

Attachment Theory and Mindfulness

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Abstract We initiate a dialog between two central areas in the field of psychology today: attachment theory/research and mindfulness studies. The impact of the early mother-infant relationship on child development has been well established in the literature, with attachment theorists having focused on the correlation between a mother's capacity for self-regulation and connection (e.g., attunement) with children's health and developmental outcomes. Because the transition to parenthood is often a stressful one, research has also focused on the importance of the mother's external and internal support (e.g., self-awareness, recognition of needs) in promoting healthy mother-infant relationships. One promising field in relation to increased internal support is mindfulness, a practice shown to increase emotional regulation while decreasing stress and anxiety. Described as non-judgmental, present-moment awareness, mindfulness has received significant empirical attention over the past three decades and has recently been theorized as an important contributing factor in healthy mother-child relationships. Recognizing the potentially beneficial effects of mindfulness training on healthy attachment, this article reviews relevant literature in presenting a case for exploratory and empirical research into the dynamic relationship between mindfulness, attachment style, maternal health, and children's development. Grounds for this convergence, as well as suggestions for future research, are presented.

Keywords Attachment · Mindfulness · Affect regulation · Postpartum depression · Maternal stress

Introduction

The importance of the early mother-infant relationship on children's development has been well established in the literature (e.g., Schore 1994; Siegel and Hartzell 2003; Sroufe 1988). Research has shown that a mother's ability to attune, regulate, and appropriately respond to an infant has significant relational and developmental implications (Bowlby 1988; Brennan et al. 2000; Da Costa et al. 2000; Greenberg and Speltz 1988; Kendall-Tackett 2001; Sroufe 1988; Stern 1977). For example, depressed mothers with restricted affect, creating poor attunement, have more negative interactions with their children, leading to future behavioral problems (Brennan et al. 2000). Whereas, mother-infant dyads that include successful attunement and regulation have been linked with positive developmental outcomes and greater well-being for the children (Schore 1994).

The transition to parenthood is a time of potential stress for mothers (Crnic et al. 1983; Feeney 2003). Although research has addressed the importance of *external* maternal support during this crucial time, the quality of the mother's *internal* support (e.g., self-awareness, emotional regulation, and recognition of needs) has emerged as an increasingly important factor (Bialy 2006; Schore 1994; Siegel and Hartzell 2003).

One promising focus of research in this area is the field of mindfulness. Mindfulness training teaches individuals to pay attention to their present-moment experience, enabling

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practitioners to increase self-awareness and the ability to “reperceive” experiences to prevent habitual self-identified reactions (Orzech et al. 2009; Shapiro et al. 2006). Research on the impact of mindfulness programs has shown promising results in the areas of reduction of psychological distress and affective disturbance, increases in affect/emotion regulation, and decreases in overall stress and anxiety (Astin 1997; Kabat-Zinn et al. 1985; Shapiro et al. 1998, 2007; Specia et al. 2000, 2006). Hence, mindfulness has been increasingly viewed as a factor in influencing more optimal human functioning.

In recent years, popular and empirical research has begun to explore the dynamic relationship between mindfulness and parenting. Topics have included the potential benefits of mindfulness during pregnancy (Duncan and Bardacke 2010; Vieten and Astin 2008), the impact of parents’ mindfulness practice on children’s behavior (Singh et al. 2006, 2007), and the impact of teaching mindfulness to new mothers with their infants present (e.g., Hassan 2008; Vieten and Astin 2008). Recognizing the potentially beneficial effects of mindfulness training on healthy attachment, we review literature in both areas to present a case for both exploratory and empirical research into the dynamic relationship between mindfulness, attachment style, maternal health, and children’s development. The overall intention is to promote dialog between these areas of research as an avenue for the promotion of well-being and flourishing for children and their parents.

Overview of Attachment Theory

Attachment theory, formulated by Bowlby (1988), is a psychological theory of human connection. Attachment theory suggests that (a) human beings are wired to connect with one another emotionally, in intimate relationships; (b) there is a powerful influence on children’s development by the way they are treated by their parents, especially by their mothers; and (c) a theory of developmental pathways can explain later tendencies in relationship based on such early experiences. Attachment theory regards intimacy as a basic component of human nature, present in germinal form from infancy onward. Human infants are hard-wired to develop a set of behavioral patterns that, given the appropriate environment, will result in keeping close proximity to those who provide care.

Children’s earliest relationships—often with their mothers—are considered by attachment theorists to create a template that shapes our expectations for future relationships (Siegel and Hartzell 2003). According to Stern (1977), maternal behavior is “the raw material from the outside world” with which the infant begins to construct knowledge and experience of “all things human” (p. 23).

In this way, the mother serves as an initial template for human presence, the human face and voice, units of meaning of human behavior, and the relationship between one’s own behavior and someone else’s behavior (Stern 1977). This mother–child loop teaches the infant ground rules for relationships, including social pace, conversational guidelines, attunement, and self-regulation (Goleman 2006). In attachment terminology, the infant develops an “internal working model” for how relationships work and how one is to act within them through internalizing these early experiences with his mother (Schorre 1994).

Types of Attachment

Four major categories of attachment, with corresponding characteristics, associated behaviors, and implications for later development, have been discerned for children: secure, (insecure) avoidant, (insecure) anxious/ambivalent, and (insecure) disorganized (Bretherton 1992; Schore 2001). Attachment patterns have generally been found to persist once developed, both because parents tend to treat children in the same way, and also because such patterns tend to be self-perpetuating (Bowlby 1988).

Research has found that secure attachment leads to beneficial results, while insecure attachment presents developmental risks for the growing child (Bowlby 1988; Da Costa et al. 2000; Feeney et al. 2003; Greenberg and Speltz 1988; Schore 2001; Siegel and Hartzell 2003; Sroufe 1988). In a secure attachment, the child senses the parent is a secure base from which to venture and return to safety (Bialy 2006). The mother in this pattern can nourish the child physically and emotionally, she will comfort him when he is distressed, and she will reassure him when he is frightened. She will be there for her child when called upon (Bowlby 1988). According to Schore (2001), the basis of secure attachment comes from a healthy dyadic emotional process. This process includes attunement, empathy, affective resonance, gaze sharing, entrained vocal rhythms, and mutually shared pleasure primarily mediated by the right front brain and associated with positive affective states (Siegel and Hartzell 2003). A study in Minneapolis observed children who showed secure attachment patterns at 1-year-old and then followed them into nursery school. At age 4.5, these children were described as cheerful and popular; while the children who showed insecure attachment styles were seen as unhappy and alienated (Bowlby 1988).

Studies following children with insecure attachment have found less optimistic results. Infant-parent dyads with compromised attachment bonds have demonstrated a greater likelihood for impaired social, psychological, and

neurobiological functioning over time (Schoore 1994, 2001). This in turn has increased the chances for the children to develop psychopathology throughout their lifespan (Da Costa et al. 2000; Greenberg and Speltz 1988; Sroufe 1988). Insecure attachment has been linked to depressive symptoms and less constructive responses in stressful situations (Feeney et al. 2003). Children with insecure attachments are less likely to be cheerful, often find intimate relationships difficult, and tend to be vulnerable in conditions of adversity (Bowlby 1988). They are also likely to have difficulties if they want to marry and have children of their own (Bowlby 1988).

Intergenerational Transmission of Attachment

These various styles of attachment are deeply influenced by a mother's personal experiences, especially with her own parents (Bowlby 1988). Hence, the influence from mother to child begins very early, possibly even prenatally (Brazelton and Cramer 1990). The finding that many children show attachment patterns that are the same as their mothers' has given rise to the concept of "intergenerational transmission" of attachment styles (Siegel and Hartzell 2003). From this perspective, mothers interact with their infants in much the same way as their mothers interacted with them; and therefore, they "pass on" the same type of attachment pattern. Intergenerational transmission of attachment patterns has been shown to occur frequently in families, with a meta-analysis of 18 studies and a combined sample of 854 parent–child dyads reporting the effect size of the correlation to be "quite strong" (at $d = 1.06$ or $r = .47$) between parents and their infants (Van Ijzendoorn and Bakermans-Kranenburg 1997).

Intergenerational transmission, however, is not considered to lead to permanent results for mothers and their children. In fact, theorists have written about "earned security," a term describing how an individual with an insecure attachment style can "earn" a secure attachment style over time (Siegel and Hartzell 2003; Van Ijzendoorn and Bakermans-Kranenburg 1997). According to Bowlby (1988), our course of development is never entirely fixed: we can be affected negatively by adversity at any time, but we can also be impacted by favorable influences at any time as well. Two key factors in people who have earned security are supportive relationships that have helped heal old wounds and a capacity towards self-understanding (Siegel and Hartzell 2003). If a mother with a difficult past can make sense of her history, she can tell a coherent narrative of her life. This narrative requires a level of self-reflection and self-awareness, and it is considered to be a marker of secure attachments (Bowlby 1988; Siegel 2007; Siegel and Hartzell 2003). One way that this type of self-awareness can

be cultivated is through mindfulness practice, which will be further discussed below (Siegel 2007; Wallin 2007).

The fact that a mother's style of attachment can change bodes well for her children. This implies that if she is able to engage in activities that support healthy, secure attachment, she will likely interact differently with her children; and they, too, will reap the benefits (Bowlby 1988; Siegel and Hartzell 2003). As aforementioned, because the transition to parenthood is a time of added stress and therefore a heightened experience of attachment patterning, it is also a time of great potential for relational change (Feeney et al. 2003). This is a time when the mother's working models of attachment may be particularly malleable and, therefore, it is a crucial time in the life cycle of relationships (Bialy 2006; Feeney et al. 2003).

Though this will be addressed in greater detail in this article, it is important to note here how mindfulness practice might aid a mother in "earning" a secure attachment. Siegel (2007) delineated how mindfulness practice strengthens the very areas of the brain associated with healthy, secure relating. Through practicing mindfulness, one is thought to develop a greater sense of self-awareness, insight, and understanding, as well as the possibility for deeper and healthier relating. For example, research conducted by Carson et al. (2004) indicated that mindfulness practice enhances healthy relating in couples. In general, it has been proposed that engaging in a mindfulness practice may be one way an individual can develop a secure attachment with herself, attending to her moment-to-moment experience with awareness and compassion. This secure self-attachment can then be the platform from which she engages in relating with her children.

Affect Regulation and Parenting

Another important topic discussed in the attachment and child development literature is "affect regulation." In regards to parenting and attachment, a mother provides her infant with a template for affect regulation through her ability to regulate her own affect in daily life (Schoore 1994). Siegel and Hartzell (2003) explained that parental communication in such moments impacts the child's prefrontal cortex, associated with self-awareness, attention, and emotional communication, and the neocortex, associated with reasoning, motivation, and instincts. Successful affect regulation in mother and in child is associated with positive relational and developmental outcomes (Schoore 1994, 2001), whereas unsuccessful affect regulation is correlated with various long-term negative outcomes (Krakowski 2003; Schoore 1994, 2001).

Affect regulation is also important because of mothers' increased vulnerability to difficult emotions. Research has

shown that maternal stress/anxiety and maternal negative mood/depression affect children's attachment security and future development (Brennan et al. 2000; Crnic et al. 1986; Kendall-Tackett 2001). While birth is generally viewed as a positive experience, it can also be accompanied by negative life changes such as financial strains, less time for oneself, isolation, changes in sleep patterns, and possible job and income loss (Crnic et al. 1983; Kendall-Tackett 2001; Paris and Dubus 2005). Women at this time have been found to have an increased risk for mood disorders such as anxiety and depression (Field et al. 1985; Hopkins et al. 1984; Ogrodniczuk and Piper 2003; O'Hara 1995; O'Hara et al. 1984; Paris and Dubus 2005). Mothers suffering from such difficulties have also been shown to have less positive feelings towards their infants and to lack the ability to adequately mirror their infant's emotional states and respond to their cues (Bialy 2006; Crnic et al. 1983; Field et al. 1985; Schore 1994; Stern 1977). This can, in turn, lead to a negative feedback loop in which the infant begins to provide less clear cues, the mother experiences heightened stress in not knowing what the infant needs, and the negative loop intensifies (Crnic et al. 1983). Therefore, it is important for mothers to develop skills for self-awareness and emotion regulation, in order to interrupt this pattern. Mindfulness practice is one avenue for self-awareness and emotion regulation that may be of significant benefit to new mothers.

Mindfulness: Description and Definition

Mindfulness, defined by Kabat-Zinn (1994) as “paying attention in a particular way: on purpose, in the present-moment, and nonjudgmentally” (p. 4), is an increasingly prevalent concept in research literature and clinical programs. It is a complex, multifaceted construct. In a more recent article, Shapiro and Carlson (2009) described three core elements of mindfulness: (1) intention, (2) attention and, (3) attitude. Intention provides the purpose for why one is paying attention and it sets the direction for the practice. Attention is said to refer to the conscious attention towards the “here and now” of one's moment-to-moment experience. By focusing one's attention on present-moment sensations and experiences, the practitioner can learn to see through her habitual reactions and cultivate healthier, more adaptive ways of responding to life circumstances (Shapiro et al. 2005; Teasdale et al. 2000). Finally, attitude refers to how one pays attention, infusing the attention with a quality of acceptance, openness, and discernment.

The attitude cultivated in mindfulness practice has been described as an “approach-based strategy,” in the sense that one stays with, or even moves towards each experience whether enjoyable or not. The practitioner suspends the

ordinary tendency to alter experiences that are painful or aversive, and, ironically, through this deep acceptance of what is happening, is released from much suffering (Siegel 2007).

Mechanisms and Benefits of Mindfulness

Various theories have been proposed as to the underlying mechanisms that lead to the benefits of mindfulness practice. One area of research that has recently received much attention is the impact of the practice on the nervous system. Mindful awareness is a form of experience that appears to promote neural plasticity, implying that practicing meditation can actually change the structure of the brain (Siegel 2007). In one study, Davidson et al. (2003) found significant increases in anterior activation in the brains of meditators compared to non-meditators. This anterior activation was associated with positive affect and compassion and with reductions in anxiety and negative affect. These changes in the brain were found for at least 4 months following the intervention. In another study by Lazar et al. (2005), mindfulness meditation was shown to lead to alterations in the brain in the areas that are responsible for empathy and self-observation.

A related way to think of the mechanisms of mindfulness is to look at the cognitive shifts that happen when an individual practices over time. Many researchers have described mindfulness as promoting a “metacognitive” ability, in which the practitioner develops the capacity to observe her own mental processes (Baer 2003; Bialy 2006; Bishop 2002). This metacognitive ability has also been termed “decentering” (Bondolfi 2005; Teasdale et al. 2000) and “reperceiving” (Shapiro et al. 2006). In this metacognitive process, the meditator learns to observe thoughts as “thoughts,” as opposed to “reality” and is therefore freer to “respond” to potentially anxiety-provoking situations with greater effectiveness rather than to “react” with escalating panic or fear (Miller et al. 1995). Shapiro et al. (2006) described this process as such: “If we can see a situation and our own internal reactions to it with greater clarity, we can respond with greater freedom of choice” (p. 381). The authors suggested that this shift in perspective changes one's relationship to her thoughts and emotions, resulting in greater clarity, perspective, objectivity, and equanimity. As an example, when an individual is having a difficult emotional experience, she can step back from the experience to see it clearly as simply an emotional state that is arising and will in time pass away. The knowledge of the impermanence of all phenomena can allow for a greater tolerance of unpleasant states of being.

Some of the overall findings from studies of Mindfulness-Based Stress Reduction, the most popular and most

researched mindfulness-based program, showed pain reduction (Kabat-Zinn et al. 1985); improved body image (Kabat-Zinn et al. 1985); decreased mood disturbance and psychological symptomatology, including depression and anxiety (Astin 1997; Brown and Ryan 2003; Kabat-Zinn et al. 1985, 1986, 1992; Miller et al. 1995; Shapiro et al. 1998, 2005, 2007; Speca et al. 2000); and increased positive states, including resilience, self-esteem, compassion, and overall well-being (Astin 1997; Feldman et al. 2007; Kabat-Zinn et al. 1985; Shapiro et al. 1998, 2005, 2007). Beneficial results from participation in MBSR have been found in both clinical and non-clinical populations.

Several other mindfulness-based programs have also shown beneficial results. Mindfulness-Based Cognitive Therapy has been shown to be effective in the treatment of relapse prevention for depression (Teasdale et al. 2000, 2002). Acceptance and Commitment Therapy has also been shown to be at least as effective as traditional cognitive therapy for treating anxiety and depression (Forman et al. 2007). Finally, clients who received Dialectical Behavior Therapy, which teaches “core mindfulness skills” to its severely emotionally distressed participants, were found to have fewer incidences of self-harm and less medically severe self-harm, they were more likely to stay in individual therapy, and they had fewer inpatient psychiatric days than patients who experienced treatment as usual (Linehan et al. 1991).

Mindfulness and Relationship

An important area beginning to receive attention in mindfulness literature is the impact of mindfulness on interpersonal relationships. In some ways, this concept seems counterintuitive, as the word “meditation” conjures images of solitude. However, the practice of meditation and the cultivation of mindfulness have been proposed to greatly impact interpersonal relationships (Siegel 2007; Wallin 2007). The intrapersonal and interpersonal aspects of mindfulness, and the way they relate with one another, are discussed in this section.

Research presents a number of reasons supporting why mindfulness may promote healthy relating. One is the quality of presence that is fostered through mindfulness practice. According to Siegel (2007), presence in a parent, teacher, or psychotherapist connotes one’s availability to receive whatever the other person brings to her, to sense her own participation in the interaction, and to “be aware of her own awareness” (p. 263). Through this experience of presence, the parent/teacher/psychotherapist is open to bear witness, to connect, and to attune to the other. This presence ultimately promotes a level of presence and self-awareness in the other as well (Wallin 2007). Hence, in

order to give another individual the gift of our deepest attention, we must have the capacity to be truly present to our own process and to his.

Another way that mindfulness can directly impact the ability to attend to another individual is in the cultivation of the capacity to respond versus react. This capacity is facilitated by the practice of self-observation, such that an individual develops a “space” between her perceptions and her response in any given situation (Bishop et al. 2004). In this way, self-reflection and self-awareness allow choice and the ability to respond as opposed to using projections and reactions. Siegel and Hartzell (2003) described the processes as the “low road” versus “high road” capacities of our minds. In low road functioning, we are merely reacting without awareness or thinking as to why we are acting a certain way. In high road functioning, which is promoted by self-awareness, we can become aware of particularly charged situations and our reactions to them, and we can then choose from this mindful/centered place as to how to respond. Further, mindfulness training increases one’s ability to tolerate strong affect and therefore helps the practitioner not act or react unless appropriate (Bialy 2006). As an example, a mother might become frustrated as her child makes multiple attempts to “get her attention” while she is busy trying to complete other tasks. She may experience her child as demanding and irritating, and she may even be triggered by memories of feeling this way in other circumstances. This would all be “low road” functioning. However, with mindfulness, the mother can shift into “high road” functioning. She might become aware of her frustration, notice her physical tension and other sensations, and she may also become aware of her train of thought. This metacognitive capacity may then allow her to take a moment of pause between her initial reaction of irritation and her moment of responding. She may even be able to insert a sense of compassion for herself in this stressful situation, and also for her child, who is ultimately looking for connection and contact.

As practitioners develop self-awareness through greater mindfulness, Siegel (2007) also proposed that they practice what he termed “self-attunement.” He wrote, “mindful awareness is a form of intrapersonal attunement. In other words, being mindful is a way of becoming your own best friend” (p. xiv). Siegel made this claim based not only on theory and his own personal experience, but also on the fact that mindfulness practice impacts the same areas of the brain that are affected in relationships. In particular, the mirror neuron system has been implicated, which is a system that takes in information and signals from another person and then adjusts our limbic and bodily states in order to match those of the other. He suggested that mindfulness involves a form of internal attunement that may harness these social circuits associated with mirroring and empathy to create a

state of neural integration and “flexible self-regulation” (p. 132). In other words, the impact of mindfulness practice on the brain is quite similar to that of healthy, secure attachment.

Bringing these ideas together, Siegel (2007) proposed that mindfulness can be seen as “a way of developing a secure attachment with yourself” (p. 180). From this internal secure base, safety is established from which the practitioner can open her awareness and attention to whatever arises in the field of on-going experience. This creates a “receptive reflective state of awareness” towards all arising events (p. 132). In the example presented above, the mother would be able to attend to both her child’s expressions and also her own reactions. Her very attending to her own experience would act as a way to not only recognize, but also have understanding and compassion for her state in the moment. From this place, she can respond more effectively.

From Siegel’s (2007) point of view, intrapersonal and interpersonal attunement likely reinforce each other in a loop, promoting attunement and connection: (a) through meditation practice, the practitioner develops a stronger capacity to detect and understand her lived experience; (b) this observation and understanding then allow her to have more understanding for others (empathy and compassion) through an enhanced ability to perceive nonverbal emotional signals and an increased ability to sense the internal worlds of others; and (c) she is then able to offer this state of attuned, understanding presence to those with whom she is in contact. The same areas of her brain are being impacted by both types of attunement and are reinforcing each other. In relationship, she will be paying attention to both her internal experience and that of the other with whom she is relating.

In terms of parenting, and as hinted at above, the capacity to self-attune can promote a type of “earned security” for the mother (Siegel and Hartzell 2003; Van Ijzendoorn and Bakermans-Kranenburg 1997). As she cares for herself and experiences her own secure base, she can heal past attachment issues and offer a base of secure attachment to her child. As Siegel (2007) wrote, a mindful parent can sense the entire situation enough to know when repairs are needed in relationship (following a rupture). This is the foundation of secure attachment. The neural integration and reflective capacity promoted in mindfulness practice are similar to those of a parent with a secure attachment, whether from childhood or “earned” (Siegel 2007; Wallin 2007). Both forms of attunement (interpersonal and intrapersonal) promote the capacity for intimate relationships, resilience, and well-being. As Surrey (2005) wrote, “Mindfulness and the attuned relationship seem to support each other” (p. 95). Finally, Siegel (2007) noted that the outcome measures for studies of secure attachment

and those for mindful awareness practices have “markedly overlapping findings” (p. 26).

Empirical Research: Mindfulness and Interpersonal Relationships

Over the past decade, several studies have addressed the impact of mindfulness in different kinds of relationships. In 2004, Carson et al. conducted a randomized wait-list control study of the program Mindfulness-Based Relationship Enhancement. Participants of this program showed increases in measures of relationship satisfaction, autonomy, relatedness, closeness, and acceptance of one another, and decreased relationship distress, both right after the program and at a 3-month follow-up period. Further, those who practiced meditation more actually had better outcomes, such that mindfulness practice on a given day was associated with improved relationship happiness and stress coping efficacy and was also associated with lessened relationship stress and overall stress on that particular day. In a study of couples in romantic relationships by Barnes et al. (2007), higher trait mindfulness was found to predict higher relationship satisfaction and a greater capacity to respond constructively to relationship stress. Further, state mindfulness was correlated with better communication quality during a discussion/argument.

Regarding mindfulness in the parent–child relationship, three studies have been conducted in the last 5 years with particularly interesting findings. In a study by Singh et al. (2006), three mothers of autistic, aggressive children were taught mindfulness skills, and behavioral incidents were recorded extensively before, during, and after the mindfulness training of the mothers. Results showed a decrease in all of the children’s aggression, noncompliance, and self-injurious behaviors and an increase in the mothers’ satisfaction with their parenting skills and interactions with their children. Of particular interest in this study was the finding that the *mothers’* mindfulness practice impacted the *children’s* behaviors, even though the children were not taught any different behaviors per se.

Another study by Singh et al. (2007) with four mothers showed similar findings, including decreased aggressive behaviors, less parental stress, increased parental satisfaction, and increased positive social interactions with siblings. The mothers noted that with continued mindfulness practice, they were able to begin responding in a calm and positive manner without conscious thought, which had the effect of preempting maladaptive behavior and encouraging positive social behaviors in their children and other family members. They also reported that the transformation experienced was in part due to changes in the way the mothers related to all events in their environment, rather

than to acquiring a set of parenting skills in order to change their children's behaviors.

Finally, in a third article by Singh et al. (2010), two mothers of children with ADHD diagnoses were taught mindfulness skills. Findings from this study included an increase in the children's compliance and mothers' reports of increased satisfaction with their interactions with their children and happiness with parenting.

Two additional studies regarding mindfulness in pregnancy/the perinatal period have also been recently published. In the first study, a small, randomized trial ($n = 31$) of mothers who received a mindfulness-based intervention during pregnancy showed significantly reduced anxiety and negative affect during the third trimester in comparison to those who did not receive the intervention (Vieten and Astin 2008). Though these mothers were trained in mindfulness during pregnancy and with their babies yet to be born, one could speculate that the reduced maternal anxiety and negative affect might benefit the mother–child relationship based upon theory presented above.

In a second pilot study, 27 women participated in a Mindfulness-Based Childbirth and Parenting program during their third trimester of pregnancy (Duncan and Bardacke 2010). Both quantitative and qualitative methods were used, with quantitative results showing a statistically significant increase in mindfulness and positive affect and a decrease in pregnancy anxiety, depression, and negative affect on pre- to post-tests. Qualitative statements supported these results and showed the majority of participants reporting perceived benefits of using mindfulness practices during the perinatal period and early parenting. The authors proposed future research using a randomized controlled trial design and hypothesized that such an intervention may improve birth outcomes, attachment and child development outcomes, partner well-being, and the quality of family relationships.

Future Research and Integration

Attachment theory and mindfulness have received significant empirical attention in the past three decades. Research has broadened and deepened our understanding of both attachment processes and the benefits of mindfulness. It is clear that early relational experiences between infants and their caregivers create “internal working models” for future relationships that deeply impact children's development. If mothers are able to understand their own internal experiences and history, they can modulate their own emotions and affect, providing a beneficial environment in which to develop a secure attachment relationship. Since early motherhood can be a time of heightened stress,

it is important to consider ways to support mothers (and their children) through this process.

Mindfulness intervention may be one way to support mothers in developing the skills necessary to navigate the stressor of early motherhood and develop secure attachments with their children. Research has shown that mindfulness training significantly increases one's ability to cope with stress, regulate emotions, and attune to others (Shapiro and Carlson 2009). Further, it has been shown to decrease anxiety, depression, and overall psychological symptomatology (Astin 1997; Brown and Ryan 2003; Kabat-Zinn et al. 1985, 1986, 1992; Miller et al. 1995; Shapiro et al. 1998, 2005, 2007; Specia et al. 2000). Finally, it has also been associated with increased positive states, including resilience, self-esteem, compassion, and overall well-being (Astin 1997; Feldman et al. 2007; Kabat-Zinn et al. 1985; Shapiro et al. 1998, 2005, 2007).

As discussed in this article, several preliminary studies have been conducted in the last 10 years specifically exploring the impact of mindfulness practice on interpersonal relationships. These studies have shown promising results, yet further exploratory and empirical research is needed to help elucidate the impact of mindfulness training on interpersonal relationships. In particular, mindfulness practice for mothers is an area that deserves more attention, as it has been proposed as a potentially helpful practice that may enable secure attachments to form (Siegel 2007; Wallin 2007).

It has been suggested that mindfulness research could expand to include not only a focus on symptom reduction but also include the positive and beneficial qualities that may be cultivated by the practice (Shapiro and Carlson 2009). As Bialy (2006) suggested, “Mindfulness has something more to say than how to cope with illness,” (p. 75). For example, Carson et al. (2004) suggested research that examines how mindfulness may lead to closeness, empathy, and other positive experiences that lead to relationship satisfaction. Easterlin and Cardena (1998) stated that one of the “unexplored areas” in meditation research is the “effect of this practice on interpersonal relationships,” and they promoted this as a future direction for research (p. 79). Siegel (2007) proposed the need for further studies as well, as he proposed questions and hypotheses to “explore exactly how mindfulness supports interpersonal well-being” (p. 358), such as: “Are sensitivities to the non-verbal signals of others enhanced? Does mindfulness improve the capacity to be compassionate—to feel another's feelings—as well as to be empathic—to understand another's point of view?” (p. 358). As Siegel stated, at this point, we are “left with preliminary empirical findings supportive of the impression that mindfulness may nurture healthy relationships” (p. 358).

A convergence of ideas and disciplines is increasingly occurring, in which neuroscientists, clinical psychologists, attachment theorists, and mindfulness researchers and practitioners are beginning to link various theories and concepts pointing towards the importance of mindful presence in relationships. It is hoped that this article will serve to encourage more investigation in this area, with particular attention being given to mindfulness within the earliest relationship, which sets the stage for all others. It is hoped that this further investigation will promote well-being in mothers and their children, and will therefore facilitate more optimal levels of human functioning across the lifespan.

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