prohibit my participation from being completely anonymous.

8. I understand that the confidentiality of my information will be protected at all times. Personal identifiers will not be linked to the data collected. There is a possibility raw data will be shared with the creators of the instruments used. This will not include any identifying information.

9. Though the purpose of this study is primarily to fulfill the investigator's requirement to complete a formal research project as a dissertation at Antioch University, the investigator also intends to potentially include the data and results of the study in future scholarly publications and presentations. Our confidentiality agreement, as articulated above, will be effective in all cases of data sharing.

I have read and understand all information provided about this study. If I have any questions about the study, I may contact Jessica Lazaro, at telephone # XXX-XXX-XXXX or via email at jlazaro@antioch.edu. I may also contact the dissertation chairperson.

If I have questions about my rights as a research participant, I can call Antioch's Internal Review Board at 206-441-5352.

I AGREE to participate

I DECLINE to participate

Date: _____ Signed: _____