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Differential Effects of Meditation on Relationship Quality

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An abstract of  
A dissertation submitted to the Faculty of the  
James T. Laney School of the Graduate Studies of Emory University  
in partial fulfillment of the requirements for the degree of  
Doctor of Philosophy  
in Clinical Psychology  
2010

## Abstract

### Differential Effects of Meditation on Relationship Quality By Brigid Malloy Kleinman

Relationships are one of the most crucial parts of life and a highly studied subject in psychology. Yet psychologists still have difficulty explaining how to help people gain and maintain close, positive relationships. The present study aims to investigate whether an existing intrapersonal health strategy, meditation, can also help interpersonal health. Specifically, psychological and neurobiological evidence suggests that compassion mediation in particular may be particularly relevant to close relationships. Based on evidence suggesting that compassion – the desire to free others from suffering – is strongly related to relationship quality, it is hypothesized that the cultivation of compassion through meditation will enhance self-reported relationship quality. Furthermore, it is hypothesized that interpersonal (i.e., compassion, empathy, and forgiveness) and intrapersonal (i.e., emotion regulation and coping) variables will mediate the relationship between compassion meditation and relationship quality.

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## Differential Effects of Meditation on Relationship Quality

Close, meaningful relationships are a basic need for most people (Baumeister & Leary, 1995). Positive close relationships keep us happy (Berscheid, 2003) and healthy (Loving, Heffner, & Kiecolt-Glaser, 2006). In fact, research suggests that the association between close relationships and well-being is even stronger than the association between smoking and health (Perlman & Vangelisti, 2006). Yet despite their essentialness, gaining and maintaining close relationships is hardly an easy task. The purpose of this study is to examine the potential usefulness of compassion meditation towards helping people gain or maintain positive, close relationships.

In this introduction I begin by discussing the literature on relationships, first seeking a consensus definition and then attempting to understand how the various areas of literature describe “close, positive relationships.” Within that realm I describe how most theories and research on relationships seem to imply that compassion is an important ingredient for such relationships. I then discuss the definition and sparse literature on compassion. Finally, I describe compassion meditation and provide evidence for why compassion meditation may improve relationship quality.

### Relationships

Despite the large literature examining friendships, marriages, and peer relationships, among others, there is no consensus regarding a definition of *relationships*. Two leaders in the literature have suggested related but varying definitions. Robert Hinde focused on structure, suggesting that

“A *relationship* involves a series of interactions between two individuals known to each other. Relationships involve behavioural, cognitive, and affective (emotional) aspects” (1979).

On the other hand, Harold H. Kelley focused on the aspect of relationships that suggests mutual influence.

“Two people are in a relationship with one another if they impact on each other, if they are interdependent in the sense that a change in one person causes a change in the other and vice versa” (Kelley et al., 1983).

Both definitions suggest a temporal dimension, in that interactions and impacts require time to have effect. Both further suggest that relationships influence those people within them. However, Kelley’s proposes perhaps a deeper influence, involving changes in the person, whereas Hinde’s lends itself to the possibility of fleeting, momentary influences. Both are sufficiently vague that it seems to be uncertain whether certain confluences between people qualify as a “relationship.” For example, two strangers on a bus may have a significant conversation that that deeply affects both, but if they do not meet again then do they have a relationship? Such a meeting would qualify for Kelley’s definition, but not Hinde’s (for the fault of being a single interaction).

In an attempt to further delineate *relationships*, Nowicki and Duke (e.g., 2002) described four stages that characterize relationships. According to their model, every relationship begins with a *choice phase*, in which people decide from among the 50,000 people they meet in their lives with whom to continue contact. Nowicki and Duke propose that people make this choice primarily through nonverbal communication. Once the choice is made, people move into the *beginning phase*, in which they come to relate



to each other, learn about each other, and enact the early, more superficial stages of an association. Of the numerous acquaintances one has, most of which exist perpetually in this stage, only a handful move on to the *deepening stage*. Relationships in the deepening stage are those that may be classified as “close” friends, family members, or romantic partners. Transitions into the deepening phase are characterized, according to the Nowicki and Duke model, by nonverbal signals indicating closeness, such as standing closer and more frequent smiles. The final stage that occurs within all relationships is the *ending phase*, in which the relationship *as it is currently known* ends. In other words, endings may happen within ongoing relationships, in which the nature of the relationship changes; examples include the changing relationship between new parents or between a mother and a college-bound child. When such relationships travel through the ending stage, they begin again at the choice stage.

The Nowicki and Duke model of relationships provides more detail in characterizing relationships than do the previously discussed definitions. It allows researchers and clinicians to identify relationships and the stage in which relationships exist. The earlier mentioned example of strangers on the bus, for example, may be identified as an ended relationship that travelled quickly through all four stages.

Perhaps a useful definition of *relationship* may combine all three definitions. For example, a relationship may be defined as a set of interactions between two people in which both are impacted emotionally, behaviorally, and/or cognitively throughout the four recurring stages of choice, beginning, deepening, and ending. Perhaps the definition ought to include the essential component of nonverbal communication as well. It seems

clear that although relationship research is a prosperous field, researchers may need to derive an agreement on what they are studying<sup>1</sup>.

### *What Is A Close, Positive Relationship?*

Studies suggesting the benefits of relationships typically examine “close,” “meaningful,” and/or “positive” relationships. It is intuitive that close, positive relationships would provide more benefits than distant, negative relationships, or positive acquaintance relationships, but again there seems to be a lack of consensus definition. According to the Nowicki/Duke model, a close relationship would be one in the deepening phase. According to Kelley, a close relationship would have high interdependence. However, not only do both of these definitions lack an explanation for what makes relationships “positive,” they hardly even seem related to each other! Again, the field of “close relationship” study is enormous, yet researchers often use conflicting definitions or fail to provide an operational or a theoretical definition for close, positive relationships. The following section explores the literature describing relationships, beginning with theories and moving to empiricism, with an attempt to find similarities in the way researchers view close, positive relationships.

### *Theoretical Frameworks for Relationships*

One criticism of the relationship literature is that it is largely atheoretical (e.g., Karney & Bradbury, 1995), relying principally on inductive reasoning rather than the deductive reasoning more typical of scientific research. Thus, there are only three major theories prevailing in the relationship literature. One, evolutionary psychology, does not attempt to describe *close* relationships and therefore is not discussed in this section.

Thus, here I discuss how the two other major theories describe positive, close relationships: Social Exchange/Equity Theory and Attachment Theory.

*Social Exchange/Equity Approach.* Equity approaches to relationships are based on the idea that relationships consist of a series of inputs and outputs, rewards and punishments, or costs and benefits (Walster, Walster, & Bercheid, 1978). Receiving more benefits than providing costs is overbenefiting, whereas giving more input than receiving output is underbenefiting. According to equity theory, satisfying relationships are those in which the inputs are equal to the outputs (also called *reciprocal* relationships).<sup>2</sup> Individuals who overbenefit are thought to be relatively satisfied whereas those who underbenefit are thought to be unsatisfied (Walster, Bercheid, & Walster, 1973; Walster et al., 1978). Although empirical evidence has lent credence to this supposition (e.g., Walster, Walster, & Traupmann, 1978), it is currently under considerable debate as new evidence shows that receiving too much may be equally or more costly to an individual than giving too much (e.g., Vaannen, Buunk, Kivimaki, Pentti, & Vahtera, 2005). It also seems as though the picture may be more complex than theory suggests. For example, one study of married couples found that husbands' provision of support predicted marital satisfaction for them, but wives' solicitation of support predicted marital satisfaction for them (Lawrence et al., 2008). Furthermore, the adequacy of support was important for husbands, whereas the amount was important for wives (Lawrence, et al., 2008). Thus, the benefiting aspect of equity theory may need refining.

Another view of social exchange is Kelley's theory emphasizing interdependence rather than simple exchange. The theory suggests that relationship partners influence and

control each others' outcomes (Kelly & Thibaut, 1978). The more interdependent two people are, the closer the relationship. The level of satisfaction is based on the partners' perceived rewards and costs combined with their expectations and past experiences. Kelley and colleagues have developed complex matrices to determine levels of satisfaction, but essentially they proposed that partners are most satisfied when their rewards exceed their expected outcomes (Kelley, 1979).

To complement exchange relationships, Clark and Mills (1982; 1994) proposed *communal* relationships, in which the partners provide benefits to each other based on the need of the other, without expecting a return benefit. As opposed to exchange relationships, partners in communal relationships theoretically do not keep track of inputs and outputs; these partners are motivated by concern for the other's well-being rather than for equality. Clark and Mills (2001) argued that close, romantic relationships tend to be communal, whereas more utilitarian relationships tend to be based on principles of exchange. Empirical support for this proposition shows that romantic relationships, best friends, and close relatives tend to be communal (Gable & Reis, 2006)

Taking the three theories together, the social exchange approach appears to suggest several characteristics of close, positive relationships. First, such relationships must have a high degree of interdependence, such that each relationship partner impacts the other. This characteristic is easily seen in many relationships considered "close," such as romantic relationships, parent/child relationships, and friendships. Furthermore, it is clear that *closer* relationships require more interdependence. However, interdependence does not lend itself to the delineation of positive versus neutral or negative relationships. It is easy to imagine interdependent relationships, for example

between a parent and a child, in which both parties clearly impact the other in a primarily negative manner.

On the other hand, equity theory suggests that positive relationships must have a balance of input and output, although it appears that the proper balance may be unique or at least distinct for different relationships. This theory has the fault of leaving out close relationships that are inequitable by nature, such as parent-child or healthy-sick marriages (e.g., Kleiboer et al., 2006). However, taken together with the theory of communal versus exchange relationships, close, positive relationships are suggested to be those that are communally based, in which partners do not keep track of costs and benefits, and partners base their inputs primarily on concern for the other's well-being. Because communal relationships exist on a dimensional scale, it may be argued that the more communal a relationship is, the more close and positive it is as well (Clark & Mills, 2001).

*Attachment Theory.* Attachment Theory derives from Bowlby's (1973) supposition that attachment bonds between mother and child develop out of an evolutionary advantage for infants to have a secure caretaker relationship. The defining characteristics of attachment relationships are seeking out the caregiver (proximity seeking), feeling confident from the relationship to leave it and explore (secure base), and returning to the caregiver when threatened (safe haven). In her famous Strange Situation, Ainsworth and colleagues (Ainsworth, Blehar, Waters, & Wall, 1978) categorized infants with high levels of confidence in their caregiver to be *securely attached*, infants who rejected their caregiver's offers of comfort when threatened to be *avoidant*, and infants who appeared to desire comfort but would not unconditionally accept it to be *anxious-*

*ambivalent*. More modern research splits the anxious-ambivalent category into *resistant* and *disorganized* (Main & Solomon, 1986).

Bowlby also proposed that infants form internal working models (i.e., unconscious cognitive representations) from the caretaker relationship that affect future relationships (1973). Several researchers since have suggested that adult relationships may meet the criteria of attachment bonds in that members of adult relationships seek closeness, experience confidence, and receive reassurance and comfort from relationship partners (Hazan & Shaver, 1986; Weiss, 1991). Although attachment relationships may occur between any adult or adult/child relationships, the most commonly discussed and studied are romantic relationships (Weiss, 1991). For example, behaviors common to both infant attachments and adult romantic attachments include eye gazing and hand holding (Shaver & Hazan, 1988).

Due to differences in the two types of relationships (most notably sexuality), Bartholomew and Horowitz (1991) suggested that rather than dividing adult relationships into secure, avoidant, or anxious-ambivalent relationships, researchers should divide them into four categories based on the dimensions *anxiety* and *avoidance*. The anxiety dimension refers to one's positive or negative sense of self and the degree to which one feels accepted or rejected by others. The avoidance dimension refers to one's positive or negative sense of others and the degree to which one approaches or avoids closeness with others. The four categories, based on high or low levels of each dimension, are as follows: *Secure* adults have little anxiety or avoidance in relationships; they show confidence and comfort with closeness and intimacy. *Preoccupied* adults have high anxiety and low avoidance; they show considerable worry about rejection and have a

heightened desire for closeness and intimacy. *Dismissing* adults have low anxiety and high avoidance; they do not worry about rejection due to viewing relationships as unimportant, while maintaining a positive sense of self. Finally, *Fearful* adults have both high anxiety and high avoidance; they have a negative sense of their own worth and have difficulty in the support and reliability of others, and thus desire close relationships but avoid them due to fear of rejection.

The three negative attachment styles are associated with a host of negative outcomes, both intra and interpersonal, whereas the secure style is associated with positive outcomes (Feeney, Noller, & Roberts, 2000). Securely attached people have closer, more stable, and more satisfying romantic relationships than insecurely attached people (Shaver & Mikulincer, 2005). However, a negative attachment style does not necessarily prophesize a difficult life. Although originally meant as fluid categories, researchers currently consider attachment to be more valid when described dimensionally (Shaver & Mikulincer, 2005). Current research tends to describe people in terms of their level of anxiety and avoidance rather than solely on the basis of an attachment category. Furthermore, longitudinal research has shown that attachment styles can change over time, especially due to the presence of positive or negative adult relationships (e.g., Feeney & Noller, 1996).

Studies have focused much more on individual attachment styles than attachment in relationships. Thus, according to this perspective a positive, close relationship would be defined as one in which both parties a) feel nurtured and cared for, b) are responsive to each other's needs, c) regulate needs for safety and security by invoking proximity seeking to the partner, and d) have "felt security" – both parties feel that their partner is

emotionally available and responsive (Collins & Feeney, 2004). Collins and Feeney suggest that attachment relationships are akin to especially close relationships, in that they satisfy needs for security due to their profound interdependence (Collins & Feeney, 2004). Thus, according to attachment theory, any relationship that qualifies as an attachment relationship is also a close relationship. However, attachment relationships are not necessarily positive. Again, it is easy to imagine attachment relationships in which one or both partners are not always responsive to the other's needs, such as those in which one or both partners have a primarily insecure attachment style; partnerships that involve domestic violence are a good example of a highly negative attachment relationship. One question that this theory leaves open is, can a close, positive relationship only occur between two securely attached people? Clearly, although there is a plethora of research on individual attachment styles, there is a need for further research on the interaction of people's attachment styles in their relationships.

Though not explicitly stated, both social exchange/equity theory and attachment theory contain a common theme: that close, positive relationships involve a high degree of compassion, care, and concern. According to the exchange theory, close relationships are those that are interdependent and communal. Relationships with these characteristics are, by definition, based on concern for the other's well-being. Similarly, according to attachment theory, close, positive relationships involve the showing of concern, compassion and empathy, and the acting on such feelings by nurturing, caring for, and being responsive to one's partner. As we will see in the next section, the empirically-based studies in the close-relationship literature also show compassion, care, and concern as commonalities to close relationships.



*The Inductive Reasoning Approach: Starting with Behaviors, Traits, and Process*

As discussed earlier, a major limitation of the relationship literature is that much of it is atheoretical. Many studies test traits or processes that intuitively seem like they should be part of close relationships and then announce them as positive or negative based on the empirical results. Thus, we end up with a hodge-podge of traits and processes that empirically belong to close relationships, but no consideration for how they interact together. Here I present a number of exemplar behaviors, traits, and processes that are suggested to be crucial to close relationships and I examine this empirical literature for commonalities of close relationships.

*Behaviors.* Because there are so many studies that examine behaviors contributing to positive or negative close relationships, in this section I review a small selection of classic studies or crucial behaviors that help us understand of what behaviors close behaviors consist.

Stafford and Canary (1991) asked dating and married couples what they do to keep their relationships satisfying—they found five strategies: positivity (e.g., compliments, accommodation, acting cheerful), openness (e.g., talking, listening, self-disclosure), assurance (e.g., showing commitment and support), social networking (e.g., spending time with mutual friends), and sharing tasks (e.g., household chores). These authors showed data that these behaviors predict more closeness in relationships (Canary & Stafford, 1994).

Other research has suggested that sexual behaviors (Bodenmann, Ledermann, & Bradbury, 2007; Butzer & Campbell, 2008), supporting one's partner's personal goals (Brunstein, Danglemeier, & Schultheiss, 1996), and appreciation of partners' efforts

(e.g., doing chores; Berger & Janoff-Bulman, 2006) bring positivity and closeness to romantic relationships. In terms of friendships, studies suggest that investment of resources predicts closeness (Ledbetter, Griffin, & Sparks, 2007). Furthermore, approach behaviors, those that bring a person towards another, predict closeness in relationships in general, whereas avoidance behaviors, those that bring a person away from another, predict distance in relationships (e.g., Gable & Reis, 2001). To sum up, an oft-quoted study suggests that close, positive romantic relationships tend to have a ratio of five positive behaviors to one negative behavior (Gottman & Levenson, 1992).

*Traits.* A meta-analysis found that one of the most important trait combinations partners have that contributes to close, positive relationships is low neuroticism and high positive emotionality (Karney & Bradbury, 1995). Neuroticism appears to be particularly harmful to relationships. Other traits that may contribute include high social individuation in both partners (Charania & Ickes, 2007) and moderate emotional perception (Ickes, 2001).

More important than individual partner traits may be interactions of partner traits. One phenomenon that has emerged from this line of research is the demand-withdrawal pattern, showing that dispositionally critical wives tend to be a particularly bad match for shy, withdrawn husbands (Christensen & Heavey, 1990). Unfortunately, no research has identified any characteristics that make for especially *good* relationships.

Finally, that social support is important for relationships is a robust finding. However, recent research has suggested that *perceived support* matters more than *actual* support, indicating that whether or not partners actually perform any support behaviors is not especially important (Reinhardt, Boerner, & Horowitz, 2006). It appears that people have a conception in their minds about how supportive their partner is, a conception

which some have argued is more related to personality than to actual support (Kaul & Lakey, 2003). This disposition towards perceiving support is highly correlated with relationship satisfaction (Kaul & Lakey, 2003).

*Processes.* Processes that research has identified as crucial to close, positive relationships include those of conflict, intimacy, inclusion of the self in the other, and capitalization. Each process and how it delineates close and positive relationships is described below.

*Conflict.* The presence of conflict is common to all close relationships. Researchers have shown that the process of how people manage conflict in relationships predicts relationship quality (Jacobson & Christensen, 1996). A review of numerous studies shows that the key to managing conflict to maintain close, positive relationships is the de-escalation of negative emotions (Canary & Messman, 2000).

*Intimacy.* Intimacy can be considered a quality of person, a quality of relationships, or more recently, a dynamic, transactional, interpersonal process within relationships (Laurenceau & Kleinman, 2006). One model of intimacy that has proved influential in the close relationship literature was developed by Reis and Shaver (1988). It conceptualizes intimacy as a process made up primarily of two components: self-disclosure and partner responsiveness. Based on his or her own current needs, motives, goals, and fears, person A may initiate intimacy by revealing personally relevant feelings and information to person B. Person B may enhance intimacy (if he/she wishes, based on his/her current needs, motives, goals, and fears) by communicating understanding, caring, and validation of Person A. If Person A perceives the reaction of Person B to be relevant and appropriately validating, intimacy builds. The process continues, with each partner

influencing the other's emotions and behaviors. Empirical support for central components for the model of intimacy as an interpersonal process has been emerging (Laurenceau, Feldman-Barrett, & Pietromonaco, 1998; Laurenceau, Feldman-Barrett, & Rovine, 2005). According to the growing intimacy literature, more intimacy makes for closer, happier, more positive romantic relationships. More research is needed examining intimacy in other relationships.

*Capitalization.* In a process related to the intimacy process, Langston (1994) found that when people experienced a positive event, they tend to express it to others as a way of marking the event. More importantly, when people communicate a positive event with another, they experience increased positive affect, above and beyond the positive valence associated with the event itself. He termed this process capitalization. Gable and colleagues (Gable et al., 2004) extended this work to study the capitalization process in romantic relationships. In a series of cross-sectional and diary studies, Gable et al. (2004) have shown that both potential intrapersonal and interpersonal benefits of capitalization rely on the perceived response of one's romantic partner. Using an accommodation framework (see Rusbult, Zembrodt, & Gunn, 1982), participants indicated whether they shared a positive event with their romantic partner (i.e., a capitalization attempt) and rated their perceptions of their partners' responses to capitalization attempts in terms of 4 categories: active-constructive (e.g., enthusiasm), passive-constructive (e.g., quiet support), active-destructive (e.g., criticism), or passive-destructive (e.g., no acknowledgement). When sharers perceived their partners' responses as primarily active-constructive, the sharers experienced increased positive affect, above and beyond the valence associated with the event itself. However, when

sharers perceived their partners' responses as mainly any of the other three categories, they did not experience increased positive affect. In fact, if the perceived partner response fell in the passive-destructive category, the sharer experienced greater negative affect (Gable, et al., 2004, Study 4). As for interpersonal benefits, active-constructive responses were associated with increased daily relationship satisfaction, intimacy, and closeness, both for college-aged couples and married couples. The other categories of perceived partner responses were associated with decreased daily relationship satisfaction, intimacy, and closeness.

*The Self-Expansion Model of Relationships.* Psychologists Aron and Aron have suggested that the process of becoming close in relationships is akin to the expanding of one's self to include the other person (Aron, Aron, & Smollan, 1992). They propose that at the initial stages of relationship building partners begin to learn about each other and thus begin to include pieces of the other's personality, needs, and motivations into their own personality, needs, and motivations (Aron, Aron & Norman, 2001). As couples become more familiar with each other, the expansion continues towards resources, such that each partner begins to consider the other's knowledge, capital, and other intra and interpersonal assets part of his or her own assets (Aron, Norman, Aron, McKenna, & Heyman, 2000). Empirical evidence has supported this theory by showing that relationship partners name their partners' personality traits as his or own personal traits (Aron, Aron, & Norman, 2001). Thus, according to the self-expansion model, closer relationships are defined by more inclusion of the other within the self.

The self-expansion model accounts for positive relationships as well. According to Aron and Aron, self-expansion occurs primarily through *novel* activities, which also

provide significant arousal pleasure as the self-expands (Aron, Aron & Norman, 2001). Thus, the more novel activities partners engage in (such as learning new things about the each other, doing new activities together), the more self-expansion, happiness, and closeness occurs in the relationship. They suggest that the fewer novel activities couples engage in over time may account for the decreasing happiness and closeness that many couples experience (Aron, Aron, & Norman, 2001).

#### *Summary of the Inductive Reasoning Approach*

The empirical studies show that many traits, behaviors, and processes are important in relationships. As a group, they seem to suggest one particular element that is crucial to successful, happy relationships: *other-focused active attempts to show positivity*. The behavioral studies showed that close relationships are made from proactive positive behaviors, the trait studies suggested that people who are emotionally positive and show little negative reactivity tend to be happiest, and the process studies suggested that self-disclosure, partner responsiveness, positivity during conflict, and active novel activities go far towards increasing relationship quality. Thus, the empirical studies taken together seem to suggest that other-focused, active positivity is the key to happy relationships.

Despite these convincing findings, there are many studies showing other qualities that are seemingly important to relationships. Thus, it is difficult to distinguish based on empiricism alone what truly makes a close, positive relationship. For example, a recent longitudinal study showed that married couples without children are happier than those with them (Doss, Rhoades, Stanley, & Markman, 2009). However, this study gives us

no understanding as to *why* this might be. Therefore, it is essential to take both theory and empiricism into account.

Considering *both* theories and the empirical literature, it seems that close, positive relationships are made up of *positive, other-focused actions and feelings*, such as compassion, care, concern, empathy, and partner responsiveness. Therefore, when considering relationship interventions, it seems logical that enhancing other-focused emotions such as compassion might enhance people's relationships. Thus, the cultivation of compassion may be a successful tool towards helping relationships flourish. The next section discusses the meaning of "compassion" and the following discusses compassion meditation.

### Compassion

A literature search for "compassion" reveals hundreds of studies and papers written on "compassion fatigue," but very few written on compassion itself. One author suggests that Western science has studied *around* the concept of compassion by examining related but distinct concepts such as altruism, attachment, empathy, and sympathy (Gilbert, 2005a). A major book on compassion noted in the introduction that chapter authors were free to use their own definitions of compassion (Gilbert, 2005b).

The following are four definitions of compassion written by compassion researchers:

"Compassion is wishing that all suffering without exception might be utterly extinguished. And here we are not just talking about all the sufferings of one person, or a few people, but all the sufferings of all sentient beings. It is also positive in that our wish is that all may attain unlimited well-being and peace" (Ringu Tulku Rinpoche & Mullen, 2005, p. 218)

"Compassion is a human emotional and cognitive experience that does not happen to a single individual in isolation, but as a response to another sentient being. It is a process of external and internal reorientation that softens our sense

of our individuality by bringing it into a felt relationship with the pain and needs of some other.” (Harrington, 2002, p. 21).

“Compassion (which is an element of loving-kindness) involves being open to the suffering of self and others, in a non-defensive and nonjudgemental way. Compassion also involves a desire to relieve suffering, cognitions related to understanding the causes of suffering, and behaviours – acting with compassion. Hence, it is from a *combination* of motives, emotions, thoughts, and behaviours that compassion emerges.” (Gilbert, 2005a, p. 1, italics in original).

“In Buddhism compassion is defined as the wish that all beings be free of their suffering” (Vreeland, in Dalai Lama, 2001).

Surprisingly for a field that has so little prior research, these definitions converge into a coherent theme. Authors appear to agree that compassion involves two components: 1) the experience of feeling the suffering or pain of others and 2) the active wish or desire to end such suffering.

The term compassion is often confused with similar states such as empathy, sympathy, personal distress, and affiliation. Empathy is the understanding of one’s emotional state, or putting oneself in another’s shoes (Eisenberg & Fabes, 1990); empathy does not include either the motivational component of compassion (the desire to change the suffering state) nor does it necessarily include the warmth, the loving-kindness, that occurs with compassion. We typically consider empathy to be a warm, kind emotion, but it is certainly possible to feel another’s emotions without any sense of caring. Sympathy, on the other hand, is the feeling of care for another’s pain. Sympathy does include warmth and kindness, but does not include the vivid understanding and perspective-taking evoked in empathy or compassion. Furthermore, although one who feels compassion feels distress, it is the distress of another that one feels rather than his or her own. Compassion is an interpersonal emotion that orients one *outward*, whereas personal distress is an intrapersonal emotion that orients one inward. Finally, affiliation



differs from compassion in that compassion does not necessarily involve affection (Wang, 2005). One can and should have compassion for one's enemies, according to the Dalai Lama (2002), as that allows us to practice strengthening our compassion for those for whom we do not feel a kinship.

Although compassion is not the same as these concepts, empathy and sympathy are necessary qualities for one to be compassionate. According to Gilbert (2005b), compassion involves all of the following components: sympathy, empathy, distress-tolerance, distress-sensitivity, nonjudgment, care for the well-being of others, the desire to create opportunities for growth and change, and warmth. Sympathy provides the care and concern part of compassion, whereas empathy allows people to truly feel and understand the suffering of others (Gilbert, as cited in Wang, 2005).

Buddhists believe that compassion is an essential life skill to cultivate. They believe the fundamental life goal is to be free of suffering (*dukkha*), but that most of our attempts to do so fail. Wealth, fame, even our attempts to have meaningful relationships do not free us from suffering; the only thing that does is cultivating compassion for ourselves and others (Gilbert, 2005). Such a strong statement may not be supported by current psychological literature. For example, researchers have suggested that close relationships and religion make people happy (Myers, 2000). Even if compassion is not the only path to happiness, however, the evidence suggests that compassion contributes to close, positive relationships.

First of all, as discussed above, compassion plays a role, sometimes in the guise of empathy and care, in most definitions and studies of close relationships. In addition to the literature described above, it has been shown directly that compassion is strongly

related to marital satisfaction (Steffen & Masters, 2005), and it is a key component in one of the most successful couple intervention programs (Jacobson and Christensen, 1995).

Second, there may be an evolutionarily adaptive purpose to compassion.

Compassion seems to have developed from an enlarged neocortex present especially in animals with complex social structures (Wang, 2005). For example, studies of rhesus monkeys have shown that they will abstain from providing themselves with food if the delivery of the food also causes electric shocks to other monkeys; some monkeys abstained from food for days to avoid causing harm to the others (Wang, 2005). Such studies suggest that primates are also capable of compassion, which helps create a more secure social structure.

Finally, a recent study showed that college students with compassionate goals (those that involved the desire to help others who suffer or show concern for others) reported more social support, trust, relational closeness with friends and partners, and less conflict over time. Furthermore, those students with compassionate goals reported more closeness than students with self-based goals, who reported more loneliness and more conflict (Crocker & Canevello, 2008).

Altogether, the evidence suggests that compassion is an important, perhaps essential ingredient for close, positive relationships. Compassion is not only associated with good relationships, the very desire to be compassionate enhances relationship quality over time (as shown in Crocker & Canevello, 2008). However, even though most people have the ability to be compassionate, they may not use that skill (Reynolds & Karraker, 2003). Consider the many social psychology experiments showing people behaving with little compassion – the Milgram experiments, the Stanford Prison

Experiment, the famous Kitty Genovese case in which not one witness of a woman's murder tried to help her (Manning, Levine, & Collins, 2007). Worthington and colleagues have suggested that we learn compassion as children, but that we often forget or neglect to use our skills (Worthington et al., 2005). Compassion may be a skill that requires practice, rehearsal, or priming to be used. Consistent with the message of the Dalai Lama, replacing anger, aggression, and other negative responses with compassion may be an excellent way to improve people's lives and relationships. Thus, it seems important to help people cultivate compassion for the benefit of their interpersonal experiences. One way to help people cultivate their compassion is through *compassion meditation*, also called *compassion training*.

#### *Compassion Meditation*

Meditation is a practice that involves creating a state of mind called *meditative quiescence*, which entails cultivating relaxation, attentional stability, and attentional clarity, in that order (Houshmand et al., 2002). Studies of meditation practices have shown myriad life-enhancement benefits, from improving immune functioning, enhancing positive emotion (Davidson et al., 2003), and increasing self-esteem (Roth & Creaser, 1997).

There are myriad types of meditations, the most common of which include mindfulness meditation, transcendental meditation, and compassion meditation. Compassion meditation is born out of Buddhist traditions, but researchers, clinicians, and many active meditators practice it secularly. The practice of compassion meditation focuses on developing feelings of compassion and love for all living things (Dalai Lama, 1991). "This standard Buddhist meditation involves the generation of a state in which an

unconditional feeling of loving-kindness and compassion pervades the whole mind as a way of being, with no other consideration, reasoning or discursive thoughts” (Lutz, Dunne, & Davidson, 2007, p. 542). Specific strategies within the meditation include, among others, imagining the suffering of others, imagining all beings as one’s mother (i.e., to motivate people to reduce the suffering of their “mothers”), and inducing specific compassionate states of emotion (Dalai Lama, 1991). The ultimate goal of compassion meditation is for practitioners to reach a stable state of compassion in which they feel encouraged to engage in helping others and reducing their suffering (Dalai Lama, 1991).

A number of other effects are anecdotally described:

In general the cultivation of compassion is thought to grant the meditator numerous beneficial effects between sessions, such as creating a general sense of well-being and aiding in counteracting anger or irritation. Long-term practitioners of this practice are also said to have an effect on others around them, in that other persons nearby may also feel a greater sense of well-being and happiness. Compassion is also thought to provide benefits when one is in a meditative session involving other practices. ... That is, in developing Open Presence one must eliminate the mind’s “grasping” directed toward objects and also toward subjectivity itself. . . . By persistently orienting the meditator toward others, compassion lessens this fixation on self and makes it possible for grasping to be eliminated through the practice of Open Presence (Lutz, Dunne, & Davidson, 2007, p. 519)

Compassion meditation is assumed to increase compassion and related qualities.

Neurobiological research supports such assumptions. One study showed that participants in a state of compassion (i.e., meditation) show greater left prefrontal cortex activity (Goleman, 2003), a region that is associated with both compassion and positive affect (Davidson, 2002). Furthermore, monks that practice daily compassion cultivation show more left PFC activation than a normative sample of college students (Davidson, 2002)

An fMRI study of long term meditators (monks) and novices found that during the meditative state there was increased brain activation in the anterior insula and

striatum, regions that are associated with maternal and romantic love (Lutz, Brefczynski-Lewis, & Davidson, 2004, as cited in Lutz, Dunne, & Davidson, 2007). The anterior cingulate cortex was also activated, an area that, along with the anterior insula, is related to empathy. Furthermore, the activation in these regions was greater for the monks than the novices, suggesting that practicing meditation can cause changes in brain regions implicated in the formation and maintenance of positive relationships.

In both groups there was increased activation in the left-prefrontal cortex, a region associated with positive emotions. Similarly, a study of electroencephalographic activity showed that both long-term meditators showed greater neural synchronization (i.e., gamma activity) than novices (Lutz, Greischar, Rawlings, Ricard, & Davidson, 2004). These data suggest that compassion meditation influences cognitive processes, including planning, emotional appraisal, and emotion monitoring. Thus, as one research team declared, “These data suggest that emotional and empathic processes are flexible skills that can be trained and that such training is accompanied by demonstrable neural changes” (Lutz, Dunne, & Davidson, 2007, p. 547).

Overall, the evidence suggests that compassion meditation may influence neurobiological regions of the brain that relate to positive relationships. Therefore, because 1) compassion is important in relationships, 2) people often forget or neglect their compassion skills, and 3) compassion meditation may help cultivate compassion, it seems logical that compassion meditation may improve relationship quality.

### *Type of Meditation*

Meditation is often thought to be a kind of panacea. There is strong evidence that meditation of many types improves health and well-being (Lutz, Dunne, & Davidson,

2007). However, numerous meditation programs claim to be effective in helping peoples' relationships grow. For example, one meditation program states that "meditation promotes reflection which helps in sorting the trivial from the vital in human relationships" ([www.spiritualeducation.org](http://www.spiritualeducation.org)). Researchers Allen and Knight state that they believe mindfulness meditation will have numerous interpersonal benefits that result from the practice of nonjudgment and focusing on the present (2005). They also suggest that since mindfulness increases positive emotions (Brown & Ryan, 2003), it will in turn increase empathy and allow people to focus less on themselves. It is intuitively appealing to believe that a seemingly universal panacea such as meditation can make one a better relationship partner. However, it is essential to examine *scientifically* the truth of these claims. How do different types of meditation affect relationships? Does mindfulness meditation help relationships despite lacking a compassion component?

Only a few studies have directly examined the impact of meditation on relationships. One study showed that an occupational meditation program improved co-worker personal relationships (Alexander et al., 1993). A dissertation showed that mindfulness meditation improved women's sex lives (Mayland, 2005). Only one study has directly examined the effect of meditation on the quality of close relationships. Carson and colleagues (Carson, Carson, Gil, & Baucom, 2004) modified the existing Mindfulness-Based Stress Reduction meditation program (MBSR; Kabat-Zinn & Santorelli, 1999) to be directed at couples rather than at individuals. They hypothesized that non-distressed couples who went through a meditation program together would enrich their relationships. Indeed, couples completing the program reported higher post-

program relationship satisfaction, closeness, and acceptance of partner, and less relationship distress. Furthermore, the couples maintained their gains after three months.

### *Statement of Problem*

In summary, data and theory suggest that a compassion meditation program may be effective in enhancing relationships. However, it is not clear how compassion meditation may compare to other types of meditation. Some preliminary research suggests that mindfulness meditation may also help improve relationships. With that initial knowledge it is now necessary to begin examining the specifics, such as which meditations are more or less helpful and the mechanisms by which they enact change. Because of compassion meditation's emphasis on cultivating compassion, an important ingredient in positive relationships, I suggest that compassion meditation may be more beneficial to relationships than other types of meditation, such as those focused on cultivating attention or reducing stress (e.g., MBSR or Mindful Attention Training; MAT; Wallace, 2005).

**Hypothesis 1: Compassion meditation will improve relationship quality over time, such that participants report higher satisfaction, commitment, intimacy, trust, passion, and/or love after the meditation program compared to before.**

**Hypothesis 1a: Compassion meditation will increase relationship quality more than an attention meditation group (MAT) and a control group.**

### *Hypotheses 2-3: Interpersonal Qualities as Mechanisms for Change*

In addition to studying the efficacy of meditation programs for relationship enhancement, it is also important to examine the mechanisms through which meditation may improve relationships. Given that compassion meditation is an intrapersonal process with an interpersonal focus, it is logical that it would influence intrapersonal and

interpersonal variables related to relationships. For example, forgiveness can be considered a part of compassion because it involves turning off one's anger at another (Gilbert, 2005b).

Interpersonal variables identified as important to relationships include compassion, empathy, and forgiveness (Fincham, Paleari, & Regalia, 2002). Indeed, empathy, forgiveness, and compassion are qualities that are related to each other as well related to positive close relationships (Fincham et al., 2002; McCullough et al., 1998). Researchers have suggested that qualities like forgiveness are especially necessary for maintaining close positive relationships because conflict is a natural part of relationships (Fincham, 2000). Indeed, forgiveness longitudinally leads to relational closeness and commitment (Tsang, McCullough, & Fincham, 2006).

Compassion, empathy, and forgiveness are all variables related to the concerns of others (Worthington et al., 2005), and as such, are likely to be cultivated through practicing compassion meditation. As discussed above, compassion meditation appears to activate brain regions involved in interpersonal emotions such as empathy and love. It must be noted that compassion meditation is not intended to *create* compassion and the like. Humans develop templates for compassion, empathy, and forgiveness through their relationships as children (Worthington et al., 2005). However, as noted earlier, people may have difficulty drawing on them or learn other ways of reacting to people. Thus, compassion meditation is not meant to create new skills; rather, it aims to help people become aware of the compassion they already are capable of having towards others. It aims to strengthen compassion as a means of reacting towards others.



Given the prior research, I expect that compassion meditation will influence compassion, empathy, and forgiveness, and that those variables will mediate the relationship between compassion meditation and relationship quality (see Figure 2).

**Hypothesis 2: Compassion meditation will increase self-reported compassion, forgiveness, and empathy over time.**

**Hypothesis 2a: Compassion meditation will increase self-reported compassion, forgiveness, and empathy more than the attention-based meditation group and the control group.**

**Hypothesis 3: Compassion, forgiveness, and empathy will mediate the relationship between compassion meditation and relationship quality.**

*Hypothesis 4-5: Intrapersonal Qualities as Mechanisms for Change*

As noted above, although compassion meditation focuses on an interpersonal experience, it is an intrapersonal process; thus, compassion meditation may influence intrapersonal variables that relate to relationships as well.

Meditation in general is beneficial intrapersonally; for example, it reduces rumination and depressive symptoms (Ramel, Goldin, Carmona, & McQuaid, 2004) and increases positive affect (Davidson et al., 2003). Thus, one way that compassion meditation may improve relationship quality is by affecting intrapersonal variables related to relationships. Two processes in particular that affect relationship quality are emotion regulation and coping. Individual stress negatively impacts relationships, but can be alleviated by positive coping (e.g., Feeney, Noller, & Roberts, 2000). People with secure relationships tend to engage in more positive coping skills, such as more positive emotional appraisals and social support seeking; in contrast, people in insecure

relationships tend to engage in less positive coping strategies, such as negative emotional appraisals and distancing themselves from the situation (Feeney et al., 2000).

There is evidence that compassion meditation may improve emotion regulation skills and coping skills. Compassion meditation decreases negative coping strategies such as ruminating (Allen & Knight, 2005). Similarly, meditation has effectively reduced symptoms of depression, which may in part be due to the focus on having compassion for emotions and validating and tolerating one's own emotional experience (Leahy, 2005). In addition to reducing negative coping and poor emotion regulation, meditation may encourage positive coping strategies and positive emotion regulation through its influence on enhancing positive affect. According to the Broaden and Build model of positive emotions (Fredrickson, 1998), positive emotions cause people to broaden their perspective and build positive coping strategies. Furthermore, there is evidence that broadening and building from positive emotions may help interpersonal relationships due to reducing the self-focus and increasing other-focus and positive feelings towards others (Fredrickson, 2000).

Given these data, I expect that compassion meditation will influence emotion regulation and coping skills, and that those variables will mediate the relationship between compassion meditation and relationship quality (see Figure 3). Because attention-based meditation is also an intrapersonal meditation that may affect emotional regulation and coping, I do not suggest a hypothesis for how the two meditation programs will compare.

**Hypothesis 4: Compassion meditation will increase emotion regulation and positive coping skills over time.**

**Hypothesis 4a: Compassion meditation will increase emotion regulation and positive coping skills more than the no-meditation control group.**

**Hypothesis 5: Emotion regulation and coping skills will mediate the relationship between compassion meditation and relationship quality.**

*Exploratory Hypothesis: Attachment*

In addition to examining the impact of compassion meditation on reported perceptions of relationship quality, it may also be interesting to investigate whether compassion meditation affects a less face-valid aspect of relationship quality: attachment. Attachment theory (Bowlby, 1969/1982) suggests that humans relate to others through internal working models (i.e., mental representations of interactions between the self and others) developed during infancy and childhood through interactions with attachment figures. When attachment relationships are secure and stable throughout childhood, people form positive working models of relationships with others involving low anxiety and low avoidance of others (Shaver & Mikulincer, 2006). When attachment relationships are not secure and supportive, people form negative working models consisting of anxiety (i.e., belief that others will not be available for support) or avoidance (i.e., belief that it is not safe to be dependent on others). These internal working models of relationships persist to adulthood and determine the template for which individuals seek, experience, and interpret relationships.

Attachment insecurity (i.e., high avoidance, anxiety, or both) has a host of negative consequences, including, in many cases, and inability to maintain close relationships (Shaver & Mikulincer, 2006). Thus it is of major importance to the field clinical relationship science to determine whether attachment insecurity can be modified, and if so, what interventions are effective.

There is evidence that attachment insecurity can be modified. An interesting series of experiments showed that perceptions of attachment security could be modified through priming (e.g., using words such as “hug”; Mikulincer et al., 2001). Furthermore, they found that enhancing attachment security also enhanced compassionate responses to other people’s suffering. Simply enhancing positive affect did not produce enhanced compassion, suggesting that helping people feel more relationally secure may also help people feel more compassionate towards others. Given these intriguing data, it would be interesting whether the relationship works the other way as well: perhaps enhancing compassion will improve attachment security. Since attachment security can be construed as perceptions of the goodness of others, it is intuitive that enhancing compassion towards other people may improve peoples’ self-reported attachment security. As there are no data on this question, however, I make no explicit hypothesis.

## Method

### *Participants*

This study was part of a larger study conducted at Emory University on the effects of compassion meditation on a variety of physiology, behavioral, and psychological outcomes. Participants were 59 freshmen at Emory University enrolled in the mandatory health class. Participants were recruited through talks given by the principal investigator during the lecture section of the health class. Interested freshmen were instructed to attend a screening session during which they read, discussed, and signed the consent form, filled out demographic and health information, were randomly assigned—though stratified by gender—to an experimental condition, and scheduled appointments to attend the pre-experiment testing sessions. A total of 32 participants were assigned to the

compassion meditation group, 12 were assigned to the attention-based meditation group, and 15 were assigned to the control group. For this portion of the study, participants received \$10 for filling out the pre-experiment questionnaires and \$20 for filling out the post-experiment questionnaires. They also received credit for fulfilling their health class laboratory section.

### *Design*

This study consisted of three independent groups: a compassion meditation group, a mindfulness attention training (MAT) meditation group, and a health lab discussion group. Both the MAT group and the discussion group are intended to serve as control groups for the compassion meditation group.

All groups attended two one-hour group meetings each week for six weeks, which served as replacements for the mandatory laboratory component of the health class, which met for one hour a week for 12 weeks. Participants randomized to either the compassion meditation group or the MAT group attended two one-hour meditation groups per week for six weeks. Participants in the control group (i.e., the discussion group) attended a health laboratory session that only included participants in this study and met for two hours a week for six weeks.

### *Procedure*

Participants in all groups attended sessions to fill out questionnaires and complete tasks irrelevant to this portion of the study. After these tasks were completed, the six-week classes component began. Both meditation programs were taught by Geshe Lobsang Tenzin, the president and spiritual leader of Drepung Loseling Monastery, Inc. Each class included a brief didactic session describing the meditation task to be

introduced that week followed by a practice meditation session. Both meditation groups helped students cultivate attention, awareness, and the meditative quiescence described above. The compassion meditation group included the additional component of helping students focus on their existing sense of compassion and expanding it to other people, stretching their compassion like a rubber band. The protocols for each group are included in Appendix B. Participants were asked to meditate for an average of 30 minutes a day, using a recorded voice as a guide. Participants were also asked to provide a daily practice log.

Students in the control group attended a biweekly lab section to learn about topics related to physical and emotional well-being. To match the extra time that student in the meditation group spend practicing, students in the control group wrote a weekly paper on self-improvement and were given an opportunity to earn extra credit by participating in weekly discussion groups. At the end of the six-week class period, all participants again completed tasks and filled out questionnaires. All questionnaires relevant to this portion of the study were given both pre and post meditation/control classes.

### *Measures*

*Relationship quality.* The Perceived Relationship Quality Component (PRQC; Fletcher, Simpson, & Thomas, 2000) was used to measure relationship quality (see Appendix A for copies of all measures). Eighteen items measure six components of relationship quality: satisfaction, commitment, intimacy, trust, passion, and love. Each component is made up of three items rated on a 7-point Likert scale (1 = *not at all* to 7 = *extremely*). Alphas for each component range from .74 (trust) to .95 (intimacy).

This measure was chosen to represent relationship quality because it contains components using many theories and previous studies described above. Furthermore, it covers a wide range of important processes in relationships while remaining a concise measure.

*Compassion.* The measure of compassion was developed specifically for this study and the developer has asked that details not be included in this manuscript. It is currently unvalidated.

*Forgiveness.* Forgiveness was measured using the Transgression-Related Interpersonal Motivations scale (TRIM; McCullough et al., 1998). The scale consists of 18 items tapping avoidance, revenge, and positive motivations towards a recent transgressor. The avoidance scale consists of seven items, the revenge scale has five items, and the positive motivations scale has six items; all alphas are over .80. All items are rated on a 5-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*).

*Empathy.* Cognitive and affective empathy were measured with the Interpersonal Reactivity Index (IRI; Davis, 1983). The IRI is a 28-item measure consisting of four subscales with seven items each, measured on a 5-point Likert scale (1 = *does not describe me very well* to 5 = *describes me very well*). The Fantasy (F) subscale measures participants' ability to empathize with fictional characters. The Perspective-Taking (PT) scale measures the ability to adopt the point of view of others. The Empathic Concern scale (EC) measures feelings of empathy and concern for others. Finally, the Personal Distress (PD) scale measures one's reactions to the distress of others. Alphas for the subscales range from .71 to .77.

*Coping.* Coping was measured with the Brief COPE (Carver, 1997), a reduced 28-item version of the COPE. Fourteen subscales are assessed using two items each: self-distraction, active coping, denial, substance use, use of emotional support, use of instrumental support, behavioral disengagement, venting, positive reframing, planning, humor, acceptance, religion, and self-blame. Items are rated on a 4-point Likert scale (1 = *I haven't been doing this at all* to 4 = *I've been doing this a lot*). Alphas for each subscale range from .50 to .90.

*Emotion Regulation.* Emotion regulation was measured by the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003), a 10-item measure with Suppression and Reappraisal subscales (five items each). Items are rated on a 7-point Likert scale (1 = *strongly disagree* to 7 = *strongly agree*). Reported alphas are .73 for the Suppression scale and .79 for the Reappraisal scale.

*Attachment.* Attachment was measured by the 36-item Experiences in Close Relationships Questionnaire, revised version (ECR-R; Fraley, Waller, and Brennan, 2000). Two subscale of 18-items each measure attachment-related avoidance (i.e., discomfort depending on others) and attachment-related anxiety (i.e., anxiety regarding trust in others' availability). Items are rated on a 7-point Likert scale (1 = *disagree strongly* to 7 = *agree strongly*). Reported alphas are .94 and .91 for the avoidance and anxiety scales, respectively.

## Results

Overall, results were mixed. There was support for an increase in relationship quality in the compassion meditation group. There was also support for differences between groups. Support for mediation models was not found, and results for



interpersonal and intrapersonal mechanisms were mixed. I discuss the results in more detail under each hypothesis.

Because of the small group samples sizes, a significance level of .10 is used. With small sample sizes it is important to consider a higher cut-off point for statistical significance in order to reduce the possibility of underestimating or neglecting important effects (Type II Error; Sprinthall, 2000). To gain further understanding of the strength of each association discussed, effect sizes are presented in the Tables.

### *Sample Characteristics*

The sample consisted of 59 participants; two outliers were dropped from the data. Thereafter, the sample contained 57 participants, 23 women and 34 men. Fifty percent of the sample identified as Caucasian, 7% as African American, 35% as Asian, approximately 2% as Hispanic, and 5% as other. Thirty participants (originally 32: the two dropped participants belonged to this group) were randomly assigned to the compassion group, 12 were assigned to the MAT group, and 15 to the control group (See Tables 1-8 for means and standard deviations and Table 9 for correlations). The ratio of women to men in each group was 2:3 (compassion), 1:4 (MAT), and 7:8 (control). Approximately 50% of each group was Caucasian. There were significantly more participants who identified as Asian in the MAT and control groups than the compassion group (50%, 47%, and 23%, respectively). The average age of the sample was 18.42 ( $SD = .57$ ). The control group was significantly older than both the compassion group ( $t(43) = -3.8, p < .001$ ) and the MAT group ( $t(25) = -1.8, p = .08$ ). The compassion group and the MAT group did not significantly differ by age. Forty-seven participants reported on romantic relationships, whereas 10 participants reported on other types of relationships.

*Hypothesis 1: Compassion meditation will improve relationship quality over time, such that participants report higher satisfaction, commitment, intimacy, trust, passion, and/or love after the meditation program compared to before.*

Over the entire sample there was no change in overall relationship quality from pre-test to post-test ( $t(56) = -.19, p = .85, d = .03$ ). As expected, however, participants in the compassion group reported significantly higher overall perceived relationship quality at post-test than at baseline ( $t(29) = -1.49, p = .07, d = .35$ ). The individual components showed the same pattern; components with significantly positive change included intimacy, commitment, and relationship satisfaction (See Table 10). Passion, trust, and love showed similar patterns but were not significantly different from baseline to posttest.<sup>3</sup>

*Hypothesis 1a: Compassion meditation will increase relationship quality more than the MAT group and the control group.*

In comparing change in relationship quality over time by groups, a repeated measures ANOVA indicated a significant interaction ( $F(2, 56) = 2.57, p = .09, \eta^2 = .09$ ; see Figure 1). As discussed above, participants in the compassion group reported significantly higher relationship quality after completing the series than before. Unexpectedly, participants in the MAT group reported significantly *lower* relationship quality after completing their series. Several individual components followed the same pattern (see Table 11). There were no pre-post differences in overall relationship quality for the control group. A t-test indicated that pre-test relationship quality scores did not differ significantly by group ( $t(42) = 1.17, p = .13$ ). A further examination of the means demonstrated that the compassion group's relationship quality mean rose 5%, whereas

the MAT group's mean dropped 9%. In contrast, the control group decreased by .3% (see Tables 1-8 for means). Thus, the results support the hypothesis that the compassion group increased relationship quality significantly more than either the MAT group or the control group.

#### *Individual Component Analysis*

The individual components of the relationship quality measure showed similar patterns. For commitment there was a significant interaction ( $F(2, 56) = 2.53, p < .09, \eta^2 = .09$ ). T-tests indicated a significant raise in commitment scores for the compassion group (See Table 10) and a significant decrease in commitment scores for the MAT group (See Table 11), but no significant difference for the control group. For relationship satisfaction there was a significant interaction ( $F(2, 56) = 3.78, p = .03, \eta^2 = .12$ ). T-tests indicated a significant increase in satisfaction scores for the compassion group and a significant decrease in satisfaction scores for the MAT group, but no significant difference for the control group. Intimacy, trust, passion, and love showed no significant interactions (effect sizes, respectively, were .07, .01, .01, and .06).

*Hypothesis 2: Compassion meditation will increase self-reported compassion, forgiveness, and empathy over time.*

As expected, the compassion group reported significantly increased compassion at post-test (See Table 12). Surprisingly, forgiveness actually decreased in this group: positive behaviors decreased, whereas revenge behaviors increased, there was no change in avoidance behaviors. Contrary to prediction, there was no change in empathy. Thus, the hypothesis was partially supported.

*Hypothesis 2a: Compassion meditation will increase self-reported compassion, forgiveness, and empathy more than the attention-based meditation group and the control group.*

Reported compassion significantly increased for both the MAT group and the control group (see Tables 13 & 14). An ANOVA using a change-in-compassion variable revealed that all groups increased by the same approximate amount. Neither empathy nor forgiveness changed significantly for the MAT group or the control group. In summary, all groups improved compassion, the compassion group decreased forgiveness, and no group affected empathy.

*Hypothesis 3: Compassion, forgiveness, and empathy will mediate the relationship between compassion meditation and relationship quality.*

Because compassion, forgiveness, and empathy did not change according to the hypotheses for each group, there was no mediation. However, in an effort to understand potential mechanisms of change in relationship quality, simple regressions using change variables for empathy, forgiveness and compassion were conducted. There were no significant associations, suggesting that neither change in empathy, change in forgiveness, nor change in compassion predicted change in relationship quality.

*Hypothesis 4: Compassion meditation will increase emotion regulation and positive coping skills over time.*

A paired samples t-test showed that participants in the compassion group did not significantly increase their emotion regulation skills from baseline to post-test (see Table 15), although both subtests showed the right directionality (i.e., increased emotional appraisal, decreased emotional suppression).

In terms of coping, out of 14 possible coping strategy variables, four were significant. Denial and self-blame were reported to be used significantly less at post-test than at baseline (see Table 15). Humor and religion were reported to be used significantly more at post-test. The other ten coping strategies did not significantly change.

*Hypothesis 4a: Compassion meditation will increase emotion regulation and positive coping skills more than the no-meditation control group.*

The control group reported a significant increase in emotion regulation appraisal skills (See Table 17) and no change in use of suppression for emotion regulation. Thus, the hypothesis was not supported. The MAT group showed no change in appraisal, but a significant decrease in suppression (See Table 16).

In terms of coping, out of the fourteen COPE variables, the control group reported a significant increase in one: positive reframing. Thus, the compassion group increased more in coping than the control group. The MAT group showed change in three variables: they reported less substance-related coping, more planning, and more humor. Thus, each group affected different coping strategies (see Tables 15-16).

*Hypothesis 5: Emotion regulation and coping skills will mediate the relationship between compassion meditation and relationship quality.*

There were no mediation effects for the intrapersonal variables.

*Exploratory Hypothesis: Attachment*

Repeated Measures ANOVAS showed that there were no significant main effects or interactions for attachment anxiety ( $\eta^2 = .01$ ). There was a trend for a main effect of time for attachment avoidance ( $F(2, 56) = 2.80, p = .10, \eta^2 = .05$ ), but no significant

interaction ( $\eta^2 = .06$ ) Paired sample t-tests showed that for the compassion group, attachment avoidance significantly decreased ( $t(29) = 2.75, p = .005$ ). There were no significant changes in attachment avoidance in either the MAT group or the control group, suggesting that the compassion group uniquely affected attachment avoidance.

Interestingly, when considering the mechanism of change for how meditation affected attachment, a number of variables come into play. Simple regressions show that change in compassion ( $t(56) = -1.7, p < .05$ ), change in empathy ( $t(56) = -1.96, p = .03$ ), change in positive forgiveness behaviors ( $t(56) = 1.83, p = .04$ ), and change in revenge behaviors ( $t(56) = 2.120, p = .02$ ) all predicted change in attachment avoidance. When entered into a multiple regression, all variables remained significant, though they decreased, indicating these variables share variance. Oddly, when splitting the data by group, none of these relationships are significant.

### Discussion

Relationships are essential to life, yet it takes work and effort to gain and maintain close, positive relationships. The primary purpose of this study was to examine whether compassion meditation would improve self-reported relationship quality in college students. A secondary purpose was to test the effects of different types of meditation on relationship quality. Finally, a third purpose was to examine potential mechanisms for the proposed associations.

The first hypothesis was fully supported. Results showed that participants reported greater overall relationship quality after participating in a six-week compassion meditation course. In terms of specific components of relationship quality, participants in the compassion meditation group reported significantly more intimacy, commitment, and

relationship satisfaction at post-test than at baseline. Effect sizes for these variables were of medium strength. Love also showed a medium strength effect size, but the effect was not significant. Neither passion nor trust neared a significant increase.

The second hypothesis was also fully supported. The two types of meditation had drastically different effects on relationship quality. Whereas compassion meditation significantly increased relationship quality, the mindfulness meditation significantly *decreased* relationship quality; the control group showed no change.

The mindfulness group significantly decreased in overall relationship quality, love, commitment, and relationship satisfaction. These differences were significant despite a very small group sample size. Although passion, intimacy, and trust did not significantly decrease, the direction of change was the same. Thus, with the exception of intimacy, the same component variables of relationship quality changed in both the compassion and mindfulness groups.

This study did not succeed in identifying potential mediators or mechanisms explaining how meditation affects relationship quality. All three groups, including the control group, increased compassion overall, suggesting that compassion may not be the essential ingredient in compassion meditation. (It is possible, however, that using an unvalidated measure of compassion meant that we did not effectively capture true compassion). Forgiveness actually decreased for the compassion group and did not change for the mindfulness or control groups, and empathy did not change for any group. In terms of intrapersonal variables, each group produced a positive increase in use of different coping strategies, suggesting that multiple methods may be effective in improving coping.

Finally, support was found for the exploratory hypothesis that meditation would affect attachment. Compassion meditation significantly decreased attachment avoidance, but not attachment anxiety; no other group affected attachment, suggesting that compassion training alone may be helpful in improving attachment insecurities.

Overall, the results of this study suggest the compassion meditation may be an effective method for improving relationship quality. Because multiple types of relationships were represented in this study, it may be useful in improving many kinds of relationships. Furthermore, it may be useful in helping many kinds of relationship difficulties, because a number of different relationship qualities improved. Examples of people that may benefit from compassion meditation include couples that have difficulty with intimacy, individuals that have difficulty with commitment to friends or romantic partners, or young adults that have high attachment avoidance. Because this study did not specifically examine people with relationship difficulties or people in particular types of relationships, more research is needed to examine whether these specific relationships may be improved by compassion training.

Although compassion training did not increase compassion significantly more than the mindfulness or control groups, it is nevertheless unsurprisingly that the compassion group was still more helpful to relationships. Compassion meditation is a uniquely interpersonal meditation, aimed specifically at opening and orienting the self towards others. In other words, compassion meditation is “intensely relational in nature, the idea being to capture the key qualities of embodied compassion through the (imagined) social relationship” (Rinpoche & Mullen, 2005, pg. 218). That we did not find interpersonal mediators does not suggest that there are none, rather that we did not



study the correct ones or did not fully capture their essences. Perhaps it is a different aspect of loving-kindness that compassion meditation trains and serves to improve relationship quality.

In contrast to compassion meditation, mindfulness meditations, including MAT, tend to be a solely *intrapersonal* experience, one that focuses the mind inward towards the self. This is evident in the intrapersonal variables in this study: compassion meditation did not affect emotion regulation strategies, whereas mindfulness meditation increased participants' personal appraisal skills and the also intrapersonally-oriented control group decreased suppression tendencies. Furthermore, the coping strategies that improved with compassion training were use of religion and humor: both potentially interpersonal coping mechanisms. On the other hand, the coping strategies that improved with mindfulness training and the control group were primarily intrapersonal, including more planning, less substance-abuse, and more positive reframing. Finally, anecdotal evidence suggests that mindfulness meditation may have the effect of causing practitioners to be less engaged and less relatable to others (e.g., <http://warner.blogs.nytimes.com/2009/03/05/the-worst-buddhist-in-the-world/>). Thus, this study opens up an important question: can mindfulness type meditations actually be *harmful* to relationships? More research is needed to look into this possibility, but this study suggests that researchers and clinicians should consider the potential problems meditation may cause as well as their benefits.

### *Limitations*

Because this was a largely exploratory study, there were many limitations. First, the group sample sizes were small, which may have inhibited our finding true

associations; effect sizes suggested that many of the nonsignificant associations may have been significant with larger samples. Furthermore, larger sample sizes would have allowed us to use a more conventional p-value rather than the higher .10 value used to reduce Type II Error.

Second, the use of freshmen college students likely limited the generalizability of this study. Although using novice meditators is a common practice in the meditation literature, beginning college students in such a transient phase of life are likely not the best sample for studying close, meaningful relationships. Similarly, asking college students to report on their subjective experiences about relationships may not have been reflective of the reality of the relationship statuses. Furthermore, the measure of relationship quality was used unconventionally (it was intended for romantic relationships specifically) and the compassion measure has not been validated.

Finally, perhaps the biggest limitation was the lack of specificity about relationships. Because this experiment was part of a larger study, participants could not be guaranteed to be in romantic relationships. Participants were encouraged to report on romantic relationships, but were permitted to report on other relationships if they were not currently romantically involved. Only ten participants reported on other types of relationships (e.g., friendships, roommates), and there were no significant differences in the results when deleting those ten. However, aside from type of relationship, there is much that we do not know about the relationships on which participants reported. For example, we did not ask participants to report how long they had been in the relationship or how serious they considered it to be. We did not ask questions allowing us to determine the stage of relationship, according to the Nowicki and Duke model (2002),

which may be essential for this type of research. For example, perhaps compassion meditation is especially effective for those in the deepening stage of relationships but not the beginning. Finally, we did not ask participants to report on traits, behaviors, or processes within their relationships. Therefore, we were unable to determine whether participants were in “close, positive relationships” as discussed in the introduction of this paper. Because we cannot judge the relationships, we cannot judge the extent to which meditation helped people gain, improve, or maintain their relationships.

### *Future Directions*

This preliminary study opens a number of avenues for future research. First, replication is needed to determine whether compassion meditation improves relationship quality in a second sample of college students, in non-college dating couples, and in married couples. Second, future studies should examine the relationship in more detail, asking participants to report on relationship stage, traits, behaviors, and processes as discussed above. Such research could extend this study by examining how compassion meditation impacts the intimacy process between couples, for example. Future research should also attempt to include both members of couples in the study in order to obtain a greater understanding of the relationship. A daily diary study asking participants to report daily on both their meditation practice, their experience of compassion, and their perception of relationship quality would give researchers the opportunity to statistically model the three experiences and examine how they change and impact each other.

Third, the results suggest that compassion meditation may affect attachment, although the nature of that effect is unclear. Future research should further examine how

meditation affects attachment; for example, it may be informative to study how compassion training affects parent-child attachment in college students.

Finally, this study suggests that meditation is not the panacea that some believe it to be. Different meditations appear to have different effects; future research should test assumptions about meditations and examine which meditations may be best – or worst – for certain areas of change. Perhaps compassion meditation may be most helpful at improving qualities in the social realm, whereas mindfulness meditation may be best at improving qualities in the intrapersonal realm. More research is needed to examine these ideas.

### *Conclusion*

This study was the first to examine how compassion meditation may affect relationships, and it was the first to pit compassion meditation and mindfulness meditation against each other in an experimental setting. Despite its limitations, this study showed that compassion meditation may be a useful and important way to help relationships flourish. Furthermore, this study broke down the assumption that meditation is always beneficial; it is clear that future research needs to examine the differential impacts of different meditations. Overall, this study made several important contributions to the growing meditation literature; we hope that future researchers will continue these lines of study.

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## Footnotes

<sup>1</sup> A note about relationship types: Relationship typing is a complex field. Examples of typologies include voluntary versus exogenous, reciprocal versus symmetric, and attached versus affiliative (VanLear, Koerner, & Allen, 2006). Each can be further broken down into more familiar categories of friend, marriage, parent, acquaintance, etc. Each of these categories can be *further* divided into typologies—romantic couples can be visualized, (high satisfaction, openness, affection, and sex, though unrealistic notions about relationships) harmonious (moderate levels of each but realistic notions), or traditional (somewhat dissatisfied but are quite realistic; Fowers & Olson, 1992).

Only one typology is particularly pertinent to this paper: Personal versus Social. Personal or close relationships have high intimacy, closeness, and interdependence, whereas social relationships tend to be disengaged, superficial, and independent (VanLear et al., 2006). Any kind of relationship can be personal/close, though traditionally those relationships tend to be of the marriage, romantic, best friend, or close relative variety rather than the work, acquaintance, or casual friend variety. Clearly, however, work relationships can involve high intimacy and closeness and romantic relationships can be quite separate and superficial. Because this paper only deals with personal relationships, further discussion on relationship typing is beyond the scope of this work.

<sup>2</sup> There are varying calculations used to determine an equitable relationship that are not included in this paper. For reference, see Walster, Walster, and Bercheid (1978).

<sup>3</sup> There were no differences in the results when comparing people in romantic relationships versus those in other relationships. There were also no differences in the overall relationship quality analyses when deleting the passion variable. Finally, there were no significant effects when examining groups by practice time.

## Tables

Table 1

*Pre and Post Means and Standard Deviations for Interpersonal Variables for Overall Sample*

	<u>Pre</u>		<u>Post</u>	
	Mean	SD	Mean	SD
PRQC Total	5.76	.86	5.79	1.07
PRQC Passion <sup>1</sup>	5.30	1.32	5.24	1.21
PRQC Love	5.68	1.38	5.75	1.49
PRQC Trust	6.16	1.06	6.13	1.04
PRQC Intimacy	5.48	1.00	5.57	1.26
PRQC Commitment	5.92	1.09	5.99	1.22
PRQC Satisfaction	5.77	1.25	5.80	.127
ECR Avoidance	2.98	1.07	2.71	1.01
ECR Anxiety	3.58	1.19	3.49	1.27
Compassion	14.00	2.51	14.68	2.48
IRI Empathy	20.47	4.05	20.25	4.29
TRIM Positive	2.40	.89	2.20	.88
TRIM Revenge	1.88	.80	1.83	.77
TRIM Avoidance	2.39	1.12	2.33	.99

*N* = 57 except where noted. <sup>1</sup>*N* = 42

*Note:* PRQC = Perceived Relationship Quality Component; IRI = Interpersonal Reactivity Index; TRIM = Transgression-Related Interpersonal Motivations; ECR = Experiences in Close Relationships

Table 2

*Pre and Post Means and Standard Deviations for COPE Variables for Overall Sample*

	<u>Pre</u>		<u>Post</u>	
	Mean	SD	Mean	SD
Self Distraction	4.95	1.64	4.75	1.55
Active Coping	5.70	1.44	5.88	1.28
Denial	2.74	1.34	2.47	1.09
Substance Use	2.53	1.07	2.46	.95
Use of Emotional Support	4.96	1.92	4.96	1.93
Use of Instrumental Support	4.86	1.95	4.88	1.80
Behavioral Disengagement	2.65	1.08	2.60	.98
Venting	3.88	1.66	3.82	1.44
Positive Reframing	5.18	1.71	5.42	1.54
Planning	5.67	1.44	6.02	1.40
Humor	4.19	1.89	4.32	1.58
Acceptance	5.93	1.44	5.81	1.57
Religion	3.81	1.89	4.35	1.93
Self-Blame	4.61	1.80	4.32	1.86

*N* = 57 except where noted.

Table 3

*Pre and Post Means and Standard Deviations for Interpersonal Variables for  
Compassion Meditation Group*

	<u>Pre</u>		<u>Post</u>	
	Mean	SD	Mean	SD
PRQC Total	5.59	.87	5.92	1.00
PRQC Passion <sup>1</sup>	5.00	1.39	5.17	1.35
PRQC Love	5.53	1.51	5.90	1.39
PRQC Trust	6.07	1.13	6.18	1.05
PRQC Intimacy	5.37	.98	5.79	1.10
PRQC Commitment	5.71	1.19	6.12	1.11
PRQC Satisfaction	5.59	1.17	6.00	1.08
ECR Avoidance	2.82	.93	2.36	.76
ECR Anxiety	3.57	1.29	3.38	1.28
Compassion	14.20	2.64	14.83	2.55
IRI Empathy	21.03	4.11	20.70	4.42
TRIM Positive	2.60	.88	2.22	.89
TRIM Revenge	1.96	.76	1.80	.63
TRIM Avoidance	2.48	1.14	2.33	.97

*N* = 30 except where noted. <sup>1</sup>*N* = 12

*Note:* PRQC = Perceived Relationship Quality Component; IRI = Interpersonal Reactivity Index; TRIM = Transgression-Related Interpersonal Motivations; ECR = Experiences in Close Relationships

Table 4

*Pre and Post Means and Standard Deviations for COPE Variables for Compassion  
Meditation Group*

	<u>Pre</u>		<u>Post</u>	
	Mean	SD	Mean	SD
Self Distraction	4.67	1.71	4.60	1.48
Active Coping	5.60	1.52	5.87	1.38
Denial	2.93	1.44	2.30	.65
Substance Use	2.73	1.31	2.70	1.15
Use of Emotional Support	5.23	1.98	5.13	1.96
Use of Instrumental Support	5.23	2.03	5.00	1.68
Behavioral Disengagement	2.83	1.23	2.70	1.21
Venting	4.10	1.65	4.07	1.41
Positive Reframing	5.47	1.73	5.60	1.38
Planning	5.77	1.50	6.03	1.35
Humor	3.97	1.88	4.80	1.58
Acceptance	6.07	1.46	6.07	1.62
Religion	3.77	1.70	4.57	1.81
Self-Blame	4.63	1.59	4.07	1.62

*N* = 30 except where noted.

Table 5

*Pre and Post Means and Standard Deviations Interpersonal Variables for MAT Group*

	<u>Pre</u>		<u>Post</u>	
	Mean	SD	Mean	SD
PRQC Total	5.59	.87	5.92	1.00
PRQC Passion <sup>1</sup>	5.00	1.39	5.17	1.35
PRQC Love	5.53	1.51	5.90	1.39
PRQC Trust	6.07	1.13	6.18	1.05
PRQC Intimacy	5.37	.98	5.79	1.10
PRQC Commitment	5.71	1.19	6.12	1.11
PRQC Satisfaction	5.59	1.17	6.00	1.08
ECR Avoidance	2.82	.93	2.36	.76
ECR Anxiety	3.57	1.29	3.38	1.28
Compassion	14.20	2.64	14.83	2.55
IRI Empathy	21.03	4.11	20.70	4.42
TRIM Positive	2.60	.88	2.22	.89
TRIM Revenge	1.96	.76	1.80	.63
TRIM Avoidance	2.48	1.14	2.33	.97

*N* = 12 except where noted. <sup>1</sup>*N* = 7.

*Note:* PRQC = Perceived Relationship Quality Component; IRI = Interpersonal Reactivity Index; TRIM = Transgression-Related Interpersonal Motivations; ECR = Experiences in Close Relationships; MAT = Mindfulness and Attention Training.

Table 6

*Pre and Post Means and Standard Deviations for COPE Variables for MAT Group*

	<u>Pre</u>		<u>Post</u>	
	Mean	SD	Mean	SD
Self Distraction	4.67	1.71	4.60	1.48
Active Coping	5.60	1.52	5.87	1.38
Denial	2.93	1.44	2.30	.65
Substance Use	2.73	1.31	2.70	1.15
Use of Emotional Support	5.23	1.98	5.13	1.96
Use of Instrumental Support	5.23	2.03	5.00	1.68
Behavioral Disengagement	2.83	1.23	2.70	1.21
Venting	4.10	1.65	4.07	1.41
Positive Reframing	5.47	1.73	5.60	1.38
Planning	5.77	1.50	6.03	1.35
Humor	3.97	1.88	4.80	1.58
Acceptance	6.07	1.46	6.07	1.62
Religion	3.77	1.70	4.57	1.81
Self-Blame	4.63	1.59	4.07	1.62

*N* = 12 except where noted.

*Note:* MAT = Mindfulness and Attention Training.



Table 7

*Pre and Post Means and Standard Deviations for Interpersonal Variables for Control Group*

	<u>Pre</u>		<u>Post</u>	
	Mean	SD	Mean	SD
PRQC Total	5.90	.69	5.83	1.02
PRQC Passion <sup>1</sup>	6.44	.20	5.89	1.02
PRQC Love	5.62	1.15	5.76	1.50
PRQC Trust	6.33	.81	6.20	1.06
PRQC Intimacy	5.56	.91	5.31	1.22
PRQC Commitment	6.18	.71	6.07	.96
PRQC Satisfaction	5.87	1.25	5.91	1.25
ECR Avoidance	2.98	1.11	3.01	1.16
ECR Anxiety	3.74	1.16	3.68	1.32
Compassion	13.93	2.22	14.47	2.48
IRI Empathy	19.93	3.17	20.27	3.96
TRIM Positive	2.37	.99	2.38	1.05
TRIM Revenge	1.88	.86	2.10	.99
TRIM Avoidance	2.33	1.17	2.69	1.13

*N* = 15 except where noted. <sup>1</sup>*N* = 3.

*Note:* PRQC = Perceived Relationship Quality Component; IRI = Interpersonal Reactivity Index; TRIM = Transgression-Related Interpersonal Motivations; ECR = Experiences in Close Relationships

Table 8

*Pre and Post Means and Standard Deviations for COPE Variables for Control Group*

	<u>Pre</u>		<u>Post</u>	
	Mean	SD	Mean	SD
Self Distraction	5.47	1.25	5.07	1.67
Active Coping	6.07	1.28	6.00	.93
Denial	2.67	1.59	2.67	1.68
Substance Use	2.27	.70	2.20	.56
Use of Emotional Support	4.73	1.67	5.13	2.03
Use of Instrumental Support	4.67	1.80	5.13	2.00
Behavioral Disengagement	2.20	.56	2.33	.49
Venting	4.00	1.85	3.80	1.47
Positive Reframing	5.13	1.77	5.67	1.72
Planning	5.93	1.49	5.93	1.39
Humor	4.33	1.67	4.07	1.10
Acceptance	6.00	1.46	5.93	1.28
Religion	3.93	2.25	3.93	2.12
Self-Blame	4.07	1.71	4.13	2.00

*N* = 15 except where noted.

Table 9

*Correlations Between Post-Data Variables for Overall Group*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 PRQC Total	1	.44*	.89**	.85**	.91**	.87**	.85**	.14	.09	.01	-.14	-.01	-.38**	-.31*
2 Passion	.44*	1	.14	.18	.33	.18	.33	-.05	-.06	.25	-.11	.03	-.19	.25
3 Love	.89**	.14	1	.67**	.82**	.77**	.73**	.14	.06	-.09	-.11	-.04	-.21	-.26*
4 Trust	.85**	.18	.67**	1	.71**	.71**	.74**	-.01	.07	-.01	-.16	-.02	-.43**	-.29*
5 Intimacy	.91*	.33	.82**	.71**	1	.75**	.80**	.04	.00	-.03	-.14	-.07	-.42**	-.33*
6 Commitment	.87**	.18	.77**	.71**	.75**	1	.71**	.18	.20	.03	-.12	-.01	-.29	-.23
7 Satisfaction	.89**	.33	.73**	.74**	.80**	.71**	1	.10	.05	.03	-.10	-.01	-.44**	-.28*
8 Compassion	.14	-.05	.14	-.01	.04	.18	.10	1	.62**	-.06	-.07	.11	.08	.02
9 Empathy	.09	-.06	.06	.07	.00	.19	.05	-.09	1	-.09	-.21	-.01	-.08	-.05
10 TRIM Positive	.01	.25	-.09	-.01	-.03	.03	.03	-.06	-.09	1	.59**	.69**	.17	.09
11 TRIM Revenge	-.14	-.11	-.11	-.16	-.14	-.12	-.10	-.07	-.21	.59**	1	.69**	.32*	.38**
12 TRIM Avoidance	-.01	.03	-.04	-.02	-.07	-.01	-.01	.11	-.01	.69**	.69**	1	.17	.12
13 ECR Avoidance	-.38**	.40†	-.21	-.43**	-.42**	-.29*	-.44**	.08	-.09	.17	.32*	.17	1	.43**
14 ECR Anxiety	-.31*	-.19	-.26*	-.29*	-.33*	-.23	-.28*	.02	-.05	.09	.38**	.12	.43**	1

†  $p < .10$  \* $p < .05$  \*\* $p < .01$ .

*Note:* PRQC = Perceived Relationship Quality Component; TRIM = Transgression-Related Interpersonal Motivations; ECR = Experiences in Close Relationships.

Table 10

*Paired T-Tests Comparing Pre-Post PRQC Data for Compassion Group*

	<i>t</i>	Effect Size (Cohen's <i>d</i> )
Total	-1.49†	.35
Passion	1.10	.13
Love	-1.28	.29
Trust	.45	.10
Intimacy	-1.76*	.40
Commitment	-1.59†	.36
Satisfaction	-1.53†	.36

*N* = 30. †  $p < .10$  \* $p < .05$  \*\* $p < .01$ .

Note: PRQC = Perceived Relationship Quality Component

Table 11

*Paired T-Tests Comparing Pre-Post PRQC Data for MAT Group*

	<i>t</i>	Effect Size (Cohen's <i>d</i> )
Total	1.77*	-.49
Passion	.83	-.19
Love	1.38†	-.46
Trust	.58	-.22
Intimacy	.97	-.22
Commitment	1.37†	-.38
Satisfaction	3.41**	-.57

*N* = 12. †  $p < .10$  \* $p < .05$  \*\* $p < .01$ .

Note: PRQC = Perceived Relationship Quality Component

Table 12

*Paired T-Tests Comparing Pre-Post Data for Interpersonal Variables for Compassion Group*

	<i>t</i>	Effect Size (Cohen's <i>d</i> )
Compassion	-2.62**	.24
Empathy	.58	.08
TRIM Positive	1.86*	.43
TRIM Revenge	1.54†	.22
TRIM Avoidance	.70	.21

*N* = 30. †  $p < .10$  \* $p < .05$  \*\* $p < .01$ .

Note: TRIM = Transgression-Related Interpersonal Motivations.

Table 13

*Paired T-Tests Comparing Pre-Post Data for Interpersonal Variables for MAT Group*

	<i>t</i>	Effect Size (Cohen's <i>d</i> )
Compassion	-1.63†	.39
Empathy	.66	.14
TRIM Positive	.33*	.05
TRIM Revenge	1.12	.16
TRIM Avoidance	1.15	.37

*N* = 12. †  $p < .10$  \* $p < .05$  \*\* $p < .01$ .

Note: TRIM = Transgression-Related Interpersonal Motivations; MAT = Mindfulness and Attention Training.

Table 14

*Paired T-Tests Comparing Pre-Post Data for Interpersonal Variables for Control Group*

	<i>t</i>	Effect Size (Cohen's <i>d</i> )
Compassion	-1.42†	.22
Empathy	-.36	.09

TRIM Positive	-.05	.01
TRIM Revenge	-.97	.24
<u>TRIM Avoidance</u>	<u>-1.13</u>	<u>.31</u>

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$N = 15$ . †  $p < .10$  \* $p < .05$  \*\* $p < .01$ .

*Note:* TRIM = Transgression-Related Interpersonal Motivations

Table 15

*Paired T-Tests Comparing Pre-Post Data for Intrapersonal Variables for Compassion Group*

	<i>t</i>	Effect Size (Cohen's <i>d</i> )
<u>Emotion Regulation</u>		
Appraisal	-.89	.13
Suppression	1.15	.17
<u>COPE</u>		
Self-distraction	.27	.04
Active Coping	-.70	.19
Denial	2.52**	.56
Substance Use	.14	.02
Emotional Support	.39	.05
Instrumental Support	.72	.12
Disengagement	.53	.11
Venting	.14	.02
Positive Reframing	-.63	.08
Planning	-.84	.18
Humor	-3.02**	.48
Acceptance	.00	.00
Religion	-4.12**	.46
Self-Blame	2.38**	.35

$N = 30$ ; †  $p < .10$  \* $p < .05$  \*\* $p < .01$ .

Table 16

*Paired T-Tests Comparing Pre-Post Data for Intrapersonal Variables for MAT Group*

	<i>t</i>	Effect Size (Cohen's <i>d</i> )
<u>Emotion Regulation</u>		
Appraisal	.33	.12
Suppression	1.60	.40
<u>COPE</u>		
Self-distraction	.64	.14
Active Coping	-.64	.17
Denial	-1.0	.40
Substance Use	1.48*	.26
Emotional Support	.56	.13
Instrumental Support	-.14	.05
Disengagement	.32	.09
Venting	-.17	.06
Positive Reframing	-.43	.11
Planning	-3.07**	.71
Humor	2.38*	.58
Acceptance	.80	.32
Religion	-1.21	.28
Self-Blame	.17	.04

*N* = 12; †  $p < .10$  \* $p < .05$  \*\* $p < .01$ .

Note: MAT = Mindfulness and Attention Training.



Table 17

*Paired T-Tests Comparing Pre-Post Data for Intrapersonal Variables for Control Group*

	<i>t</i>	Effect Size (Cohen's <i>d</i> )
<u>Emotion Regulation</u>		
Appraisal	-3.26**	.55
Suppression	.41	.05
<u>COPE</u>		
Self-distraction	1.31	.27
Active Coping	.269	.06
Denial	.00	.00
Substance Use	.32	.10
Emotional Support	-.71	.22
Instrumental Support	-.83	.24
Disengagement	-.81	.25
Venting	.82	.12
Positive Reframing	-1.95*	.31
Planning	.00	.00
Humor	.55	.18
Acceptance	.17	.05
Religion	.00	.00
Self-Blame	-.16	.03

*N* = 15; † *p* < .10 \**p* < .05 \*\**p* < .01.