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The Relationship Between Gottman's Four Horsemen of the Apocalypse, Mindfulness, and Relationship Satisfaction

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THE RELATIONSHIP BETWEEN GOTTMAN'S FOUR HORSEMEN OF THE APOCALYPSE, MINDFULNESS, AND RELATIONSHIP SATISFACTION

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John Gottman popularized the role that negative communication patterns can have in romantic relationships (Gottman, 2001). More specifically, the presence of his "Four Horsemen of the Apocalypse" has been found to predict relationship satisfaction and divorce in couples (Gottman, 1999). The "Four Horsemen" refer to criticism, defensiveness, contempt, and stonewalling. Gottman (1999) suggests that certain skills like mindfulness can be used to enhance communication and guard against the Four Horsemen in couples. Mindfulness refers to the act of intentionally focusing one's attention on the present moment in a nonjudgmental, non-comparative, and accepting way that is void of evaluation (Kabat-Zinn, 1990). Wachs and Cordova (2007) and Barnes, Brown, Krusemark, Campbell, and Rogge (2007) suggest that mindfulness may enhance relationships by, among other benefits, improving communication. The present study aimed to shed light on the possible relationship between mindfulness and the negative communication patterns described as the Four Horsemen of the Apocalypse. Additionally, the study aimed to explore the possible relationship between the Four Horsemen of the Apocalypse and overall relationship satisfaction in college student dating relationships. Results indicate that two of the Four Horsemen, Criticism and Contempt, were significant predictors of relationship satisfaction. Mindfulness was not a significant predictor, nor was it found to mediate the relationship between the Four Horsemen and relationship satisfaction.

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CHAPTER I

INTRODUCTION

Like most forms of therapy, therapeutic work with couples has undergone an evolution over time. Many popular types of couples therapy originally grew out of existing family therapies and evolved into their own distinct types of theoretical frameworks and interventions. Despite Ackerman's (1970) early assertion that therapeutic work involving marital conflicts was at the core of family change, couples work was somewhat slow to distance itself from family work and gain recognition as its own type of therapeutic work. This is even more surprising given that family therapists often work with more couples-related problems than issues involving entire families (Doherty & Simmons, 1996). As Gurman and Messer (2003) pointed out, despite these direct links to family therapy, couples work was largely marginalized by the popular family therapies of the times, receiving only minor attention in the family therapy textbooks. The authors also pointed out that over time the earlier concept of marital therapy has been replaced by couples therapy "because of its emphasis on the bond between two people, without the judgmental tone of social value implied by the traditional term" (Gurman & Messer, 2003, p. 464). Therefore, when possible the term "couples therapy" will be used to refer to marital and couples works throughout the following manuscript.

One of the earliest forms of family therapy to highlight the importance of the dyadic relationship between partners was Bowen's Family Systems Therapy. Considered to be one of the "transgenerational approaches," Bowen's model emphasizes the role of family-of-origin interaction patterns of each partner in their current relationship. Based on their early interactions with the family-of-origin, individuals develop different levels of differentiation, which refers to the separation of one's intellectual and emotional functioning. A healthy level

of differentiation in an individual allows for autonomy and intimacy, as the individual is able to resist being overwhelmed by his or her partner's emotional reactivity. Fusion refers to poor levels of differentiation, or the fusing of intellectual and emotional aspects of relationships with others. Individuals are unable to retain a healthy sense of self, which is associated with defensiveness, externalization, and discrediting one's partner (Gurman & Messer, 2003). Bowen (1978) hypothesized that partners seek out mates who are at the same level of differentiation as they are, and early family-of-origin patterns are then repeated in the current relationship. Conflict arises when the anxiety level of one partner increases, which may occur due to both internal and external forces on the relationship system. In Bowen Family Systems Theory, the therapist takes on the role of a coach, remaining neutral and avoiding taking sides in the couple's issues. Change occurs through the therapist, who teaches individuals about the observed interactional patterns and how these patterns relate to the families-of-origin (Bowen, 1978).

Structural-Strategic Marital Therapy (SSMT) is another form of couples therapy that was derived from family therapies. Although structural and strategic family therapies are presented as separate and distinct forms of family therapy, Gurman and Messer (2003) point out that the two approaches share a strong commonality in lineage, as their respective founders Salvador Minuchin and Jay Haley spent years collaborating together at the Philadelphia Child Guidance Clinic. These two approaches to family therapy were integrated into one standard practice and conceptualization of couples therapy, dubbed Structural-Strategic Marital Therapy, by James Keim (1999, 2000). SSMT focuses on the "here and now" system of the couple, and if applicable, the entire family. The focus is not on understanding the past, but instead on the current functioning of the individuals involved in the system, including the behaviors that maintain that system. Problematic symptoms arise that maintain the system's

interactions and at the same time reinforce the system's interactions. "Symptoms serve to maintain systems (relationships) by serving a protective, homeostatic adaptive function for the relationship, especially when a couple cannot resolve, or perhaps even overtly identify, their central difficulties" (Gurman & Messer, 2003, p. 477). In other words, symptoms are not the actual problem in the relationship and instead develop in response to a problem so that the relationship system can be maintained. In Haley's family therapy, power and authority were a central focus of family therapy. In the more recent integrative SSMT, power is viewed in terms of the marital hierarchy, with the focus being both on authority in the relationship as well as the balance of influence and contribution between members of the relationship (Keim & Lappin, 2002). In SSMT, the therapist takes a direct and active role in the therapy. Instead of fostering insight in the couples, the therapist attempts to identify and re-label the function of behavior, which in turn produces change in the system. This is accomplished through the use of both direct and indirect directives given to the members of the couple by the therapist. These directives can be therapist-inspired or client-inspired, both of which serve to change the way the couple thinks or behaves within the system.

Another early approach to couples work that was derived from family therapy is Virginia Satir's model, which is classified as an experiential-humanistic approach. Satir was influential in many ways, as her model was one of the earliest methods for treating couples, andshe was one of the only prominent female clinicians of her time in the field of family therapy. Furthermore, she was both nationally and internationally recognized (Gurman & Messer, 2003). Unlike the systems and strategic theorists who focused on family structure, power, and boundaries, Satir focused on more humanistic principles in couples. She believed that individuals inherently strive for their own personal growth and development and that relationship problems arise when partners have low self-esteem or an inability to continue their

own development (Goldenberg & Goldenberg, 2008). Poor self-esteem then leads to poor communication and poor interactions between the couple, which in turn creates problems within the relationship. Satir identified particular dysfunctional roles that individuals play in relationships, such as the "blamer" and the "placator," and she assumed that individuals play these roles due to low self-esteem or an inability to continue their personal growth. Therapy aims to enhance self-esteem in each member of the couple by creating corrective emotional experiences that allow the couple to grow together and enhance their own intimate relationships. The therapist first focuses on fostering an empathic alliance with the couple before using a variety of interventions, including I-statements and refocusing the couple's attention toward the positivity in their relationship. Change occurs by creating a therapeutic environment in which the couple can take risks through self-disclosure and grow through their own self-exploration (Gurman & Messer, 2003).

Like Satir's model, Emotion-Focused Couples Therapy (Johnson & Greenberg, 1995) is another model of couples therapy that was developed from experiential-humanistic principles. This couples therapy recognizes the basic tenants of humanistic approaches, including the ideas that a solid therapeutic alliance can lead to positive change in and of itself, that people can make positive decisions that promote their own personal growth when given the opportunity to do so, and that therapy can provide corrective emotional experiences. As the name would suggest, Emotion-Focused Couples Therapy (EFCT) places importance on the emotional world of the couple as being central to creating therapeutic change. Perhaps more than any other couples therapy, EFCT borrows from attachment theory and recognizes adult attachment as the theory of adult love (Gurman & Messer, 2003). A secure attachment bond between members of the couple is thought to be the basis of a healthy relationship. Negative emotions, especially anger, indicate problems within the relationship. Therapeutic work

focuses on the present moment, with interventions involving client-centered and systemic techniques that focus on the emotions expressed in therapy. Johnson's (1996) Emotion-Focused Couples Therapy outlines the stages in the treatment model of EFCT. The first stage focuses on de-escalation, or reducing the painful emotions experienced by the couple. The second stage involves changing the interactional patterns of the couple by encouraging acceptance of the partner's emotional experience and helping couples to identify and express their specific emotional needs. The third and final stage, referred to as "Consideration and Integration," focuses on assisting the couple in developing new, more adaptive solutions to old problems and acknowledging the gains made in therapy in an effort to help the couple generalize what has been effective.

In addition to the various couples therapies that have grown out of family therapy frameworks, many specific interventions continue to make their way into couples work. One example of this can be found in mindfulness meditation. Mindfulness meditation is utilized in a variety of ways in both individual and couples therapy. In its most general form, the process involves intentionally focusing one's attention on the present moment in a nonjudgmental way that avoids evaluating one's thoughts and feelings (Kabat-Zinn, 1990). Mindfulness-based interventions began to gain popularity in the 1980's with the introduction of Kabat-Zinn's (1982) Mindfulness-Based Stress Reduction Program (MBSR), which continues to make its way into a growing number of hospital settings today. Similarly, mindfulness-based interventions have evolved into couples work with the Mindfulness-Based Relationship Enhancement program (Carson, 2002), which focuses on using mindfulness techniques to enhance relationship satisfaction in couples.

Although specific interventions like mindfulness techniques have been empirically evaluated in a variety of studies, with the exception of Johnson's (1996) Emotion Focused

Couples Therapy, many of the popular couples therapies leaned heavily on the theoretical frameworks of the family therapies from which they were derived. As a result, these techniques were often criticized for lacking an empirically-sound framework from which interventions could be created. That all changed with the work of John Gottman, whose Sound Marital House Theory was one of the first couples therapies to be created from empirical research efforts.

The following dissertation aims to explore the relationships between Gottman's Four Horsemen of the Apocalypse, mindfulness, and relationship satisfaction in a college student sample. First, the empirical works of John Gottman will be reviewed, including studies that involve interactional patterns in the areas of perception, physiology, and interactive behavior, or what Gottman refers to as the Core Triad of Balance (Gottman, 1999). This will be followed by a brief review of Gottman's application of these findings in the form of his Sound Marital House Theory, which refers to Gottman's treatment model and interventions. Next, mindfulness will be reviewed, including the Mindfulness-Based Stress Reduction (Kabat-Zinn, 1982) and Mindfulness-Based Relationship Enhancement (Carson, 2002) programs. Additionally, the relationship between mindfulness and romantic relationship satisfaction will be reviewed. Finally, the present study involving the relationships between Gottman's Four Horsemen, mindfulness, and relationship satisfaction will be described.

CHAPTER II

REVIEW OF RELEVANT LITERATURE

The Work of John Gottman

Through his work over the past 30 years, John Gottman, Ph.D., has solidified himself as one of the most prolific researchers of couples and marital therapy. Beginning with the creation of The Family Research Laboratory, or "love lab" (Levenson & Gottman, 1983), Gottman was not only one of the first researchers to study couples in a laboratory setting, but he also was one of the first to utilize a longitudinal design in several studies of couples and marriages. From these works he has produced numerous scholarly journal articles and ultimately his own theory and treatment techniques regarding what makes marriages successful. Perhaps just as influential as the research and workshops aimed at professionals are the many books and weekend workshops designed for the general public. His influence can easily be seen in his collective body of work, and he is often regarded as one of the foremost experts in the field of marriage and couples therapy.

Together with his colleague Robert Levenson, Gottman constructed a laboratory at the University of Washington that resembled a normal apartment (Gottman, 1999). Couples lived in the apartment laboratory for 24-hour periods and were asked to behave as they normally would on a Sunday afternoon at home. Video cameras were turned on at 9am and off at 9pm, allowing researchers to observe interactions over a 12-hour period. Data were obtained on "respiration, electrocardiogram, blood velocity to the ear and finger of the nondominant hand, skin conductance, and gross motor movements using a device attached to the base of chairs" (Gottman, 1999, p 26). Later, couples were asked to view videotapes, and using a rating dial that ranged from extremely positive to extremely negative, were asked to rate what they were feeling and thinking. Additionally, individuals were asked to guess what their partners were

thinking and feeling during the videos. Gottman and colleagues also played specific parts of the videos, chosen on the basis of some salient dimension like the individual's behavior, physiology, or rating, and then asked the subjects how they were thinking or feeling, what their partner was thinking or feeling, and what their goals were during that moment. Using the videotapes, behaviors were coded using an "objective coding system with trained observers who describe facial expressions, voice tone, gestures, body positions and movements, the distance between them, and so on" (Gottman, 1999, p.27).

Using the "love lab," Gottman and colleagues conducted seven longitudinal studies with over 677 couples over the past 30 years. The studies were meant to look at marriages in various stages ranging from the newlywed stage through transitional periods and into retirement. They include young couples (Levenson & Gottman, 1983; Levenson & Gottman, 1985), a mix of couples varying from newlyweds to old age (Gottman, 1994), couples with a preschool child (Gottman, Katz, & Hooven, 1996), newlyweds (Gottman, Coan, Carrere, & Swanson, 1998), middle-aged couples and couples in their sixties (Levenson, Carsatensen, & Gottman, 1994), and four groups of couples labeled highly abusive, moderately abusive, distressed nonviolent, and happily married nonviolent (Jacobson, Gottman, Gortner, Berns, & Shortt, 1998). Follow-up data were collected at different intervals in each of the studies, the longest of which was 15 years after initial observation. In addition to longitudinal studies in the love lab, Gottman and colleagues have conducted studies involving brief interventions on marital interactions as well as weekend workshops with over 900 couples (Gottman, 1999). These longitudinal studies, interventions, and weekend workshops form the basis of Gottman's theory of successful relationships.

In developing his research and theory, Gottman draws on the early theoretical work of von Bertalanffy (1968), who coined General Systems Theory. Von Bertalanffy viewed all

systems as being similar in that they consisted of many parts, with each part sharing a mathematical relationship with the others. These mathematical relationships govern the system's dynamics, including the actions and interactions of the individual parts. Von Bertalanffy argued that feedback mechanisms within the system work to help the system maintain a homeostatic balance, or what Gottman referred to as a stable steady state (Gottman, Swanson, & Swanson, 2002). When applied to marriages and family interactions, this meant that each person's behavior is affected by the other. As a result, the attention of early family general systems theorists was drawn to the interactions or patterns of interactions between individuals as opposed to the personality characteristics or pathologies of individuals. Gottman (1999) pointed out that this view of families as systems had the unfortunate consequence of pitting the therapist against the family. Specifically, the therapist's goal is to initiate change in the family in the form of improvement, whereas the family system would resist that change in order to maintain the homeostatic environment it was used to.

Unlike family systems theorists, Gottman's approach aligns the therapist with the couple. Gottman, Murray, Swanson, Tyson, and Swanson (2005) discuss the equations theorized by von Bertalanffy. However, mathematical modeling revealed these equations to be nonlinear, which "reveal that homeostasis in couples is a dynamic process in which the couple has its own mechanisms of self-correction and repair when the interaction becomes too destructive (Gottman, 1999, p. 33). Furthermore, there are two different homeostatic states for each couple: one positive and one negative. In this model, the therapist and couple work together to strengthen the positive homeostatic steady state while weakening the negative homeostatic state. This strengthening occurs through repair attempts, which are key to the therapeutic work involved in Gottman's theory. Gottman assumes "every relationship is a system that develops its own balance of steady stable states, with respect to the ratio of

positivity and negativity in behavior, perception, and physiology" (Gottman, 1999, p.33). The longitudinal studies from Gottman's love lab focused on these three different domains. These domains are linked in what Gottman has coined the Core Triad of Balance, with the idea being that each marriage has a steady state of balance within each of the three domains, that the system of the relationship is drawn to this state in order to maintain homeostasis, and that every relationship is capable of repair.

More specifically, Gottman draws on the work of Cook et al. (1995), who describe two types of steady states in human relationships: an uninfluenced steady state and an influenced steady state. The uninfluenced steady state consists of what each member of the couple brings to the interaction before they are influenced by their partner. This uninfluenced steady state is affected by the individual's history and temperament, among other factors. The influenced steady state describes how one individual is affected by the other during the interaction. Gottman hypothesized that every individual brings to the relationship an uninfluenced steady state in each of the three areas of the core triad of balance: perception, physiology, and behavior. The members of the couple interact, and each interaction involves ways in which the husband influences the wife and the wife influences the husband. Gottman (1999) refers to these as influence functions, and each interaction can drive the uninfluenced steady states in a positive or negative direction. The relationship system drives the uninfluenced steady states in predictable ways, which in turn create influenced stable steady states in perception, physiology, and behavior. For relationships to work well, Gottman purported that there must be a balance of positivity to negativity in the stable steady states of perceptions, physiology, and behavior, with more physical feelings of calmness and well-being versus anxiety or physiological discomfort.

The Core Triad of Balance: Perception

Gottman (1999) posited that perception is a key factor in differentiating happy marriages from unhappy ones. Here perception refers to the ways in which partners perceive, interpret, and attribute the positive and negative actions of one another. Again, it should be noted that all couples perceive a balance of positive and negative behavior in their partners. In happy relationships, partners perceive positive actions from their significant other as stable, consistent, and characteristic of both their partner and the relationship. Negative behaviors are perceived to be fleeting, situational, fluctuating, and highly alterable. In unhappy relationships, positive behaviors are perceived to be fleeting and situational, while negative behaviors are seen as flaws or characteristics of one's partner. Gottman pointed out that it is often the case that partners enter couples therapy with the idea that the therapist will recognize the character flaws that they see in their partner and will align with them to "fix" these flaws in the partner, thereby improving the relationship.

Gottman (1999) described the process through which the perceptions of these negative behaviors are transformed into lasting negative narratives of the overall relationship. He refered to this process as the Distance and Isolation Cascade, which is characterized by flooding, viewing relationship problems as severe, deciding it is best to work out the problems alone (without one's partner), adapting to the resulting parallel lives, and finally, loneliness. Flooding begins when the negative interactions result in negative emotions that overwhelm one member of the couple to the point that they cannot believe how their partner is acting and reacting so negatively. After feeling overwhelmed, the individual views the relationship problem as severe and believes the responsibility for improving the situation belongs to their partner. The partner then begins to feel the same way, and in an effort to avoid confrontation, further negativity, and escalation, the two members of the couple disengage emotionally and

begin to lead parallel lives. As a result, the individuals begin to feel lonely within the relationship, which further damages their connection and makes other relationship possibilities look more attractive.

Gottman (1993) provided empirical evidence for the Distance and Isolation Cascade. Again using longitudinal data from the love lab, Gottman constructed a structural model of the cascade and tested model fit. Data came from couples who were observed over 24-hour periods in the love lab behaving as they normally would, discussing the events of the day and areas of conflicts in their relationship. Observers were trained to code emotions, facial expressions, and attempts at repair and problem-solving. Follow-up assessments of relationship quality and stability were later conducted, with the five steps of the cascade being assessed by various questionnaires. The resulting longitudinal data fit the structural model that was developed based on Gottman's Distance and Isolation Cascade.

Core Triad of Balance: Physiology

Physiology is identified as the next factor in Gottman's Core Triad of Balance. Again, it should be noted that Gottman argues for the usefulness of balance in each factor of the triad, and physiology is no different. Whereas previous family and couples therapists like Murray Bowen (1978) argued that a person cannot think rationally while in a heightened physiological and emotional state, Gottman (1999) stated that the time for individuals to work on difficult emotions like anger, sadness, disappointment, or contempt is when they are experiencing those very emotions. He pointed to the work of child psychologists Ginott (1965) and Redl (1965), who revolutionized therapy with children by arguing that the most effective interventions for dealing with child anger, fear, or sadness involved working with the child when he or she was experiencing those very emotions. Gottman (1999) contended that this type of state dependent learning is applicable to working with couples in that teaching them to self-soothe and soothe

each other during times of physiological distress can significantly improve the couple's ability to cope with distress during conflict, thereby improving the relationship.

In addressing physiology, Gottman (1999) referred to the body's sympathetic nervous system, which he framed as the alarm system. The sympathetic nervous system is responsible for alerting the body to emergency situations and initiating the fight-or-flight response, while the parasympathetic nervous system is responsible for returning the body to a state of calm. Emergency situations often leave us in a state of what Gottman called *diffuse physiological arousal*, which refers to the fact that "many systems are simultaneously activated to mobilize the body so that we can cope effectively with emergencies and situations perceived to be dangerous" (Gottman, 1999, p.75). This adaptive response to threat involves an increased heart rate and blood pressure, increased amounts of epinephrine, restricted blood flow to the body's extremities, and increased levels of glucose in the blood, among other things. Furthermore, the attentional system becomes a vigilance system, detecting only danger and limiting one's ability to think and process information. Gottman stated that this same emergency response system that is initiated when we are physically threatened is also activated during a relationship conflict. If not addressed through repair attempts, taking a break from arguing, or self-soothing, the resulting physiological distress will have a negative effect on the relationship.

Gottman's love lab yielded support for these conclusions. In a study published by Malarkey, Kiecolt-Glaser, Pearl, and Glaser (1994), in-dwelling catheters were used to take blood samples before, during, and after a group of 40 newlywed couples discussed an area of conflict. For analysis, the couples were divided into two groups based on how often they exhibited a particular set of negative communications The authors concluded that the negative marital interaction codes of the coding system that was used to code behaviors were

significantly related to a greater secretion of epinephrine and other stress hormones. Also, couples exhibiting higher levels of these particular negative communications showed significantly higher levels of stress hormones (interpreted as less recovery) a half-hour later.

Core Triad of Balance: Interactive Behavior

Although Gottman instituted many different coding systems in his love laboratory, the Specific Affect Coding System is of particular importance in Gottman's research. This involves training observers to recognize and record facial features involved in emotion as well as the voices, gestures, and content of what couples say. Multiple observers code the same interactions so that inter-rater reliability can be computed. Using this coding system in his longitudinal studies, Gottman computed the ratio of positive to negative exchanges during interactions that involved conflict resolution (Gottman, 1999). He refers to these as "Dow-Jones Ratios."

Gottman, Coan, Carrere, and Swanson (1998) focused on this ratio of positive to negative exchanges when evaluating newlywed couples. The authors hypothesized that a higher degree of negativity over positivity would predict future relationship satisfaction. Gottman et al. found that couples who had a high ratio of negativity-to-positivity in their interactions involving conflict resolution were significantly more likely to be dissatisfied with their relationships both at the time the study was conducted and at follow-up four years later. Furthermore, couples who had a high negativity-to-positivity ratio were more likely to be divorced at follow-up four years later than couples who had Dow-Jones ratios with higher positivity to negativity. In other words, couples who displayed more negative affect than positive affect toward each other were significantly less happy in their relationships. On the surface, this finding would seem to be intuitive and unimportant. However, it should be noted that the overall level of negative affect by itself was not a predictor of divorce or lower

relationship satisfaction. Instead, the ratio of positive to negative interactions predicted more favorable outcomes. This would prove to be important in Gottman's theory and interventions, as Gottman stated, "Marital therapy should not declare war on negative affect, for it serves many positive functions in marriage. It culls out what does not work and renews courtship via a dance of closeness and distance" (Gottman, 1999, p.40). Furthermore, Gottman (1994) states that successful marriages contain at least a ratio of five positive interactions to everyone one negative interaction, which is an often-cited ratio in Gottman's therapeutic writings (Gottman, 1999).

In a similar study, Carrere and Gottman (1999) observed couples in the love lab while they were having a 15-minute discussion concerning a conflict. The authors divided the discussion into three five-minute blocks, and each was evaluated in terms of the Dow-Jones ratio of negativity to positivity. Positivity was coded as any display of validation, joy, humor, or interest, while negativity was coded as any display of contempt, belligerence, anger, fear, defensiveness, sadness, or stonewalling. Total positivity, total negativity, and difference ratios between positivity and negativity were calculated for each member of the couple over each five-minute period. The marital statuses of the couples were then assessed each year over the next six years. Results in the form of t-tests indicated that couples who later divorced exhibited greater amounts of negative affect and lower amounts of positive affect when compared to couples who stayed together. This finding was observed in each of the five-minute blocks. Husbands played a significant role in the analysis. In relationships that remained stable over the six-year period, husbands showed an increase in negativity across time but did not show a decrease in positivity. In relationships that ended in divorce, husbands showed more negativity and less positivity as the interaction went on. These results also

support Gottman's claim that it is neither the amount of positivity nor negativity that is important in predicting the stability of relationships, but the ratio of positivity-to-negativity.

Carrere and Gottman (1999) continued with the analysis, cutting off the final three minutes of the interaction and again testing whether or not the Dow-Jones ratio could predict relationship stability. The authors continued with this process and found that only the first three-minutes of the conversation were needed to predict relationship stability. Gottman uses this finding as evidence to support the importance of the "harsh start-up," or a quick escalation from neutral to negative during an interaction, in his marital therapy.

Of special significance are what Gottman (1994) refers to as the Four Horsemen of the Apocalypse. After finding that the ratio of positive to negative interactions could predict divorce, Gottman realized that he and his team had been weighing all negative interactions the same. The question of whether all negative interactions had the same magnitude of impact on the relationship was posed. Through further analysis, Gottman found "Not all negatives are equally corrosive. Four behaviors, which I call The Four Horsemen of the Apocalypse, are most corrosive: *criticism, defensiveness, contempt, and stonewalling*" (Gottman, 1999, p.41). These concepts have gained popular notoriety through Gottman's many books and media appearances, and they are almost always a focal point of therapeutic interventions based in Gottman's theory.

Gottman defines criticism as "any statement that implies that there is something globally wrong with one's partner" (Gottman, 1999, p. 41). These types of statements often begin with "you always" or "you never," and they are differentiated from a simple complaint due to their non-specific, global accusation. Gottman pointed out that complaints are not predictive of marital outcomes, but adding the words *always* or *never* effectively turns a complaint into a criticism. Additionally, Gottman (1999) suggested that a long list of stored

up complaints may serve as a criticism, as together they take on a more global accusation toward one's partner. It should be noted again that Gottman maintains voicing displeasure within the relationship is healthy and functional. In order to avoid criticisms, partners should focus on making a complaint without blame and focusing on a specific rather than global concern.

Criticisms are often met with the second of the Four Horsemen: Defensiveness. This is defined by Gottman as "any attempt to defend oneself from a perceived attack" (Gottman, 1999, p.44). Additionally, defensiveness may also occur in response to a simple complaint. Defensive statements are problematic to the relationship because they involve denying any responsibility for the problem and attributing blame solely to one's partner. As Gottman pointed out, "It is not both of you who have the problem, but the mean bully you happen to be married to" (Gottman, 1999, p.44). This concept is similar to O'Malley and Greenberg's (1983) concept of retroactive deserving in which one never admits to being wrong and blames their partner for not preventing or allowing them to make the mistake. Gottman seeks to combat defensiveness by having each partner acknowledge his or her own responsibility in the creation of the problem at hand.

Gottman's Third Horsemen of the Apocalypse is contempt, which he described as "any statement or nonverbal behavior that puts oneself on a higher plane than one's partner (Gottman, 1999, p.44). Contempt may often take the form of mockery, which can be especially damaging to the relationship when it occurs in a public setting. Ekman, Schwartz, and Friesen (1978) studied facial movements involved in expressions of contempt and found a culturally universal expression that occurs when the dimpler muscle pulls the lip corners to the sides and forms a dimple in the cheek, which is often accompanied with an eye roll or upward glance. Gottman (1994) found these contemptuous facial expressions to be particularly

damaging to a relationship. After turning off the sound of the video tapes and focusing solely on these contemptuous facial expressions, Gottman found that contemptuous facial expressions by husbands were predictive of wives' infectious illnesses over the following four year period. Wives' contemptuous facial expressions alone, however, did not predict husbands' illnesses. Gottman suggests that contemptuous interactions can be healed by fostering a sense of fondness and admiration that involves expressing positive appreciation for one's partner.

The last of the Four Horsemen is stonewalling, which Gottman (1999) defined as withdrawing from the interaction, which typically involves one partner leaving or storming out of the room. In a typical discussion involving conflict, the listener gives the speaker numerous indications that he or she is listening, including eye contact, head nodding, expressing warmth or concern, and mirroring facial expressions, among other cues. Stonewallers do none of these things. Instead, they look briefly at the speaker, maintain a stiff neck, and hardly vocalize or respond. Also, they conceal facial expressions instead of showing their feelings. Men are more likely than women to stonewall, and they usually do so after their own physiology has become highly aroused (Gottman, 1994). Gottman suggests that couples dealing with conflict allow one another to take small (approximately twenty-minute) breaks as needed in order to prevent stonewalling from occurring.

In addition to identifying the Four Horsemen, Gottman (1999) also discussed the relationship between each of them. He made the important point that happy and successful marriages are not void of criticism, defensiveness, and stonewalling. Instead, these negative interactions occur less frequently and are often accompanied by successful repair attempts. Furthermore, although the Four Horsemen may be present at times, they are outnumbered by positive interactions in at least a five-to-one positive-to-negative Dow Jones ratio. When the

Four Horsemen are present, they usually follow a sequence, with criticism leading to defensiveness, which leads to contempt followed by stonewalling ending the interaction. Gottman specified that contempt is in its own category, as the amount of contempt in stable, successful relationships is "essentially zero" (Gottman, 1999, p.46). Because contempt is such a strong predictor of relationship success, it is advised that therapists treat it as psychological abuse and do not allow it to occur when treating a couple. Criticism, defensiveness, and stonewalling are found in stable relationships, and therefore Gottman argued that the focus of intervention for these Horsemen should be on cultivating successful repair attempts. Effective repair, a stable in Gottman's interventions, results in interest, affection, humor, and lowered tension being expressed more often and during conflict.

The Four Horsemen of the Apocalypse are arguably the most popular concepts of Gottman's marital therapy. In addition to being good predictors of marital dissolution in Gottman's longitudinal studies (1999), the Four Horseman have been popularized through Gottman's popular writings (Gottman, 1994, 1999, 2001, 2006) and numerous television and media appearances. However, possibly because they make up only a small part of Gottman's Sound Marital House Theory, they have not been extensively studied as stand-alone variables in the academic literature. Gottman provided the Four Horsemen Questionnaire in his book The Marriage Clinic (1999). This 33-item true/false questionnaire assesses for the presence of each of the Four Horseman, with higher scores on each of the four subscales indicating a greater presence of the corresponding maladaptive communication pattern. The Four Horsemen of the Apocalypse Questionnaire has shown adequate reliability and validity in multiple studies (Gottman, 2012; Cornelius & Alessi, 2007; Walker, 2005).

The Sound Marital House

Using the longitudinal data obtained from the Love Lab and the various findings regarding the Core Triad of Balance, Gottman developed his own theory of successful relationships, which he coined "The Sound Marital House" (Gottman, 1999). Unlike his predecessors who largely assumed that the absence of negative characteristics of relationships resulted in successful relationships, Gottman focused on what his research suggests make relationships work. He has described three different types of successful relationships, which he refers to as volatile, validating, and conflict-avoiding (Gottman, 1993). Gottman pointed out that although these relationships have different characteristics, all are similar in that they have at least a 5:1 ratio of positive to negative interactions, and none are superior to the others. Volatile couples are the most emotionally expressive of the three, and both positive and negative affect are present at high levels and are expressed freely. They value openness and honesty, are often seen as passionate individuals, and view arguing itself as a sign of caring. Validating couples value emotional expressiveness, but only in moderation. We-ness and companionship are a central focus of the relationship. Conflict-avoiders agree to disagree. They minimize problems and focus on the strengths of their marriage. This type of couple is often seen as avoidant and assumed to be unhealthy, but the relationship works because the focus is on the acceptance of problems and the concentration is on the positive aspects of the relationship.

In addition to believing that negative affect should be minimized in healthy relationships, most theorists would consider the validators to be the only desirable type of the three aforementioned couples (Gottman, 1999). Gottman (1993) stressed that it is not the expression of positive or negative affect that predicts relationship success, but the ratio. In other words, a high level of negative affect expression is perfectly acceptable in a relationship

provided there is at least five times as much positive affect expression occurring. Instead of negative affect being the problem, mismatches in interaction styles predict relationship success (Gottman, 1999). For instance, when a validator and avoider are in a relationship, the validator is constantly pursuing the avoider while feeling shutout emotionally, and the avoider begins to feel flooded. When a validator and volatile are together, the validator feels as if he or she is not listened to and begins to feel flooded, while the volatile feels their partner is cold, unemotional, and distant. In the event an avoider and volatile are in a relationship, the avoider feels he or she has married an emotionally unstable person, while the volatile feels unloved, rejected, and unappreciated.

Although these relationship types appear very different, they can all be characterized by Gottman's two "staples" of successful relationships: the overall level of positive affect, and the ability to reduce negative affect during conflict resolution. Gottman argued that "these two empirical facts give us the basis for marital therapy" (Gottman, 1999, p.105). With that in mind, Gottman's Sound Marital House Theory is predicated on the idea that interventions should work to increase positive affect and help couples develop strategies for reducing negative affect during conflicts. The Sound Marital House consists of four different levels that build upon one another, and Gottman's marital therapy includes interventions designed to address each level.

The foundation of Gottman's sound marital house is the marital friendship. Gottman (1999) purported that it is difficult to create positive affect in a distressed relationship, but the marital friendship can be restored rather easily. Therefore, the ground floor of the sound marital house focuses on creating positive affect in non-conflict settings, or everyday interactions. Gottman identified three components of the marital friendship, which he refers to as cognitive room, fondness and admiration, and turning toward versus turning away.

Cognitive room refers to the general knowledge that partners have about each other's history, lives, and hopes and dreams. Interventions such as the "love map" are designed to increase partners' understanding of each other, thereby allowing them to occupy more space in their partner's cognitive room (Gottman, 1999). The fondness and admiration component aims to develop a sense of liking and admiring for one's partner. Interventions include having individuals share memories of the relationship that they enjoy and list characteristics that they appreciate about their partner. The final component of the marital friendship, turning toward versus turning away, encourages couples to accept their partner's desire for their attention (as opposed to rejecting it). This is based on the idea that partners often reject their mate's desire for attention out of mindlessness instead of malice, and by encouraging individuals to be mindful of their partner's need for their company, fewer feelings of distance and rejection result. Interventions include exercises that bring partners into contact with each other while they work together on tasks like cooking dinner, walking the dog, or reading to each other (Gottman, 1999). Additionally, couples are instructed as to how to have a mindful conversation with each other in a supporting and validating way.

The next level of the sound marital house involves creating positive sentiment override (Gottman, 1999). This refers to the couple's ability to access positive affect during conflict interactions. If the couple has been successful at the foundational level of the sound marital house, meaning positive affect is present in their daily interactions, it is likely to permeate into their conflict interactions. As Gottman states, "Sufficient positive affect in nonconflict interactions makes positive sentiment override possible" (Gottman, 1999, p.107). This means that repair attempts will be more successful, as couples are able to use positive affect to soothe each other and decrease heightened states of physiological arousal during conflict.

The third level of the sound marital house involves regulating conflict. The most important aspect of this level is that it is the successful regulation of conflict, not their resolution, that predicts relationship success (Gottman, 1999). Whereas other marital therapies may focus on resolving conflict, Gottman believes that because individuals retain their unique personalities while blending them together to create a state of we-ness, conflict will naturally occur within the relationship, and some problems will remain unsolved. The positive sentiment override created on the preceding floor of the sound marital house allows couples to feel comfortable with unresolved issues and allows for effective repair attempts during conflict. Gottman reported that even in newlywed couples that initially scored high on the Four Horsemen, when repair was effective (meaning couples were able to decrease negative affect and express positive affect during conflict), 83.3% were in stable and happy marriages eight years later (Gottman, 1999). Interventions at this level involve having the couple identify their solvable and unsolvable problems and guiding them through soft startup techniques and repair attempts that promote positive affect.

The final level of the sound marital house, the ceiling, involves creating shared meaning. Gottman (1999) asserts that each family creates its own culture with its own unique blend of rituals, symbols, metaphors, and narratives. Individuals in happy relationships seek to share in each other's goals, dreams, and aspirations and work together to make them come true. Doing so requires the characteristics developed at the previous levels, including regulating conflict, developing positive sentiment override, and fostering the marital friendship. Interventions at this level are designed to encourage couples to identify and examine their own unique goals, rituals, symbols, and roles together. Notably, this level of the sound marital house has been criticized for lacking empirical evidence (Stanley, Bradbury, & Markman, 2000; Sell, 2009).

Given the breadth and depth of Gottman's Sound Marital House Theory, it is not surprising to see that it has been studied in relation to various constructs such as dating violence (Cornelius, Shorey, & Beebe, 2010), child abuse (Tell, Pavkov, Hecker, & Fontaine, 2006), and communication style (Cornelius & Alessi, 2007). Furthermore, more popular aspects of the theory like the Four Horsemen of the Apocalypse receive individual attention in the literature (Walker, 2006). In addition to being empirically linked to other constructs in the research literature, in writings for the general public Gottman (2001) suggested other skill sets may be used to enhance communication and guard against the Four Horsemen in couples. One such example suggested by Gottman involves mindfulness. In discussing the foundation of the Sound Marital House, Gottman suggested that couples often interrupt each other, disregard their partner's concerns, or respond in a preoccupied manner. He added that couples likely are on "automatic pilot" (Gottman, 2001, p.45) and are not intentionally disregarding their spouses concerns. Gottman suggested that by being mindful of the present moment, partners can become more aware of how their interactive behavior affects their partner, thereby improving communication.

Although Gottman (2001) commented on the usefulness of mindfulness in combating the Four Horsemen and creating successful repair attempts, the relationship of mindfulness to the Sound Marital House has not been empirically studied. This is especially surprising given that mindfulness has been linked to communication, conflict resolution, and relationship satisfaction in couples (Barnes, Brown, Krusemark, Campbell, & Rogge, 2007). In a two-part study, Barnes et al. (2007) first studied a sample of 82 dating college students (no students were members of the same dyad) and, using multiple regression analyses, found that trait mindfulness predicted higher relationship satisfaction and greater capacities to respond to relationship stress in positive and productive ways. In the second study, the authors replicated

the previous findings in a sample of sixty heterosexual couples. Then, couples were bought into a laboratory setting and asked to discuss two relationship conflict topics of their choosing. The couples were asked to sit quietly and relax for five minutes both before and after the conflict discussions took place. Pre- and post-conflict assessments of mood and trait mindfulness were obtained. The authors reported that trait mindfulness was found to predict lower emotional stress responses and positive pre- and post-conflict change in perception of the relationship. Additionally, state mindfulness was related to better communication quality during the discussion.

Given these findings, Gottman's suggestion that mindfulness appears to contribute to more productive communication between partners, especially during conflict, would appear to be supported. The following section will examine the concept of mindfulness as well as popular mindfulness-based intervention programs and further research regarding mindfulness and relationships.

Mindfulness

The term "mindfulness" is presented in many different forms and, as Bishop et al. (2004) discussed, can be difficult to define. While some describe mindfulness as the self-regulation of attention, others view it as "an orientation that is characterized by curiosity, openness, and acceptance" (Bishop et al. 2004, p.232). Just as the literature base on mindfulness has evolved over time, so too have the ways in which the construct is defined. In its simplest of forms, mindfulness refers to a way of directing attention (Baer, 2003). More specifically, mindfulness refers to a nonjudgmental awareness of the present moment (Hahn, 1976). Brown and Ryan (2003) described mindfulness as an open and receptive attention to and awareness of what is taking place, both internally and externally, in the present moment. Kabat-Zinn (1990) described mindfulness as the act of intentionally focusing one's attention

on the present moment in a nonjudgmental, non-comparative, and accepting way that is void of evaluation. He later commented that mindfulness is the process of "paying attention in a particular way, on purpose, in the present moment, and nonjudgmentally" (Kabat-Zinn, 1994, p.4).

Wachs and Cordova (2007) pointed out that mindfulness, as it is conceptualized and studied by Western researchers and practitioners, is derived from Buddhist and other Eastern spiritual systems that focus on contemplation and cultivation of the ability to tend to the present moment. However, in adapting these practices to the Western world and for use in hospital and mental health settings, the overt religious teachings associated with mindfulness have been removed (Baer, 2003). According to Gambrel and Keeling (2010), some have "questioned whether the effectiveness of mindfulness training is diminished by removing it from a larger context," (p.414) whether that context is religious, spiritual, or theoretical. Still, mindfulness is often conceptualized as a trait that can be found in varying degrees in individuals and as a quality that can be developed through practice (Brown, Ryan, & Creswell, 2007). As Baer (2003) argued, mindfulness need not be associated with a particular religious philosophy in order to be beneficial to individuals. The author continued to state the following:

> By conceptualizing traditional mindfulness meditation practices as sets of skills that can be taught independently of any religious belief system, researchers and clinicians have made mindfulness training available to Western populations by incorporating it into interventions that are increasingly offered in mental health and medical settings. (Baer, 2003, p.4)

Mindfulness skills have been utilized in medical and mental health settings in a variety of ways; each way involving the teaching of mindful awareness. Whether in the structure of a

formalized program or in utilizing mindfulness skills in a less formal manner, similar general instructions are often given. Clients are asked to incorporate mindfulness skills into daily life activities such as walking, driving, and eating (Baer, 2003). Individuals are asked to focus their attention on one specific activity, whether it be breathing, eating, or walking, and to observe it with focus and without judgment. Throughout these exercises, individuals are asked to notice where their mind wanders to, which usually involves the past or future. They are instructed to note where the mind wandered to and to accept this before bringing their attention back to the activity at hand, whether it be the breath, eating, or whatever the chosen activity was. It is often that the mind generates an emotional state, such as anxiety, or the mind wanders to a bodily sensation like an itch. In each case, individuals are instructed to note where the mind took them, to accept this without judgment, and to return to the point of focus. It is here that the definition of mindfulness used by Kabat-Zinn (1994) is utilized, as individuals are encouraged to note these wandering thoughts and urges with a friendly curiosity and acceptance while avoiding self-criticism and judgment.

Mechanisms of Mindfulness Action

As the research on mindfulness continues to grow, some studies have aimed to examine the mechanisms of mindfulness action, or how, exactly, mindfulness works to produce benefits for individuals. Shapiro, Carlson, Astin, and Freedman (2006) proposed a theoretical model for the mechanisms of mindfulness. The authors postulated a three axiom model of mindfulness, the three axioms of which serve as the foundation of the model and include intention, attention, and attitude. Intention plays an important role in how mindfulness benefits practitioners. The authors explained that as meditators continue to practice, their intentions move from self-regulation to self-exploration and finally to self-liberation. Intentions are dynamic and evolve throughout mindfulness practice. Attention is a second

fundamental component of mindfulness, and in this context it refers to an individual's ability to observe moment-to-moment internal and external experience. The authors point to cognitive theories and the importance of attention as it relates to sustained attention or vigilance, switching mental sets, and cognitive inhibition. The authors go on to state that the self-regulation of attention would be predicted to result in the enhancement of these skills. The third axiom, attitude, refers to how one attends and the qualities one brings to attention. For example, attention may have a critical quality or a compassionate one. The authors posited that individuals can learn to attend to their thoughts and feelings with a positive attitude characterized by kindness and openness. With increased training, individuals can attend to experience without judgment and with kindness and compassion.

The authors continued by proposing a model of potential mechanisms of mindfulness that builds on the three axioms, suggesting that intentionally attending with openness and nonjudgement leads to a significant shift in perspective. They refer to this shift as reperceiving. Reperceiving "is a meta-mechanism of action which overarches additional direct mechanisms that lead to change and positive outcome" (Shapiro et al., 2006, p.377). This can be described as a change in consciousness in which the previous subject becomes the object. Much like the young toddler develops into a child that can see himself as separate from the objective world, the reperceiving in mindfulness refers to one's own thoughts, feelings, and memories. Mindfulness practice allows one to become less attached to their stories, and in this way the stories become simply stories, which results in greater clarity, perspective, and objectivity (Shapiro et al, 2006).

Additionally, Shapiro et al. (2006) postulated four additional mechanisms of mindfulness action, which include self-regulation, values clarification, cognitive, emotional, and behavioral flexibility, and exposure. Self-regulation "is a process whereby systems

maintain stability of functioning and adaptivity to change" (Shapiro et al., 2006, p.380). Reperceiving allows for self-regulation in that one gains the ability to step back from negative emotionality and view it as an emotional state, which frees one from behaving in an automatic response to negative emotionality. Values clarification refers to the process by which one recognizes and understands their own values. Values are often conditioned by family, society, and other social forces, and individuals often respond and react to stimuli based on these values. Reperceiving allows one to become more aware of their values and how they impact behavior, and by separating ourselves from our values through the process of observation, one becomes less reactive. Furthermore, through observing in a nonjudgmental fashion, one can reassess their value system and act in ways that are more congruent with this system. Regarding cognitive, emotional, and behavioral flexibility, reperceiving facilitates "more adaptive, flexible responding to the environment in contrast to the more rigid, reflexive patterns of reactivity that result from being overly identified with one's current experience" (Shapiro et al., 2006, p.381). Reperceiving enables one to observe their inner experience and see their mental-emotional content with more clarity, which in turn results in more cognitive and behavioral flexibility and less reactivity. Finally, another mechanism of mindfulness comes in the form of exposure. Reperceiving allows a person to experience strong emotions with greater tolerance and objectivity, which results in less reactivity.

In sum, Shapiro et al. (2006) posited that mindfulness arises when intention, attention, and attitude are simultaneously cultivated. Reperceiving occurs, which allows for a shift in perspective. This shift is at the heart of mindfulness and the changes it produces. The authors suggested that multiple mechanisms are facilitated by the shift of reperceiving, and these mechanisms include self-regulation, values clarification, cognitive-behavioral flexibility, and exposure.

Carmody, Baer, Lykins, and Olendzki (2009) provided partial support for the model described by Shapiro et al. (2006). The authors assessed 309 participants who enrolled in one of seventeen sections of a mindfulness program at the University of Massachusetts Medical School between 2006 and 2007. Both mindfulness and reperceiving showed significant increases from pre to post intervention. Furthermore, self-regulation, values clarification, cognitive-behavioral-emotional flexibility, and exposure also increased significantly over the course of treatment. However, increases in reperceiving were not found to mediate the relationship between mindfulness and the other four mechanisms of action posited by Shapiro et al. (2006). The authors suggested that mindfulness and reperceiving may instead be highly overlapping constructs and that both variables change with participation in mindfulness programs.

In another study investigating the mechanisms of mindfulness action, Arch and Craske (2008) investigated the impact of a single 15-minute mindfulness-based focused breathing induction on the intensity and negativity of emotional responses to affectively-valenced picture slides. The authors compared the 15-minute mindfulness breathing exercise group to a group that received 15-minute recorded inductions of unfocused attention and worrying. Compared to the unfocused induction group, the mindful breathing group maintained more consistent positive responses to the neutral slides before and after the induction exercise. Additionally, the focused breathing group reported lower negative affect in response to the slides and a greater willingness to view the highly negative slides for longer periods of time as compared to the unfocused group. The authors concluded that one mechanism through which mindfulness provides positive benefits for individuals is via increased emotion regulatory capacities. Mindfulness results in more adaptive responses to negative stimuli, reduced emotional volatility, and an increased willingness and tolerance for negative affect.

While mindfulness skills have been incorporated into a variety of treatments, they have also been utilized in a number of formalized mindfulness-based programs. Baer (2003) is regarded as one of the best sources for empirically-supported treatments and programs that utilize mindfulness teachings. The most popular of these programs include mindfulness-based stress reduction (Kabat-Zinn, 1990), mindfulness-based cognitive therapy (Segal, Teasdale, Williams, & Gemar, 2002), and mindfulness-based relationship enhancement (Carson, Carson, Gil, & Baucom, 2004). Additionally, other empirically-supported formalized treatments include mindfulness skills as one portion of the larger treatment. Notable examples include Dialectical Behavior Therapy (DBT; Linehan, 1993), a popular treatment for borderline personality disorder, and Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999), a therapeutic approach used to treat a variety of problems and symptoms. Each of these programs utilizes mindfulness skills in a different way to address a variety of concerns, but in each program the idea behind mindfulness is the same: focusing on the present moment in an accepting and nonjudgmental fashion can provide a host of therapeutic benefits. The two most popular mindfulness-based intervention programs, MBSR and MBRE, will now be examined briefly.

Mindfulness Based Stress Reduction

Kabat-Zinn's (1982) Mindfulness-Based Stress Reduction (MBSR) program was the first formalized mindfulness-based program to gain popularity. Baer (2003) pointed out that as of 1998, this particular program was being utilized in over 240 hospitals nationwide and was being used to treat patients with a variety of symptoms and disorders. Baer (2003) went on to state that the number of these programs has undoubtedly grown since 1998. The program was originally designed in a behavioral medicine setting for use with individuals with chronic pain and other stress-related ailments, and its use has been expanded to include

patients struggling with a variety of problems including cancer, eating disorders, depression, anxiety, and intimate partner violence (Baer, 2003).

The standard mindfulness-based stress reduction program lasts 8 weeks and involves weekly 2-3 hour sessions in addition to extensive daily homework, which comes in the form of 45-minute homework assignments that are to be practiced at least six days per week. Each class session involves an experiential component in which participants receive instruction in a mindfulness exercise and are encouraged to discuss their experiences. Also, the sixth week of the program includes an all-day mindfulness session. Participants are expected to be active in their daily practice of mindfulness exercises, which include such activities as mindful eating, the body scan, hatha yoga, and sitting and walking meditations. Due to the challenging requirements of the program, the time commitment required is discussed with participants during an initial orientation session in which participants are encouraged to ask questions and openly discuss their reasons for and against participating in the program (Baer, 2003). Classes often include up to 30 participants, which is another reason the program has been found to be useful in the hospital and medical setting (Baer, 2003).

Various studies demonstrate the usefulness of MBSR with different populations. Soon after the program was developed, Kabat-Zinn, Lipworth, and Burney (1985) reported that individuals with chronic pain who underwent the MBSR program reported greater reductions in depressive symptoms, anxiety, overall perceived pain, and overall pathological symptoms in comparison to a control group. Kabat-Zinn et al. (1992) later demonstrated MBSR's usefulness in working with patients with anxiety disorders, as individuals who participated in the program reported reduced depression and anxiety symptoms. The benefits of MBSR were also shown to be useful with cancer patients. Carson, Speca, Patel, and Goodey (2003) found that MBSR reduced stress and sleep disturbances and increased overall quality of life ratings

in prostate cancer patients. Similarly, Speca, Carlson, Goodey, and Angen (2000) reported reductions in stress, depression, and anxiety in cancer outpatients. Using a group of college students enrolled in a behavioral medicine course, Astin (1997) found increases in constructs including self-control, acceptance, and spirituality and decreases in depression and anxiety symptoms. In a non-clinical sample, MBSR was found to reduce perceived stress and increase positive states of mind in a group of healthy adults who participated in the course (Chang et al., 2004). It is clear that the research supports the efficacy of MBSR in treating a variety of issues in a variety of populations.

Mindfulness Based Relationship Enhancement

Although mindfulness programs have been used with a variety of populations in order to treat multiple pathological conditions, only recently has mindfulness been applied to interpersonal relationships, and more specifically to intimate relationships. The most influential mindfulness-based relationship program has been coined The Mindfulness-Based Relationship Enhancement Program (MBRE; Carson, 2002).

MBRE was developed by Carson (2002) as a doctoral dissertation project, the results of which were later published in *Behavior Therapy* (Carson, Carson, Gil, & Baucom, 2004). Baer (2003) noted that the project was likely affected by the positive psychology movement, as previous research on relationships focused on addressing problems in relationships. With the positive psychology movement came a focus on enhancing relationships that were already functioning well. Relationship researchers often posit that it is much easier to prevent marital problems and promote relationship enhancement in couples who are relatively happy and are emotionally engaged as opposed to waiting until the relationship is distressed and negative interactional patterns have been established (Baer, 2003). Carson's MBRE program was

designed for use with non-distressed couples (Carson et al., 2004) and is a direct derivative of Kabat-Zinn's MBSR program (Baer, 2003).

MBRE follows the same format and involves the same teaching style as MBSR (for a complete description of the MBRE program, see Carson, 2002). Just as is the case with the MBSR program, couples are expected to attend eight weekly sessions, each approximately 2.5 hours long, with a seven-hour long retreat on one weekend day during the 6th week of the program. Additionally, the program involves some adaptations in order to address its goal of enhancing relationships in non-distressed couples. For example, screenings are done with both members of the couple simultaneously (Baer, 2003). Greater use is made of the *metta*, or loving-kindness meditation, which helps couples focus on directing compassion toward one's partner. Throughout the program, practices of MBSR geared toward making individuals more aware of present activities are adapted to make couples more aware of their *shared* activities and experiences (Baer, 2003).

Quantitative empirical support for the MBRE program is difficult to obtain for a variety of reasons. In addition to the difficulties that come with studying couples and eight-week long programs, Christensen and Heavey (1999) pointed out that studying non-distressed couples invites problems with ceiling effects, as the members are already happy and enjoying the benefits of a positive relationship. However, in the only randomized controlled trial of the MBSR program to date, Carson et al. (2004) evaluated the program using a sample of 44 non-distressed heterosexual couples. Post-treatment results showed improvements in a variety of domains, most notably average daily relationship distress, acceptance of partner, relationship happiness, relationship satisfaction, and relationship distress.

Mindfulness and Relationship Satisfaction

Although the research on mindfulness has been increasing over the past two decades (Brown et al., 2007), only recently has research turned an eye toward the relationship between mindfulness and interpersonal relationships. More specifically, research is just now starting to look into the effects of mindfulness on relationship satisfaction. Although a consensus has yet to be reached over the exact pathways through which mindfulness affects relationship satisfaction, results do indicate that mindfulness skills are positively correlated with relationship satisfaction (Barnes et al., 2007; Wachs & Cordova, 2007; Kabat-Zinn, 1993).

One early study of the effects of mindfulness on relationship satisfaction came in Carson et al.'s (2004) evaluation of the MBRE program. As Ormiston (2011) later pointed out, in this study mindfulness was conceptualized as a learned skill and not as a dispositional trait. This distinction was important in that it led to further research involving the conceptualization of mindfulness as a skill that could be taught, cultivated, and improved. In other words, mindfulness was seen as a skill or trait that exists to varying degrees in everyone, meaning that mindfulness-based programs or teachings can be incorporated into a variety of therapeutic activities and treatments. Carson et al. (2004) found that the MBRE program resulted in enhanced relationship functioning in the form of greater relationship happiness and an increased ability to cope both with general stress and stress related to the relationship. The authors reported that the more mindfulness skills were practiced, the greater the benefits in terms of overall stress, coping with stress, relationship stress, and relationship happiness. These benefits were reported as being realized both on the day of the mindfulness practice and several days afterward. The authors speculated that one pathway through which mindfulness skills enhance relationships is by providing a greater ability to acknowledge and work through stress associated with the relationship.

Another important study of the relationship between mindfulness skills and intimate relationship satisfaction came from Wachs and Cordova (2007). The authors tested the theory that mindfulness contributes to intimate relationship satisfaction by enhancing emotional skills within the context of the relationship, thereby making it easier for couples to handle emotional difficulty within the relationship. Using a sample of married couples, Wachs and Cordova (2007) hypothesized that mindfulness would be associated with higher marital quality and partners' emotional skills and that the relationship between mindfulness and marital quality would be mediated by these emotional skills. The authors reported that emotional skills and mindfulness were both related to marital adjustment. Furthermore, the authors found that the relationship between mindfulness and marital quality was mediated by emotional skills including the ability to communicate emotions and the ability to regulate anger.

Barnes et al. (2007) also made an important contribution to the study of mindfulness and its effect on intimate relationship satisfaction. Whereas Wachs and Cordova (2007) looked at the relationship between mindfulness and relationship satisfaction and found that emotional skills function as a mediator of the relationship, Barnes et al. (2007) looked at the relationships of both trait and state mindfulness as mediated by stress and communication skills. In the first of two studies reported, the authors demonstrated that higher trait mindfulness predicted higher relationship satisfaction and greater ability to cope with relationship stress. The second study replicated and extended the findings of the first study. Here the authors found that trait mindfulness predicted "lower emotional stress responses and positive pre- and post-conflict change in perception of the relationship" (p.482). Additionally, state mindfulness was related to better communication during the discussion following conflict. Barnes et al. (2007) is significant for a number of reasons. First, the study involved a college student sample, much like the current work, and demonstrated the usefulness of

mindfulness skills in intimate relationships with this age group. Additionally, the authors demonstrated the usefulness of both trait and state mindfulness in benefiting intimate relationship satisfaction.

Mindfulness as a construct has evolved in the literature base, both in terms of how it is conceptualized and assessed. Early work suggested disagreement concerning whether mindfulness should be assessed as a multifaceted or unidimensional construct. For example, the Mindfulness Attention Awareness Scale (Brown & Ryan, 2003) conceptualized mindfulness as a unidimensional construct and yielded one total score. In contrast, Baer, Smith, and Allen (2004) designed the Kentucky Inventory of Mindfulness Skills as a multidimensional measure. Grounded in dialectical behavior therapy, the authors conceptualized mindfulness as a set of interrelated skills, and the measure yields subscale scores for four mindfulness skills: observing, describing, acting with awareness, and accepting without judgment.

More recently, Baer, Smith, Hopkins, Krietemeyer, and Toney (2006) conducted an exploratory factor analysis using the Friedburg Mindfulness Inventory (Buchheld, Grossman, & Walach, 2001), the Mindful Attention Awareness Scale (Brown & Ryan, 2003), the Kentucky Inventory of Mindfulness Skills (Baer et al., 2004), the Mindfulness Questionnaire (Chadwick, Hember, Mead, Lilley, & Dagnan, 2005) and the Cognitive and Affective Mindfulness Scale (Feldman, Hayes, Kumar, Greeson, & Laurenceau, 2007). The measures were administered to a large sample of 613 college students, and the results suggested a five-factor solution: observing, describing, acting with awareness, nonjudging of inner experience, and nonreactivity to inner experience. By selecting the seven to eight items with the highest loadings on the respective factors (and lower loadings on other factors), the authors were able to create the 39-item Five Facet Mindfulness Questionnaire (Baer et al, 2006). Yielding both a

total score and subscale scores, this measure is largely considered the gold standard for assessing mindfulness today.

Developmental Theories and College-Age Individuals

Of special importance in the current discussion are the various ways in which developmental theories attempt to capture the unique stages and characteristics of college-aged individuals. Unlike other developmental periods, this period of development "is the only period of life in which nothing is normative demographically" (Arnett, 2000, p.417). Demographic status in terms of living at home, parenting, cohabitating, and enrollment in school is difficult to predict using age alone. This diversity provides complexity in terms of how we discuss the possible roles that mindfulness and negative communication patterns like the Four Horsemen play in the lives of dating college students. Furthermore, Newlon (2013) reports that 28% of married college graduates met while attending the same college. Although Gottman's techniques were designed for use with married couples, the fact that a significant number of married couples meet during the college years provides further support for examining the role the Four Horsemen may play in college dating relationships.

Erik Erikson (1963) provided one of the more popularized theories of development. Unlike prominent developmental theorists before him who proposed that personality and behavioral patterns were established in early childhood, Erikson proposed that development continues to occur across the lifespan. Erikson described this development in terms of eight stages, each containing a specific conflict or crisis that needed to be resolved before an individual could move on to the subsequent stage of development. College-aged individuals span both the fifth and sixth stages of Erikson's theory, which are identity vs. role confusion and intimacy vs. isolation. According to the theory, adolescents in the fifth stage struggle to break away from their parents and establish their own sense of identity. Once that is resolved

and a sense of identity has been formed, these young adults move into the sixth stage of development where they look to establish and maintain intimacy in close personal relationships, including friendships, dating relationships, and marriage. This sixth stage provides further support for the applicability of Gottman's techniques with college-age individuals, as these techniques aim to enhance intimacy by improving communication with romantic relationships.

In discussing the transition from adolescence to young adulthood, Erikson (1968) described how industrialized societies allow for a longer transitional period and for more personal exploration and role experimentation. In support of this idea, Arnett (2000) argued that the period of emerging adulthood has become a distinct period of development that occurs between the late teens through the twenties, which includes the typical ages at which individuals begin college. Arnett explained that this developmental period is socially constructed, and because it has become more acceptable to delay marriage and parenthood into the late twenties or early thirties, this allows individuals in their late teens and early twenties more time before they are expected to settle into adult roles and long-term relationships. Arnett added that this period is characterized by a relative independence from social roles and expectations. Like Erikson before him, Arnett's theory of emerging adulthood also highlights the importance of romantic relationship in the development of college-age individuals. Arnett commented, "By emerging adulthood, dating is more likely to take place in couples, and the focus is less on recreation and more on exploring the potential for emotional and physical intimacy." (Arnett, 2000, p.473). These relationships tend to involve a deeper level of intimacy as compared to the relationships of adolescence, and individuals look to explore romantic relationships in an effort to determine what type of person they could potentially partner with for life. Like Erikson, Arnett's theory of emerging adulthood also provides

evidence for the use of Gottman's techniques with college-age individuals, as the methods to improve communication and deepen intimacy can assist college-age individuals in resolving one of the primary focuses of emerging adulthood.

Present Study

The present study involved multiple goals. First, although Gottman's Sound Marital House Theory has been extended to dating couples (Cornelius, Shorey, & Beebe, 2010), this was done in order to examine the relationship between dating violence and many components of the Sound Marital House Theory. The current study aimed to examine the relationship between the Four Horsemen of the Apocalypse and relationship satisfaction amongst a group of dating college students. Because Gottman's theory originally focused on marriage, it may often be overlooked as a treatment option when working with college students. Given that the average college student is at a developmental level focused on establishing intimate relationships with others (Austrian, 2008), the techniques suggested by Gottman may prove useful with this population. The initial portion of this study was conducted in order to lend support to the possible usefulness of Gottman's theory and interventions with dating college students. It was hypothesized that the presence of negative communication patterns in a relationship, specifically each of Gottman's Four Horsemen of the Apocalypse (Criticism, Defensiveness, Contempt, and Stonewalling), would be associated with lower relationship satisfaction in a sample of dating college students.

Secondly, although Gottman discusses the usefulness of mindfulness techniques (Gottman, 2001), to date no study has examined the relationship between mindfulness techniques and Gottman's Sound Marital House Theory. The second hypothesis of this study was that higher amounts of each of the five facets of mindfulness would be associated with higher relationship satisfaction in the dating college student sample.

Finally, given that the Four Horsemen of the Apocalypse are the most maladaptive of interactive behaviors identified by Gottman (1999), the present study aimed to examine the role mindfulness plays in the relationship between the Four Horsemen and relationship satisfaction. If mindfulness is a skill that can be cultivated through practice (Brown, Ryan, & Creswell, 2007; Ormiston, 2011) and is found to mediate the relationship between the Four Horsemen and relationship satisfaction, one may consider mindfulness interventions as a viable treatment option for individuals struggling with the Four Horsemen and relationship satisfaction. It was hypothesized that mindfulness will mediate the relationship between the Four Horsemen and relationship satisfaction. If true, this would lend support to the utilization of mindfulness interventions as an intervention for dating college students struggling with negative communication patterns such as the Four Horsemen.

CHAPTER III

METHODS

Data Collection Procedure

The study was conducted online using Qualtrics and the university SONA data collection system during the Spring 2013 semester. Initial screening questions asked of nearly all eligible students in the Subject Pool included "Are you currently in a romantic relationship," "How long have you been in your current romantic relationship," "Do you consider your current romantic relationship a long-distance relationship," "Have you ever been in a romantic relationship," and "How long was your most recent romantic relationship?" Only students who indicated that they have ever been in a romantic relationship were eligible for participation in the study. It was not necessary that students indicate they are currently in a relationship in order to be eligible. Both questions were asked as screening questions because it was difficult to predict the base rates of students currently in romantic relationships prior to data collection.

Students who were deemed eligible for participation based on the screening questions were emailed a link for participation in the study. This link lead participants to a Qualtrics survey that included informed consent (Appendix E), a demographics questionnaire, three questionnaires involved in the study, and a debriefing form (Appendix F) complete with referral sources (Appendix G). Participants had the ability to opt out of the study at any time. Participants were notified that their data was initially identifiable and that all data would be de-identified prior to analysis. All forms were expected to be completed in approximately 10-15 minutes.

Participants

Participants for the study were recruited from the subject pool at Indiana University of Pennsylvania. The subject pool is comprised of students who are typically 18 to 19 years-old, in their first or second year of study at the university, and are enrolled in an introductory psychology course. This population was chosen because the primary aim of the study involved examining the relationships between negative communication patterns, mindfulness, and relationship satisfaction in college students in dating relationships. The subject pool was selected as a means of obtaining participants both due to convenience and because this is the established known way of reaching the selected population on campus. The total number of participants surveyed was 406. Because it was difficult to predict the number of subjects in dating relationships at the time of data collection, any participant who indicated having ever been in a dating relationship was eligible to complete the study. However, primary analyses only include those respondents who were currently involved in a dating relationship at the time of data collection. In addition to relationship status, other demographic variables assessed included age, gender, race/ethnicity, sexual orientation, year in college, length of current relationship, whether or not the current relationship was long distance, and whether or not the participant had ever undergone formal mindfulness training.

The sample was screened for missing data. Due to the nature of data collection in which subjects were required to answer a question before being prompted with the next question, the data set contained no missing data for the major variables assessed. However, one variable included in the analyses, length of relationship, was an open-ended question that did not require a response. Participants who did not answer this question were eliminated from the final analyses.

Next, participants were selected for inclusion in the analyses based on whether they were currently in a dating relationship at the time measures were completed. A total of 406 participants took the survey, 229 (56.4%) of which indicated they were currently in a dating relationship. Of the 229 subjects currently in a relationship, only 196 indicated the length of their current relationship. These subjects, who comprise 48.3% of the overall sample, were included in the final analyses. Table 1 and Table 2 include the descriptive statistics for the entire sample grouped by participants' relationship status (those responding about their Current Relationship and those responding about their Most Recent Relationship).

Table 1

Descriptives of the Sample

Variable		N	Min	Max	M	SD
Age (Years)						
	Current Relationship	196	18	29	19.28	1.68
	Most Recent Relationship	177	18	29	19.15	1.48
Length of Relationship (Months)						
	Current Relationship	196	1	120	23.30	19.47
	Most Recent Relationship	162	1	96	15.35	15.88

Table 2

Descriptives of the Sample

		Current Relationship		Most Recent Relationship	
Variable		N	%	N	%
Gender		196		177	
	Male	66	33.7	69	39.0
	Female	130	66.3	108	61.0
Race/Ethnicity		196		177	
	White/Non-Hispanic	165	84.2	149	84.0
	African American	16	8.2	12	6.8
	Hispanic/Latino(a)	6	3.1	3	1.7
	Biracial	4	2.0	2	1.1
	Asian/Asian American	3	1.5	6	3.4
	Middle Eastern	2	1.0	3	1.7
Sexual Orientation		196		177	
	Heterosexual	187	95.4	167	94.4
	Homosexual	3	1.5	4	2.3
	Bisexual	3	1.5	4	2.3
	Pansexual	1	.5	1	0.6
	Other	2	1.0	1	0.6
Year in College		196		177	
	Freshman	140	71.4	136	76.8
	Sophomore	41	20.9	32	18.1
	Junior	7	3.6	6	3.4
	Senior	6	3.1	3	1.7
	Other	2	1.0	0	0.0
Mindfulness Training		196		177	
	Yes	32	16.3	25	14.1
	No	164	83.7	152	85.9
Current Relationship Long Distance		196			
	Yes	87	44.4		
	No	109	55.6		

Of the 196 subjects selected for the primary analyses in the study, 130 identified as women (66%) and 66 identified as men (34%). The mean age of the sample was 19.3 years of age (range = 18 to 29). The majority of the sample identified as White (N=165, 84%), with African Americans (N=16, 8.2%), Hispanic/Latinos(as) (N=6, 3.1%), Biracial (N=4, 2%), Asian/Asian American (N=3, 1.5%), and Middle Easterners (N=2, 1%) comprising the remainder of the sample. Ninety-five percent of the sample identified as heterosexual (N=187), with the remaining 4% of the sample identifying as homosexual, bisexual, pansexual, or other (N=9). The average length of relationship was 23.3 months (range = 1 month to 120 months). Forty-four percent of participants (N=87) characterized their relationship as long-distance. Sixteen percent of the sample (N=32) indicated they had previous formal training in mindfulness.

Data Cleaning

Prior to analysis, the data set was checked for missing data. However, during data collection for all primary variables, participants were required to provide a response before they were able to proceed to the next question, meaning the data set should include a response for all items. After the data was collected, total scores and subscale total scores for each measure were computed as new variables. Prior to analysis, all variables were standardized into z-scores with means of zero and standard deviations of one in order to make discussion and conclusions more intuitive and easily understood.

Measures

Participants completed three measures and a basic demographics questionnaire (Appendix A). In addition to various demographics including age, gender, and sexual orientation, this questionnaire included brief questions about the participant's relationship status, including current relationship status, length of relationship, and length of longest

romantic relationship. Participants who were not currently involved in a romantic relationship were asked to fill out the remaining questionnaires in reference to their most recent romantic relationship. The other three questionnaires are the Relationship Assessment Scale (Hendricks, 1988), the Five-Facet Mindfulness Questionnaire (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006), and the Four Horsemen of the Apocalypse Questionnaire (Gottman, 1999).

Relationship Assessment Scale

The Relationship Assessment Scale (RAS; Appendix B) is a 7-item instrument designed to measure overall satisfaction in a relationship (Hendrick, 1988). The measure consists of 7 items scored using five-point Likert Scales and was designed to be a brief, easily administered and scored measure of general satisfaction in romantic relationships. Items include "How well does your partner meet your needs" and "In general, how satisfied are you with your relationship." A total score is computed by summing scores from the seven items. Research has provided evidence that the RAS has good reliability (α = .86) and concurrent validity with a number of the subscales of the Love Attitudes Scale and Dyadic Adjustment Scale (Hendrick, 1988). Reliability data in the form of Cronbach's alpha (1951) for the current sample (N = 406, α =.901) can be found in Table 3.

Five Facet Mindfulness Questionnaire

The Five-Facet Mindfulness Questionnaire *(FFMQ*; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006; Appendix C) is a 39-item self-report questionnaire designed to measure five difference facets of mindfulness. The measure was constructed using an exploratory factor analyses involving the five leading measures of mindfulness at the time, which included the Friedburg Mindfulness Inventory (Buchheld, Grossman, & Walach, 2001), the Mindful Attention Awareness Scale (Brown & Ryan, 2003), the Kentucky Inventory of

Mindfulness Skills (Baer et al., 2004), the Mindfulness Questionnaire (Chadwick, Hember, Mead, Lilley, & Dagnan, 2005) and the Cognitive and Affective Mindfulness Scale (Feldman, Hayes, Kumar, Greeson, & Laurenceau, 2007). These measures were administered to a large sample of 613 college students, and the results suggested a five-factor solution: observing, describing, acting with awareness, nonjudging of inner experience, and nonreactivity to inner experience. Subscales were designed to correspond with each of the five factors, or facets, by selecting the seven to eight items with the highest loadings on the respective factors (and lower loadings on other factors).

Baer et al. (2008) described each of the five facets of mindfulness. The first facet, observing, refers to "noticing or attending to internal and external experiences, such as sensations, cognitions, emotions, sights, sounds, and smells" (Baer et al., 2008, p.330). An example of one item on this scale is, *"I notice the smells and aromas of things."* The Describing facet refers to "labeling internal experiences with words" (Baer et al., 2008, p.330). One example of an item on this scale is *"I am good at finding words to describe my feelings."* The Acting with Awareness facet "includes attending to one's activities of the moment and can be contrasted with behaving mechanically while attention is focused elsewhere" (Baer et al., 2008, p.330). An example of an item on this scale is *"I find myself doing things without paying attention."* The fourth facet, Nonjudging of Inner Experience, *"refers to taking a non-evaluative stance toward thoughts and feelings"* (Baer et al., 2008, p.330). One example of an item on this scale is *"I think some of my emotions are bad or inappropriate, and I should not feel them."* Finally, the fifth and facet, Nonreactivity to Inner Experience, is described as "the tendency to allow thoughts and feelings to come and go, without getting caught up in or carried away by them" (Baer et al., 2008, p.330). An example of an item on this scale includes *"I perceive my feelings and emotions without having to react to them."* Each factor has been

found to have adequate reliability using an undergraduate sample (Observing, α =.83; Describing, α =.91; Acting with Awareness, α =.87; Nonjudging of Inner Experience, α =.87; Nonreactivity to Inner Experience, α =.75; Baer & Huss, 2008). Additionally, Cronbach's alphas (1951) were computed for the Five Facet Mindfulness Questionnaire and each of the five facet subscales using the entire data set (*N = 406)*. Results are included in Table 3.

Table 3

Cronbach's Alphas for Scales (N = 406)

Measure	*A*
Relationship Assessment Scale	.901
Five Facet Mindfulness Questionnaire	.859
Observing	.749
Describing	.868
Acting with Awareness	.881
Nonjudgment of Inner Experience	.879
Nonreacting to Inner Experience	.655

Four Horsemen of the Apocalypse Questionnaire

The Four Horsemen of the Apocalypse Questionnaire (Appendix B) is one of many questionnaires designed to assist clinicians in assessing the Sound Marital House of the couple in therapy. This questionnaire is provided by Gottman in his book The Marriage Clinic (1999). The 33-item true/false questionnaire assesses for the presence of each of the Four Horseman, with subscales corresponding to criticism, contempt, defensiveness, and stonewalling. High scores on each of the four subscales indicate a greater presence of the corresponding maladaptive communication pattern. Items include "I often just want to leave the scene of an argument," "My partner never really changes," "My partner doesn't face problems responsibly and maturely," and "Arguments seem to come out of nowhere." Given that the focus of the study is on college students and not necessarily on dating couples, the

word “spouse” was replaced with “partner” in all applicable items. The Four Horsemen of the Apocalypse Questionnaire has shown adequate reliability and validity in multiple studies (Walker, 2005; Cornelius & Alessi, 2007; Gottman, 2012).

As the process of computing total and subscale scores began, research on the Four Horsemen of the Apocalypse Questionnaire was consulted in an effort to identify which items should be scored on each of the four subscales. It was then realized that although many publications analyzed the subscales in this manner, none of them published the methods used to score each subscale. What follows is a discussion of the various methods used to determine how items would be assigned to the individual subscales of the Four Horsemen of the Apocalypse Questionnaire.

First, the Gottman Institute was contacted regarding this issue. In an email response (8/4/14), the institute indicated that they could not provide an answer as to which items belonged on each subscale, stating, "This particular research was conducted many years ago and our office does not have the original data."

Next, an effort was made to contact committee members from other dissertations in which the Four Horsemen subscales were scored and analyzed. Committee members from two dissertations, Walker (2005) and Boska (2005) were contacted, and both provided the ways in which the subscales were scored. However, neither provided the rationale for which items were scored on each subscale, and inquiries concerning this matter went unanswered.

Therefore, in an effort to identify which items should be scored on each subscale of the Four Horsemen of the Apocalypse Questionnaire, a factor analysis was conducted using the entire data set (N = 406). Factor analysis was chosen as an appropriate procedure because it not only aims to determine the number of latent constructs assessed by the items of a questionnaire, but it also examines the number of items needed to accurately assess each latent

construct (Merson, 2011). Furthermore, this procedure allows the researcher to preemptively select the desired number of factors based on theoretical guidelines, which is what we intended to do in this study. However, the standard process in SPSS for conducting a factor analysis is based on a correlation/covariance matrix, and therefore requires continuous variables. The true/false items on the Four Horsemen Questionnaire are dichotomous, so additional steps were needed in order to conduct a factor analysis.

One solution is described in Lorenzo-Seva and Ferrando (2014). The authors describe a process for computing the tetrachoric correlation matrix within a standalone program, which they name POLYMAT-C. The program can be downloaded for free at http://psico.fcep.urv.es/utilitats/factor/. This program was used to conduct the factor analysis that follows.

In order to address the question of which items load onto each of the four subscales of the 33-item Four Horsemen of the Apocalypse Questionnaire (Criticism, Defensiveness, Contempt, and Stonewalling), a confirmatory factor analysis was conducted using the entire data set (N=406) and the POLYMAT-C program. A four-factor solution was specified using an Oblimin (oblique) rotation because the factors are theoretically correlated. For example, Gottman stated that defensiveness often occurs in response to criticism, meaning the two factors should be correlated. In determining which factors should be retained, the K1 method proposed by Kaiser (1960) is a common method that is most often used. This method involves retaining all factors with eigenvalues greater than one. The Kaiser method had been criticized for leading to arbitrary decisions and for having a tendency to overestimate the number of factors retained (Zwick & Velicer, 1986). Therefore, the more selective process of parallel analysis was utilized in order to determine how many factors underlie the structure of the Four Horsemen of the Apocalypse Questionnaire. Horn's (1965) process of parallel analysis

involves computing eigenvalues for factors from the actual data set and comparing them to eigenvalues of a randomly generated data set with the same number of observations and variables. Factors are retained only when their eigenvalues are greater than the eigenvalues from the randomly generated data set (Ladesma & Valero-Mora, 2007).

The results of the factor analysis are described in Table 10 in Appendix H. Using the Kaiser criteria, a 10-factor solution is proposed, as 10 factors have an eigenvalue greater than 1.0. Given the proposed subscales of the Four Horsemen Questionnaire, this solution is not consistent with the theoretical underpinnings of the questionnaire. The items that would load on to the subscales are suggested in a way that is not congruent with the proposed theoretical constructs of the Four Horsemen for this sample of college students. Parallel analysis yields a 2-factor structure (Table 11; Appendix H). If a four-factor solution is retained as was proposed in the confirmatory factor analysis procedure, item loadings on the four factors are inconsistent with the theory (Table 10; Appendix H). There is some disagreement in the literature concerning what is generally accepted as an appropriate cut score for retaining items on factors, with .40 often considered a minimum cut score (Distefano, Zhu, & Mindrila, 2009). Even using this liberal cut point to retain only items with factor loadings greater than .40, the four factors have six, one, ten, and four items, respectively. Face validity shows that these proposed factors and the retained items do not describe the negative communication patterns of criticism, defensiveness, contempt, and stonewalling. Furthermore, they do not coincide with the subscales utilized in other studies involving the Four Horsemen Questionnaire (Walker, 2005; Boska, 2005).

The *Standards for Educational and Psychological Testing* (2014) outlines the different types of validity related to psychological testing and assessment. One type is construct validity, which can be achieved through factor analysis procedures. With this particular data

set, the factor analysis did not produce a workable solution that is consistent with Gottman's theory and the Four Horsemen of the Apocalypse Questionnaire, so the construct validity of the instrument was not achieved for this particular sample. Although less empirically-driven, another form of test validity is content validity, which refers to the extent to which a measure effectively measures all facets of the construct it presumes to measure. One way to establish the content validity of a measure is to have experts review and rate the survey. Because evidence for construct validity could not be obtained with this specific data set, efforts to establish the content validity of the subscales were conducted.

In the next attempt to assign items from the Four Horsemen of the Apocalypse Questionnaire to their appropriate subscales, raters were asked to assign items to the four subscales based on their evaluation of the validity of each item and inter-rater reliabilities were calculated. Raters included four doctoral interns and one staff psychologist at a large university counseling center. The five raters were chosen because they had all recently completed a training seminar on utilizing Gottman's techniques with couples in a university counseling center. The raters were given a copy of the Four Horsemen of the Apocalypse Questionnaire (Appendix D) and asked to assign each item to one of the four subscales. Fleiss' kappa (1971) statistic was utilized as a measure of overall agreement on the subscales. This statistic is the appropriate choice for computing reliability of agreement between multiple raters when assigning categorical ratings in an effort to classify items. Landis and Koch (1977) stated that kappa values of .41-.60 indicate moderate agreement, while kappa values of .61-.80 indicate substantial agreement.

Initial results for all 33-items yielded a Fleiss' kappa of .721. However, five items yielded low inter-rater agreement. Four items yielded 60% agreement while a fifth item yielded 40% agreement. These five items were dropped from the Four Horsemen of the

Apocalypse Questionnaire. The 28-item questionnaire yielded a Fleiss' kappa of .827. Removing any further items did not increase the kappa value. Cronbach's alpha (1951) was calculated to determine the internal consistency reliability of the scores resulting from each subscale and the overall 28-item scale. This statistic assesses the intercorrelations between items on a subscale and is the most widely used measure of internal consistency (Garson, 2008). Alphas above .6 are considered acceptable, while alphas between .7 and .9 are considered good (Kline, 2000). The 28-item questionnaire can be found in Table 12 in Appendix H. Included is an 8-item Criticism subscale ($\alpha = .701$), an 8-item Defensiveness subscale ($\alpha = .800$), a 7-item Contempt subscale ($\alpha = .780$), and a 5-item Stonewalling subscale ($\alpha = .654$). Each of the four subscales were correlated with one another other as well as the total score, which is expected given Gottman's (1999) assertion that the Four Horsemen often occur in response to each other. Correlations are included in Table 13 in Appendix H. The overall reliability for the 28-item questionnaire is $\alpha = .912$. This 28-item measure and four subscales were used in all subsequent analyses.

CHAPTER IV

RESULTS

Primary Analyses

The first hypothesis was that the presence of negative communication patterns in a relationship, specifically each of Gottman's Four Horsemen of the Apocalypse (Criticism, Defensiveness, Contempt, and Stonewalling), would be associated with lower relationship satisfaction in a sample of dating college students. Before testing this hypothesis, a preliminary linear regression analysis was conducted. The standardized total score from the Relationship Assessment Scale was entered as the outcome variable, with the standardized total score of the 28-item Four Horsemen of the Apocalypse Questionnaire serving as the independent variable. Age, Gender, Race/Ethnicity, Sexual Orientation, Length of Current Relationship, and Long Distance Relationship (yes/no) were entered as control variables. This preliminary linear regression model was significant ($F_{(7, 188)} = 16.253$, $p < .001$) and explained 35% (Adjusted $R^2 = .354$) of the variance in participants' relationship satisfaction scores as measured by the Relationship Assessment Scale.

In order to test the hypothesis that the presence of negative communication patterns in a relationship, specifically each of Gottman's Four Horsemen of the Apocalypse (Criticism, Defensiveness, Contempt, and Stonewalling), would be associated with lower relationship satisfaction in a sample of dating college students, a multiple linear regression was conducted using the standardized total score from the Relationship Assessment Scale (RAS) as the outcome variable. Standardized total scores from each of the subscales of the Four Horsemen of the Apocalypse Questionnaire were entered as the independent variables, with Age, Gender, Race/Ethnicity, Sexual Orientation, Length of Current Relationship, and Long Distance

Relationship (yes/no) entered as control variables. These demographic variables were chosen as controls so that their potential influence on relationship satisfaction can be taken into account and controlled for in order to avoid attributing their possible affects to the impact of the Four Horsemen.

The linear regression model was significant ($F_{(10, 185)} = 12.784$, $p < .001$) and explained 38% (Adjusted $R^2 = .377$) of the variance in participants' relationship satisfaction scores as measured by the Relationship Assessment Scale. Graphs of the residuals are included in Figure 1; Appendix I. Graphs indicate that the residuals may be related to some of the variables included in the model, which provides some evidence that the model may not be appropriately specified. However, given the complexity of sources of variance in social science models, the adjusted R^2 does indicate that the model explains a large portion of variance utilizing a relatively small number of variables. The results are given in Table 4. Results indicate that of the Four Horsemen of the Apocalypse, Criticism ($\beta = -.209$, $p < .05$) was found to be a significant predictor of relationship satisfaction, indicating that a one standard deviation increase in Criticism score results in approximately one-fifth of a standard deviation decrease in Relationship Assessment Scale score. Contempt ($\beta = -.390$, $p < .001$) was also a significant predictor and shows that a one standard deviation increase in Contempt score results in approximately two-fifths of a standard deviation decrease in Relationship Assessment Scale score. Of the control variables, Age ($\beta = -.159$, $p < .05$) and Length of Relationship ($\beta = .150$, $p < .05$) were statistically significant. A one standard deviation increase in Age results in approximately one-sixth of a standard deviation decrease in Relationship Assessment Scale score, and a one standard deviation increase in the Length of the Relationship results in approximately one-seventh of a standard deviation increase in Relationship Assessment Scale score.

Table 4

Linear Regression Model Exploring How the Four Horsemen of the Apocalypse Impact Relationship Satisfaction Controlling for Demographic Variables (N = 196).

	B	
Age	-0.159	*
Length of Relationship	0.150	*
Gender	0.068	
Race/Ethnicity	-0.026	
Sexual Orientation	0.034	
Current Relationship Long Distance	-0.022	
Four Horsemen Criticism	-0.209	*
Four Horsemen Defensiveness	-0.054	
Four Horsemen Contempt	-0.390	***
Four Horsemen Stonewalling	-0.077	
R^2	0.409	***
Adjusted R^2	0.377	***

Note. β = Beta, the standardized regression coefficient

*p < .05 ***p < .001

The second hypothesis was that higher amounts of each of the five facets of mindfulness would be associated with higher relationship satisfaction in the dating college student sample. A linear multiple regression was conducted in order to test this hypothesis. The standardized total score from the Relationship Assessment Scale (RAS) was entered as the outcome variable. Standardized total scores from each of the subscales of the Five Facet Mindfulness Questionnaire (FFMQ; Observing, Describing, Acting with Awareness, Nonjudgment of Inner Experience, Nonreacting to Inner Experience) were entered as the independent variables, with Age, Gender, Race/Ethnicity, Sexual Orientation, Length of

Current Relationship, Long Distance Relationship (yes/no), and Mindfulness Training (yes/no) entered as control variables.

The linear regression model was significant ($F_{(12, 183)} = 1.856$, $p < .05$) and explained 5% (Adjusted $R^2 = .050$) of the variance in participants' relationship satisfaction scores as measures by the Relationship Assessment Scale (Table 5). As was the case in the first hypothesis, graphs of the residuals (Figure 2; Appendix I) indicate that they may be related to some of the variables included in the model. Results indicate that none of the five facets of mindfulness (Observing, Describing, Acting with Awareness, Nonjudgment of Inner Experience, Nonreacting to Inner Experience) were found to be significant predictors of relationship satisfaction. However, Formal Training in Mindfulness was statistically significant ($\beta = .143$, $p < .05$). No control variables were found to be significant predictors. If less rigorous standards of significance are applied, both Describing ($\beta = .152$, $p < .1$) and Nonjudgment of Inner Experience ($\beta = .160$, $p < .1$) were found to be significant predictors.

Table 5

Linear Regression Model Exploring How the Five Facets of Mindfulness Impact Relationship Satisfaction Taking Into Account Demographic Variables (N = 196).

	Standardized β Coefficient	
Age	-0.097	
Length of Relationship	0.046	
Gender	0.020	
Race/Ethnicity	0.133	
Sexual Orientation	-0.022	
Current Relationship Long Distance	-0.006	
FFMQ Observe	0.074	
FFMQ Describe	0.152	~
FFMQ Act with Awareness	-0.020	
FFMQ Nonjudgment	0.160	~
FFMQ Nonreacting	-0.012	
Formal Mindfulness Training	0.143	*
R^2	0.109	*
Adjusted R^2	0.050	*

Note. β = Beta, the standardized regression coefficient

~p < .1 *p < .05

In the final analysis it was hypothesized that increased mindfulness skills could be utilized to reduce the negative impact of the Four Horsemen on relationship satisfaction. This was tested using a blocked (or hierarchal) regression analysis. Blocked regression allows the researcher to determine the strength of a group (or block) of variables in relation to other groups of variables, and to determine if the addition of a variable or group of variables affects the significant level or strength of relationship between another predictor and the outcome variables. This analysis is well-suited for answering the research question because it allowed

the researcher to observe how the influence of the Four Horsemen on relationship satisfaction changed when the five facets of mindfulness were added to the model.

In the first block, demographic variables including Age, Sex, Race, and Sexual Orientation, Length of Current Relationship, Long Distance Relationship (yes/no) were included. In the second block, standardized totals for each subscale of the Four Horsemen (Criticism, Defensiveness, Contempt, Stonewalling) were included. In the third and final block, standardized total scores for each of the Five Facet Mindfulness Questionnaire subscales were included (Observing, Describing, Acting with Awareness, Nonjudgment of Inner Experience, and Nonreactivity to Inner Experience). Additionally, the dichotomous variable assessing whether or not one has ever had formal mindfulness training was included in this third block as an additional control on the effect of mindfulness. The results from each of the blocks are given in Table 6.

The first block containing demographic variables was not significant ($F_{(6, 189)} = 0.741$, $p = .617$), indicating that the demographic variables alone do not account for a significant amount of variance in relationship satisfaction scores.

The second block containing the influences of the Four Horsemen was significant ($F_{(10, 185)} = 12.784$, $p < .001$) and accounted for 38% of the variance in relationship satisfaction scores (Adjusted $R^2 = .377$). Consistent with findings from the first hypothesis, Criticism ($\beta = -.209$, $p < .05$) and Contempt ($\beta = -.390$, $p < .001$) were both significant predictors of relationship satisfaction, as were Age ($\beta = -.159$, $p < .05$) and Length of Relationship ($\beta = .150$, $p < .05$).

The third block included the addition of the five facets of mindfulness (Observing, Describing, Acting with Awareness, Nonjudgment of Inner Experience, Nonreacting to Inner Experience) as well as the Formal Training in Mindfulness variable. The full hierarchal

regression model was significant ($F_{(16, 179)} = 8.812$, $p < .001$) and explained 39% (Adjusted $R^2 = .391$) of the variance in relationship satisfaction. Again, graphs indicate that the residuals may be related to variables included in the model (Figure 3; Appendix I). Criticism ($\beta = -.206$, $p < .05$) and Contempt ($\beta = .-.401$, $p < .001$) remained significant. Although this model was significant, the addition of the mindfulness variables accounted for only a 1% increase in the amount of variance explained by the model. Furthermore, none of the five facets were significant predictors of relationship satisfaction. If less rigorous standards of significance are applied, only Describing ($\beta = .119$, $p < .1$) and Formal Mindfulness Training ($\beta = .105$, $p < .1$) would be significant predictors.

The change in R^2 between the second and third models indicates that the addition of the Four Horsemen was significant, specifically in that Criticism and Contempt are significant predictors of relationship satisfaction. Although the third model indicates that the addition of the mindfulness facets accounts for a significant proportion of variance in relationship satisfaction, the change in R^2 was only 1%, which indicates that the mindfulness facets have a relatively small but still statistically significant impact on relationship satisfaction. Furthermore, the impact of the Four Horsemen was relatively unchanged after mindfulness facets were added to the model, which indicates that any impact these facets have on relationship satisfaction occurs directly and not through increasing or decreasing the Four Horsemen. It is more likely that the significant amount of variance accounted for by the addition of the mindfulness facets was previously associated with the error term or residuals in previous models.

Table 6

Hierarchical Regression Model Exploring How the Five Facets of Mindfulness Impact Relationship Satisfaction Taking Into Account the Impact of Demographics and the Four Horsemen of the Apocalypse Negative Communication Patterns (N = 196).

	Block 1: Demographics	Block 2: Four Horsemen		Block 3: Five Facet Mindfulness Questionnaire	
	B	B		B	
Age	-0.118	-0.159	*	-0.148	*
Length of Relationship	0.053	0.150	*	0.144	*
Gender	0.021	0.068		0.073	
Race/Ethnicity	0.099	-0.026		-0.009	
Sexual Orientation	-0.009	0.034		0.012	
Current Relationship Long Distance	-0.003	-0.022		-0.040	
Four Horsemen Criticism		-0.209	*	-0.207	*
Four Horsemen Defensiveness		-0.054		-0.018	
Four Horsemen Contempt		-0.390	***	-0.401	***
Four Horsemen Stonewalling		-0.077		-0.065	
FFMQ Observe				0.070	
FFMQ Describe				0.119	~
FFMQ Act with Awareness				-0.014	
FFMQ Nonjudgment				0.017	
FFMQ Nonreacting				-0.013	
Formal Mindfulness Training				0.105	~
R^2	0.023	0.409	***	0.441	***
Adjusted R^2	-0.008	0.377	***	0.391	***
Change in R^2				0.014	

Note. β = Beta, the standardized regression coefficient
~p < .1 *p < .05 ***p < .001

Secondary Analyses

Although subjects who indicated they were not currently in a dating relationship did complete the survey, they were asked to answer survey questions based on their recollections of their most recent relationship. By definition, this relationship had already ended, which suggests it is qualitatively different from the ongoing relationships of other participants. Furthermore, subjects' responses about a past relationship could be biased due to a number of factors including how long ago the relationship ended, memory, how the relationship ended, and why the relationship ended, among others. Therefore, only subjects who indicated they were in a relationship at the time of data collection and provided a response to all questions on the survey (*N*=196) were included in the primary analyses. In order to further support the idea that the Current Relationship and Most Recent Relationship groups are qualitatively different, an independent samples t-test was conducted comparing the Current Relationship (N = 229) group with the Most Recent Relationship (N=177) group on age, whether or not they had previously received mindfulness training, and all measures used in the study. All variables were standardized prior to analysis. Results are included in Table 7 below.

Results indicate significant differences between the Current Relationship and Most Recent Relationship groups on the Four Horsemen Questionnaire total score as well as each of the Four Horsemen subscale scores. Specifically, the Most Recent Relationship group (M= .414, SD=.999) scored significantly higher than the Current Relationship group (M=-.320, SD=.878) on the Four Horsemen Total Score (t(404)=7.87, p<.000). The Most Recent Relationship group (M= .365, SD=.992) also scored significantly higher than the Current Relationship group (M=-.282, SD=.913) on the Four Horsemen Criticism subscale (t(404)=6.82, p <.000). Similarly, the Most Recent Relationship group (M= .323, SD=.975)

scored significantly higher than the Current Relationship group (M=-.250, SD=.947) on the Four Horsemen Defensiveness subscale (t(404)=5.97, p <.000). Additionally, the Most Recent Relationship group (M= .414, SD=1.062) scored significantly higher than the Current Relationship group (M=-.320, SD=.818) on the Four Horsemen Contempt subscale (t(404)=7.87, p <.000). The Most Recent Relationship group (M= .338, SD=1.024) also scored significantly higher than the Current Relationship group (M=-.261, SD=.900) on the Four Horsemen Stonewalling subscale (t(404)=6.27, p <.000). As might be expected, the results indicate that relationships that have already ended included significantly higher amounts of the Four Horsemen negative communication patterns. In addition to the aforementioned differences between current relationships and recall of past relationships, these results support the decision to only include those currently in a relationship in the primary analyses in an effort to answer the research questions of the current study.

Table 7

Results of T-tests Comparing Outcome Measures by Relationship Status

Outcome	Relationship Status	N	Mean	Std. Deviation	Mean Difference	T-Value	df
Four Horsemen Total	Most Recent	177	0.4143	0.9985	0.7344	7.871***	404
	Current	229	-0.3202	0.8778			
Four Horsemen Criticism	Most Recent	177	0.3649	0.9922	0.6469	6.817***	404
	Current	229	-0.2820	0.9128			
Four Horsemen Defensiveness	Most Recent	177	0.3235	0.9750	0.5735	5.970***	404
	Current	229	-0.2500	0.9479			
Four Horsemen Contempt	Most Recent	177	0.4142	1.0619	0.7343	7.870***	404
	Current	229	-0.3201	0.8184			
Four Horsemen Stonewalling	Most Recent	177	0.3382	1.0241	0.5996	6.268***	404
	Current	229	-0.2614	0.8996			
RAS Total Score	Most Recent	177	-0.6873	0.8851	-1.2185	-15.273***	404
	Current	229	0.5312	0.7221			
FFMQ Total Score	Most Recent	177	-0.1278	0.9530	-0.2266	-2.276*	404
	Current	229	0.0988	1.0261			
FFMQ Observe	Most Recent	177	0.0407	0.9575	0.0721	0.720	404
	Current	229	-0.0315	1.0326			
FFMQ Describe	Most Recent	177	-0.0412	1.0254	-0.0731	-0.730	404
	Current	229	0.0319	0.9809			
FFMQ Act with Awareness	Most Recent	177	-0.1848	1.0082	-0.3277	-3.315**	404
	Current	229	0.1429	0.9719			
FFMQ Nonjudgment	Most Recent	177	-0.1525	0.9689	-0.2704	-2.723	404
	Current	229	0.1179	1.0098			
FFMQ Nonreacting	Most Recent	177	0.0264	1.0524	0.0468	0.467	404
	Current	229	-0.0204	0.9594			
Age	Most Recent	177	19.1469	1.4813	-0.1940	-1.116	404
	Current	229	19.3406	1.9073			
Mindfulness Training	Most Recent	177	0.1412	0.3493	-0.0160	-0.445	404
	Current	229	0.1572	0.3648			

*p <.05 **p < .01 ***p < .001

Similarly, Gottman (1999) reports that gender differences may be present in the way the Four Horsemen manifest in relationships. For example, men are more likely than women to respond to criticism by stonewalling (Gottman, 1999). These gender differences were one reason that gender was controlled for in previous analyses. In an effort to further explore any gender differences that may be present in the sample, an independent samples t-test was conducted comparing the males and females on each of the subscales of the Four Horsemen of the Apocalypse Questionnaire. All variables were standardized prior to analysis. Results are included in Table 8. Results indicate that for the sample there were no significant differences between males and females on the total score or any subscale scores of the Four Horsemen of the Apocalypse Questionnaire.

Table 8

Results of T-tests Comparing the Four Horsemen by Gender (N = 406)

Outcome	Gender	N	Mean	Std. Deviation	Mean Difference	T-Value	df
Four Horsemen Total	Females	256	0.0027	1.0356	0.0072	0.070	404
	Males	150	-0.0045	0.9395			
Four Horsemen Criticism	Females	256	-0.0463	1.0157	-0.1253	-1.219	404
	Males	150	0.0790	0.9709			
Four Horsemen Defensiveness	Females	256	-0.0205	0.9982	-0.0555	-0.540	404
	Males	150	0.0350	1.0054			
Four Horsemen Contempt	Females	256	0.0592	1.0552	0.1604	1.632	404
	Males	150	-0.1011	0.8924			
Four Horsemen Stonewalling	Females	256	0.0298	1.0370	0.0806	0.784	404
	Males	150	-0.0508	0.9347			

Additionally, another secondary analysis was performed utilizing a blocked regression. It was hypothesized in that increased mindfulness skills can be utilized to reduce the negative

impact of the Four Horsemen on relationship satisfaction. Results for participants currently in relationships supported the hypothesis that the Four Horsemen have a negative impact on relationship satisfaction for the sample. However, results did not support the hypothesis that mindfulness skills could be utilized to reduce this impact. A similar regression analysis was conducted using data from the participants who previously indicated that they were not currently in a relationship and responded to questionnaires based on their most recent relationship. Of the 177 participants that indicated they were not currently in a relationship, 152 (88%) indicated that they had been in a previous relationship and supplied data based on that relationship. Results are included in Table 9 below.

In the first block, demographic variables including Age, Sex, Race, and Sexual Orientation, and Length of Previous Relationship, were included. In the second block, standardized totals for each subscale of the Four Horsemen (Criticism, Defensiveness, Contempt, Stonewalling) were included. In the third and final block, standardized total scores for each of the Five Facet Mindfulness Questionnaire subscales were included (Observing, Describing, Acting with Awareness, Nonjudgment of Inner Experience, and Nonreactivity to Inner Experience). Additionally, the dichotomous variable assessing whether or not one has ever had formal mindfulness training was included in this third block as an additional control on the effect of mindfulness. The results from each of the blocks are given in Table 9.

The first block containing demographic variables was not significant ($F_{(5, 146)} = 0.484$, $p = .788$), indicating that the demographic variables alone do not account for a significant amount of variance in relationship satisfaction scores.

The second block containing the influences of the Four Horsemen was significant ($F_{(9, 142)} = 5.165$, $p < .001$) and accounted for 20% of the variance in relationship satisfaction scores (Adjusted $R^2 = .199$). Consistent with findings from Current Relationship group analysis,

Criticism (β = -.262, p < .05) and Contempt (β = -.267, p < .05) were both significant predictors of relationship satisfaction. Age and Length of Relationship were not significant predictors for this group of participants.

Consistent with the Current Relationship group analysis, the third block included the addition of the five facets of mindfulness (Observing, Describing, Acting with Awareness, Nonjudgment of Inner Experience, Nonnreacting to Inner Experience) as well as the Formal Training in Mindfulness variable. The full hierarchal regression model was significant ($F_{(15, 186)}$ = 3.384, p < .001) and explained 19% (Adjusted R^2 = .192) of the variance in relationship satisfaction. Criticism (β = -.268, p < .05) and Contempt (β = .-.229, p < .05) remained significant. Although this model was significant, the addition of the mindfulness variables resulted in a 1% decrease in the amount of variance explained by the model. None of the five facets were significant predictors of relationship satisfaction.

Similar to the Current Relationship group, the change in R^2 between the first and second models indicates that the addition of the Four Horsemen was significant, specifically in that Criticism and Contempt continue to be significant predictors of relationship satisfaction. However, unlike with the Current Relationship group, the addition of the mindfulness variables into the third block of the model actually resulted in a decrease in the amount of variance explained, albeit a small and practically meaningless decrease. Again, the impact of the Four Horsemen was relatively unchanged after mindfulness facets were added to the model. These results lend further evidence to the argument that the Four Horsemen, specifically Criticism and Contempt, are significant predictors of relationship satisfaction in college student relationships, whereas mindfulness skill are not.

Table 9

Hierarchical Regression Model Exploring How the Five Facets of Mindfulness Impact Relationship Satisfaction Taking Into Account the Impact of Demographics and the Four Horsemen of the Apocalypse in Participants' Most Recent Relationships

	Block 1: Demographics	Block 2: Four Horsemen	Block 3: Five Facet Mindfulness Questionnaire
	B	B	B
Age	0.039	-0.041	-0.049
Length of Past Relationship	-0.045	0.080	0.082
Gender	0.092	0.033	0.013
Race/Ethnicity	-0.053	-0.073	-0.054
Sexual Orientation	-0.026	-0.037	-0.039
Four Horsemen Criticism		-0.262*	-0.268*
Four Horsemen Defensiveness		-0.014	-0.023
Four Horsemen Contempt		-0.267*	-0.239*
Four Horsemen Stonewalling		-0.014	-0.034
FFMQ Observe			0.081
FFMQ Describe			-0.16~
FFMQ Act with Awareness			0.069
FFMQ Nonjudgment			0.005
FFMQ Nonreacting			0.097
Formal Mindfulness Training			-0.054
R^2	0.016	0.247***	0.272***
Adjusted R^2	-0.017	0.199***	0.192***
Change in R^2			-0.007

Note. β = Beta, the standardized regression coefficient
~p < .1 *p < .05 ***p < .001

CHAPTER V

DISCUSSION

The purpose of the study was to investigate the relationships between Gottman's Four Horsemen of the Apocalypse, mindfulness, and relationship satisfaction in a sample of dating college students. Although Gottman (1999) suggested that skills like mindfulness may play an important role in helping couples to regulate conflict and overcome the impact negative communication patterns may have on their relationship, to date no study has empirically examined these relationships. The current study had multiple goals. First, the study aimed to explore the relationship between the Four Horsemen negative communication patterns of criticism, defensiveness, contempt, and stonewalling and relationship satisfaction in a sample of dating college students. Next, the study aimed to examine the relationship between the different facets of mindfulness and relationship satisfaction in the sample of dating college students. Finally, the study hoped to show that the facets of mindfulness may mediate the relationship between the Four Horsemen and relationship satisfaction.

One of the major contributions of the study, and possibly one of the most important findings, was established prior to any research question being examined. While attempting to analyze the data, it was discovered that although multiple studies (Boska, 2005; Walker, 2005) and literature (Gottman, 1999) discuss the Four Horsemen of the Apocalypse Questionnaire and the associated subscales measuring criticism, defensiveness, contempt, and stonewalling, no publication includes a method of scoring the subscales or which items should be included on the respective subscales. Therefore, before any research questions could be answered, analyses for assigning items and scoring each of the subscales were conducted.

The first attempt included an exploratory factor analysis with a proposed four factor solution corresponding to each of the four subscales. Unfortunately, results indicated a two factor structure and did not provide a workable solution in assigning items to the four subscales. This finding calls into question the construct validity of the Four Horsemen of the Apocalypse questionnaire, especially in terms of using it to assess these negative communication patterns in college student dating relationships. It may also suggest that two factors underlie the four negative communication patterns known as the Four Horsemen of the Apocalypse. This measure was not necessarily designed for research purposes and was instead designed to give clinicians a ways of measuring the presence of the Four Horsemen in couples who are currently in therapy, but the current results suggest that it may not be assessing the presence of four distinct constructs. However, if an empirically valid and reliable version of the subscales can be constructed through future research, the potential for the measure to be utilized in research settings is quite high, as it purports to capture the presence of very popular constructs related to negative communication, and a framework for working with clients utilizing the concepts already exists. Further evaluation of the measure, especially in terms of establishing the construct validity with a sample of dating college students, could provide a meaningful contribution to the study of the Four Horsemen in dating relationships.

Although construct validity was not supported for the Four Horsemen of the Apocalypse Questionnaire, content validity was examined through the use of interrater reliability. Five doctoral interns who had been trained in Gottman's techniques assigned items to their corresponding subscales, and kappa's were computed using the results. Results indicated strong interrater reliability for each of the subscales. A 28-item version of the Four Horsemen of the Apocalypse was produced, with internal consistency data suggesting strong reliabilities for each subscale as well as the overall measure. Although further work is needed

to establish the clinical utility of the Four Horsemen of the Apocalypse Questionnaire, the current study provides a method for assigning items to and scoring each subscale as well as a rationale for the decisions involved in the process. In the absence of available information on Gottman's original subscales or a more empirically-derived method of assigning items to subscales, the subscales produced in the current study may prove useful for future researchers wishing to examine the Four Horsemen.

The first research question aimed to examine the relationship between the Four Horsemen of the Apocalypse and relationship satisfaction in a sample of dating college students. In order to examine this relationship, a multiple linear regression analysis was conducted. After controlling for various demographic variables including age, gender, race/ethnicity, and sexual orientation as well as the length of the relationship and whether or not it was a long distance relationship, it was found that the Four Horsemen accounted for 38% of the variance in relationship satisfaction scores. More specifically, both criticism and contempt were found to be predictors of relationship satisfaction. Gottman (1999) highlighted the impact contempt has on a relationship, stating that the amount of contempt in a stable, successful relationship is "essentially zero" (Gottman, 1999, p.46). Consistent with Gottman's assertion and previous findings, contempt was found to be the strongest predictor of relationship satisfaction. For every one standard deviation increase in contempt scores, subjects reported a two-fifths of a standard deviation decrease in relationship satisfaction scores. Similarly, a one standard deviation increase in criticism scores results in a one-fifth standard deviation decrease in relationship satisfaction. In general, as criticism and contempt increase in a relationship, the satisfaction with the relationship decreases.

An additional blocked regression analysis was conducted using only those individuals who answered items based on their previous relationship, which by definition had already

ended. Again, after controlling for demographics, the Four Horsemen were found to be significant predictors of relationship satisfaction and accounted for 20% of the variance in relationship satisfaction scores. Furthermore, consistent with the prior analysis, Criticism and Contempt were both found to be significant predictors, whereas Defensiveness and Stonewalling were not. Although the model performed similarly in terms of significance, it is notable that the model accounted for nearly twice the amount of variance in relationship satisfaction scores of the Current Relationship group compared to the Most Recent Relationship group. As previously discussed, subjects' responses about a past relationship could be biased due to a number of factors including how long ago the relationship ended, memory, how the relationship ended, and why the relationship ended. These differences could account for the differences in variance accounted for in the two populations. A more thorough assessment of the Most Recent Relationship is necessary in order to further understand how the current model operates with this population.

Providing further evidence of the role that the Four Horsemen play in college student dating relationships, t-test comparing individuals who answered items based on their current relationship to those who answered items based on their most recent relationship, which by definition had already ended, revealed significantly higher levels of each of the Four Horsemen in those responding according to their most recent ended relationship. However, the proposed model accounted for less of the variance in relationship satisfaction scores for the Most Recent Relationship group as compared to the Current Relationship Group, which indicates factors other than the Four Horsemen not captured by the model may have played a more significant role in the relationship satisfaction scores of the Most Recent Relationship Group. Given the nature of data collection and analyses, the ending of the relationship cannot be attributed directly to higher levels of each of the Four Horsemen, but this finding does

suggest that the past relationships may have contained significantly higher amounts of the Four Horsemen compared to current relationships, which are still ongoing. The significantly higher amounts of the Four Horsemen provide one possible explanation for why these relationships might have ended.

Alternatively, another possible explanation for the differences in the amounts of the Four Horsemen is that participants in the Current Relationship group may have more relationship experience, may be older, and may have had more opportunities to learn from previous experiences. Unlike in the Most Recent Relationship Group, the Current Relationship group is responding about a relationship with at least one college-aged partner, and the relationship is currently taking place while the respondent is in college. Because information about the nature and quality of the relationships of Most Recent Relationship group was not assessed, these individuals may be responding about past relationships that took place during their high school or even junior high years. These past relationships may have taken place when the participants were younger and at a different developmental level than the typical college student. It may be the case that the Four Horsemen are simply more prevalent in adolescent relationships or in individuals with less relationship experience, and this could account for the difference in the Four Horsemen between the Current Relationship and Most Recent Relationship groups.

Similarly, another possible explanation for the significantly higher amounts of the Four Horsemen in the Most Recent Relationship group may be due to the fact that these participants are recalling aspects of a relationship that has ended, as opposed to the Current Relationship group that is reporting aspects of a current relationship. It may be that past relationships are recalled in a more negative light, especially for individuals who experienced difficult break-ups, and this may result in higher amounts of the Four Horsemen being reported.

Future research should assess the presence of the Four Horsemen in younger adolescent dating relationships so that the possible changes in these negative communication patterns over time and through different developmental periods can be assessed. In addition to comparing younger adolescent relationships to college dating relationships, longitudinal designs may be utilized to assess the presence of the Four Horsemen and how these negative communication patterns change over time in a sample of the same individuals. If information about past relationship is to be obtained, careful consideration should be made in order to assess specific information about the quality and duration of the relationship, including when the relationship began and ended, how the relationship ended, and why. This information is important if any conclusions are to be drawn in comparing past relationships to current ones.

Similarly, one area of interest that could be captured by longitudinal designs, and one that would assist in further understanding the Four Horsemen, involves the role that personality may play in the presence of the Four Horsemen in relationships. The Four Horsemen are discussed in the context of interactive behavior that occurs in marital and dating relationships. However, it may be the case that personality traits make one partner more likely to exhibit certain negative communication patterns in the context of romantic relationships as well as in other relationships including friendships, relationships with parents, and relationships with children. For example, McCrae and Costa (1997) discuss the five-factor model of personality, otherwise known as The Big Five. It may be the case that individuals who score high on one or some combination of these factors, which include neuroticism, extraversion, openness, agreeableness, and conscientiousness, are more likely to engage in the Four Horsemen in their relationships, and this likelihood may be stable over time regardless of the behavior of one's partner. A longitudinal design would allow researchers to observe how the Four Horsemen are present over time in relation to personality characteristics.

In support of the first hypothesis, results provide evidence that Gottman's Four Horsemen are a suitable framework for discussing relationship problems with dating college students in a clinical setting when criticism and contempt appear to be present in their concerns. Gottman's theory, therapeutic techniques, and interventions are highly publicized and accessible, and they provide a clear and understandable framework for clients to work with. However, because they are marketed for married couples, these techniques may not often be applied to dating college students, and they may often be overlooked and underutilized in college counseling centers and other agencies treating college students. The current study provides further evidence that Gottman's theory and interventions may be useful when working will college students who are not only married by are also in committed dating relationships. Furthermore, because the Four Horsemen are present in college student dating relationships, psychoeducation and workshops including the Four Horsemen, specifically Criticism and Contempt, and Gottman's techniques may prove useful in enhancing the relationships and communications of college students.

Unfortunately, not all of the Four Horsemen were significant predictors of relationship satisfaction in the sample. Further research is needed to understand the role that Defensiveness and Stonewalling might play in student dating relationships, especially given that Gottman (1999) suggests defensiveness occurs in response to criticism and stonewalling occurs when individuals become emotionally overwhelmed. Because the Four Horsemen may occur in response to each other, the current findings highlight the importance of assessing both members of the relational dyad in assessing the role the Four Horsemen play in relationships. Furthermore, the applicability of the Four Horsemen to individuals at different developmental levels was previously mentioned. One possibility is that Criticism and Contempt impact college student dating relationships in ways that Defensiveness and Stonewalling do not, but

this may change over the course of time as individuals mature, have more practice communicating with their partners, and develop a more stable sense of identity. Another possibility is that a generational shift has occurred in terms of how the Four Horsemen impact the dating relationships of college students, and Defensiveness and Stonewalling no longer play the significant role they once did. As previously noted, more research is needed on how the Four Horsemen impact relationships over the course of the lifetime in order to further understand their impact in relationships.

The second aim of the study was to show that higher amounts of each of the Five Facets of mindfulness, which include Observing, Describing, Acting with Awareness, Nonjudgment of Inner Experience, and Nonreacting to Inner Experience, would be associated with higher relationship satisfaction in the sample of dating college students. A multiple linear regression analyses was conducted in order to test whether any of the five facets of mindfulness would be able to predict relationship satisfaction scores after controlling for demographic variables, length of current relationship, whether or not the current relationship was long distance, and whether or not one had undergone previous training in mindfulness. Although the model was significant, the Five Facets of mindfulness accounted for only 5% of the variance in relationship satisfaction scores. Surprisingly, none of the Five Facets of mindfulness were significant predictors of relationship satisfaction. However, whether or not one had ever received forming mindfulness training was in fact a significant predictor of relationship satisfaction.

These findings are in direct contrast to previous research on the role mindfulness may play in relationship satisfaction. Barnes, Brown, Krusemark, Campbell, and Rogge (2007) utilized a sample of 82 dating college students and found that both state and trait mindfulness predicted higher relationship satisfaction and greater capacities to respond to relationship

distress. Carson, Carson, Gil, and Baucom (2004) evaluated the Mindfulness-Based Relationship Enhancement program and found that mindfulness improved relationship distress, relationship happiness, and relationship satisfaction. It is unclear why the results of the current project are not consistent with findings from previous studies, but multiple possibilities exist.

First, considering both the fact that none of the Five Facets of mindfulness were significant predictors of relationship satisfaction and whether or not one had ever received forming mindfulness training was in fact a significant predictor of relationship satisfaction, it would appear as though at least one component of formal mindfulness training, other than the Five Facets, is associated with increased relationship satisfaction. For example, it may be that taking initiative and putting effort into learning a skill in order to improve one's relationship is meaningful in and of itself, and this results in increased satisfaction with one's relationship. The more one has invested in the relationship, the more likely they may be to report being satisfied. In other words, if a couple attends the Mindfulness-Based Relationship Enhancement program, it may not necessarily be increased mindfulness skills that improve their relationship, but instead they may derive a sense of happiness or comfort with knowing that they made an effort to improve the relationship. Further research is necessary in order to explore what factors of mindfulness training other than the Five Facets may result in increased relationship satisfaction.

Additionally, it may be the case that possessing mindfulness skills alone does not result in increased relationship satisfaction, but being trained on how to formally utilize those skills in the contact of a romantic relationship does. It is possible the Five Facets do actually have the potential to provide increases in relationship satisfaction for college students, but college students do not think to utilize these skills in the context of interpersonal communication and

conflict discussions until the benefits of doing so are pointed out during formal mindfulness training. For example, an individual may possess the ability to calmly observe and describe their anxiety, and they may be able to resist reacting to this anxiety in an intrapersonal context, such as prior to taking an exam. However, they may not be aware of how to utilize these skills in an interpersonal context like a negative conflict discussion with their partner. A mindfulness training program may orient them to utilizing their skill set in a way that improves their relationship satisfaction.

Another possible explanation for these finding might be the lack of diversity in the current sample, which unlike other studies, includes mostly white, heterosexual freshman and sophomore college students. Other studies in which mindfulness was found to predict relationship satisfaction include samples that are older and more racially and ethnically diverse, even when those samples involve college students. It may be the case that individuals learn to utilize mindfulness skills in their relationships more over time. Even in a college sample it is possible that college juniors and seniors, who have undergone more socialization on campus and have had more time to date during college compared to freshman and sophomores, utilize more mindfulness skills in an effort to improve their relationships. In this way, samples containing more diversity may produce different results in terms of the relationship between mindfulness and relationship satisfaction.

Evidence from the current study does not support the use of mindfulness interventions alone for helping college students who are struggling with the Four Horsemen in their dating relationships. As previously noted, research has shown the clinical utility of mindfulness interventions and their positive impact on relationship satisfaction, but in terms of this sample of young dating college students, they may not be effective as a primary treatment for treating communication problems in romantic relationships with this population. Given the growing

amount of literature on mechanisms of mindfulness action and the positive benefits of mindfulness in emotional regulation and relationship satisfaction, it is surprising to find that mindfulness accounted for only a small portion of the variance (5%) in relationship satisfaction scores. Furthermore, results indicate that although mindfulness did not impact relationship satisfaction in meaningful ways, mindfulness training had a small but significant impact on satisfaction scores. Further examination of mindfulness programs and their impact on relationship satisfaction is warranted, as results indicate that aspects of mindfulness training unrelated to the five facets of mindfulness may enhance relationship satisfaction in college students in dating relationships.

The third and final hypothesis was that mindfulness facets would mediate the relationship between the Four Horsemen of the Apocalypse and relationship satisfaction. In order to test this hypothesis, a blocked regression analyses was conducted that included demographic variables in the first block, the Four Horsemen in the second block, and mindfulness facets and whether or not one had previous training in mindfulness in the third block. Consistent with previous analyses, the first block containing demographic variables was not statistically significant. Although this study was not focused on the effect of demographic characteristics on relationship satisfaction, it is notable that demographic variables including gender, race/ethnicity, and sexual orientation, were not found to influence these college students' satisfaction with their dating relationship. Although race/ethnicity and sexual orientation were quite limited in the sample, gender was not (33.7% male). The literature has yet to reach a strong conclusion regarding the impact of gender on relationship satisfaction. Although pop culture continues to highlight the differences between genders in romantic relationships, various studies report no significant differences among genders in relationship satisfaction (Karantzas, Goncalves, Feeney, & McCabe, 2011; Kurdek, 2005).

The current study supports previous research findings in that gender was not a significant predictor of relationship satisfaction.

The second block containing the Four Horsemen was significant and accounted for 38% of the variance in relationship satisfaction scores. Again, criticism and contempt were significant predictors of relationship satisfaction, while defensiveness and stonewalling were not. Although the third block including mindfulness facets was significant, the addition of the mindfulness factors accounted for only a 1% increase in the amount of variance accounted for by the model. Furthermore, the amount of variance accounted for by the Four Horsemen went relatively unchanged with the addition of the mindfulness factors, which does not support the hypothesis that mindfulness may mediate the relationship between the Four Horsemen and relationship satisfaction. These findings suggest that mindfulness has a statistically significant but practically negligible impact on relationship satisfaction in the sample, and this impact does not affect the relationship between the Four Horsemen and relationship satisfaction.

In order to further evaluate this third hypothesis that mindfulness may mediate the relationship between the Four Horsemen and relationship satisfaction, a similar blocked regression analysis was conducted using the data from individuals who answered items according to their most recent ended relationship. Demographic variables including length of relationship were included in the first block, while the Four Horsemen were included in the second block. The third block contained the five facets of mindfulness as well as whether or not one has had formal mindfulness training. Results were largely consistent with the previous analysis involving the current relationship group. After controlling for demographics, the second model containing the Four Horsemen was significant and accounted for 20% of the overall variance in relationship satisfaction scores. Again, both Criticism and Contempt were significant predictors, while Defensiveness and Stonewalling were not. While the third model

was significant, the addition of the mindfulness facets actually accounted for a 1% decrease in the variance explained by the model. Furthermore, the impact of the Four Horsemen went mostly unchanged. Again, these findings suggest that mindfulness has a statistically significant but practically meaningless impact on satisfaction in the sample, and this impact does not affect the relationship between the Four Horsemen and relationship satisfaction.

Limitations

The current research study has a number of limitations. First, the sample lacks diversity, which inhibits the generalizability of the findings. The sample is 84% White, 95%, Heterosexual, and 71% first-year students. This lack of diversity is not surprising given the demographics of the university from which the sample was taken and the fact that most participants were involved in an introductory psychology course, but this information should be considered when interpreting results. On this basis, the findings of the current study may not be generalizable to the general population of college students and may instead only apply to first or second year college students at universities with similar demographics. Performing a replication study of the current model at a larger, more diverse university, and recruiting subjects through means other than only introductory psychology courses would likely produce a more diverse sample and allow researchers to answer further questions about the impact the sample has on the current study.

Additionally, of the demographic information collected, Length of Relationship may provide some interesting information regarding the applicability of findings to the college student population. The current study set out to assess how the Four Horsemen and mindfulness play a role in college student dating relationship satisfaction. However, with 71% of the participants being freshman, the average age being nineteen, and the average length of the current relationship being twenty-three months, much of what is being assessed are

communications and interactions that took place during the high school years prior to college. Again, this calls into question the generalizability of findings, and a replication model of the current study with a more diverse group of dating college students would allow for more affirmative conclusions to be made regarding the generalizability of findings.

Furthermore, the proposed model performs differently for those individuals currently in a relationship as compared to those who were asked to recall information about their most recent relationship, accounting for nearly twice the amount of variance in relationship satisfaction for those individuals currently in a relationship. For those individuals responding about their most recent relationship, other variables account for 80% of this variance. In order to assess the impact of the Four Horsemen and mindfulness on individuals whose relationships have already ended, a more intentional focus with more specific research questions regarding the relationship is needed.

Additionally, although there was evidence of face validity regarding the Four Horsemen of the Apocalypse Questionnaire, factor analysis failed to provide evidence for the construct validity of the measure for the current sample. A two-factor structure was found, which calls into question the utility of the instrument with this particular population. Thus, any conclusions drawn about the role the Four Horsemen play in the current sample of dating college students can be brought into question on the basis of the existing measure. Further research, especially in terms of providing evidence for validity, is warranted in order to develop the subscales of Four Horsemen of the Apocalypse Questionnaire for individual analysis.

Similarly, some questions exist in the literature as to how to best capture a construct such as relationship or marital satisfaction. Bradbury, Fincham, and Beach (2000) outline some of the pros and cons of using brief global measures versus more complex measures that

may capture different aspects of relationship satisfaction. The authors caution researchers that more lengthy measures of satisfaction may actually be capturing overlapping constructs that are either related to or represent different aspects of relationship satisfaction. However, more global measures of relationship satisfaction may represent an oversimplification and may not capture the complexity of the construct. As previously noted, Hendrick's (1988) Relationship Assessment Scale is a widely used measure of relationship satisfaction that was suitable for use in the current study. However, it is possible that a more complex measure of satisfaction could have captured unique aspects of relationship satisfaction in the current sample of dating college students.

Another possible limitation of the current study is that only individuals were assessed as opposed to both members of the relationship dyad. Therefore, results are based on the perceptions of only one member of the relationship, and these perceptions cannot be compared to those of the other partner. This is especially significant in terms of the Four Horsemen of the Apocalypse Questionnaire, which includes questions about one's own behavior as well as the behavior of one's partner. Gottman (1999) described how one of the Four Horsemen may occur in response to another. For example, defensiveness may occur in response to criticism. If one partner is a frequent criticizer but is not often defensive, only one part of the Four Horsemen may be captured in the present study.

Furthermore, any impact that gender may have on the interaction between members of the same relationship dyad cannot be assessed in the current study. Gottman suggests that gender may play an important role in the presence of the Four Horsemen and relationship satisfaction in relationship dyads. For example, Gottman states that men are more likely to respond to criticism by stonewalling. In other research, Gottman (1998) suggests that a husband's ability to self-soothe in response to relationship conflict, which is one mechanism of

mindfulness action and is likely related to the Four Horsemen, was a predictor of marital stability among newlyweds. The same was not found for wives. Although an independent samples t-test revealed no gender differences for the Four Horsemen in the current sample, Gottman's previous findings illustrate the importance of examining the impact of gender as well as both members of the relationship dyad. Future studies should include a more complex research design that includes collecting data from college-student couples who are currently in a dating relationship. Doing so will allow for the analysis of the interaction between members of relationship dyads, which can allow for conclusions to be drawn about the possible patterned ways the Four Horsemen present in relationships, including any gender affects that may be present in the relationships dyad. Although gender was treated as a control variable in the current study, information about the impact gender may play in the interaction between members of the same dyad cannot was not obtained.

Conclusion

The purpose of the study was to investigate the relationships between Gottman's Four Horsemen of the Apocalypse, mindfulness, and relationship satisfaction in a sample of dating college students. The current study had multiple goals, which included (1) exploring the relationship between the Four Horsemen negative communication patterns of criticism, defensiveness, contempt, and stonewalling and relationship satisfaction in a sample of dating college students, (2) examining the relationship between the different facets of mindfulness and relationship satisfaction in the sample of dating college students, and (3) determining if the facets of mindfulness mediate the relationship between the Four Horsemen and relationship satisfaction.

Regarding the relationship between the Four Horsemen of the Apocalypse and relationship satisfaction, results support the hypothesis that the Four Horsemen are related to

relationship satisfaction in significant ways and provide evidence that Gottman's techniques are a suitable framework for discussing relationship problems with dating college students in a clinical setting. More specifically, a multiple linear regression analysis showed that two of the Four Horsemen, Criticism and Contempt, were significant predictors of relationship satisfaction. Similarly, another multiple linear regression was run with participants who responded about their most recent relationships. Again, Criticism and Contempt were both significant predictors of relationship satisfaction. Consistent with Gottman's previous findings (1999), Contempt was found to be the biggest predictor of relationship satisfaction. In general, as criticism and contempt increase in a relationship, the satisfaction with the relationship decreases. Additional support for the significant role the Four Horsemen may play in college student dating relationships was found in an independent samples t-test, which revealed significantly higher amounts of each of the Four Horsemen in participants responding about their most recent relationship compared to participants responding about their current relationship. Taken together, these results show support for utilizing Gottman's techniques with dating college students, especially when the negative communication patterns of Criticism and Contempt are present in their relationships.

The second aim of the study was to show that higher amounts of each of the Five Facets of mindfulness, which include Observing, Describing, Acting with Awareness, Nonjudgment of Inner Experience, and Nonreacting to Inner Experience, would be associated with higher relationship satisfaction in the sample of dating college students. Results do not support the use of mindfulness interventions for college students who are struggling with romantic relationship problems. A multiple linear regression analyses was conducted in order to test whether any of the five facets of mindfulness would be able to predict relationship satisfaction scores. Surprisingly, none of the Five Facets of mindfulness were significant

predictors of relationship satisfaction. However, whether or not one had ever received forming mindfulness training was in fact a significant predictor of relationship satisfaction. These findings are in direct contrast to previous research that found a relationship between mindfulness and relationship satisfaction (Carson et al., 2004; Barnes et al., 2007). Results of the current study suggest that some aspect of formal mindfulness training other than the Five Facets of mindfulness may improve relationships.

The third and final hypothesis was that mindfulness facets would mediate the relationship between the Four Horsemen of the Apocalypse and relationship satisfaction. Results do not support this hypothesis. In order to test this hypothesis, a blocked regression analyses was conducted that included demographic variables in the first block, the Four Horsemen in the second block, and mindfulness facets and whether or not one had previous training in mindfulness in the third block. Again, Criticism and Contempt were significant predictors of relationship satisfaction, while defensiveness and stonewalling were not. Although the third block including mindfulness facets was statistically significant, the addition of the mindfulness factors accounted for only a 1% increase in the amount of variance accounted for by the model, and the amount of variance accounted for by the Four Horsemen went relatively unchanged with the addition of the mindfulness factors. These findings do not support the hypothesis that mindfulness may mediate the relationship between the Four Horsemen and relationship satisfaction. These findings suggest that mindfulness has a statistically significant but practically negligible impact on relationship satisfaction in the sample, and this impact does not affect the relationship between the Four Horsemen and relationship satisfaction. Results do not support the use of mindfulness interventions with college students who struggle with negative communication patterns like the Four Horsemen in their dating relationships.

In addition to the aforementioned contributions to the literature base, the current study provides a proposed methodology for scoring and utilizing the subscales of the Four Horsemen of the Apocalypse Questionnaire. To date no studies utilizing the subscales of this measure include a methodology for assigning items to the subscales and computing subscale scores. The current study provides one possible solution to this gap in the literature. Unfortunately, attempts to establish the construct validity of the instrument were not successful, and face validity was obtained using inter-rater reliabilities from five raters who were trained in Gottman's techniques. Although a method is provided, further study is needed in order to establish the validity of the Four Horsemen of the Apocalypse Questionnaire and its subscales with a dating college student population.

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Appendix A

Demographics Questionnaire

Please answer the following questions:

1. Age:_____

2. Please select the choice that best fits your sex/gender:
    a. Female
    b. Male
    c. Other (Please specify)

3. Please select what you consider to be your race/ethnicity (check as many as apply):
    a. Asian/Asian American/Pacific Islander
    b. Black/African/African American/Black American
    c. Hispanic/Latino(a)/Spanish/Hispanic American/Latino(a) American
    d. Native American/Alaska Native
    e. White American/Caucasian (non-Hispanic)
    f. Middle Eastern
    g. Biracial (please specify)_____
    h. Other (please specify)_____

4. Please select the choice that best fits your sexual orientation:
    a. Heterosexual
    b. Homosexual
    c. Bisexual (Attracted to men and women)
    d. Pansexual (Attracted to all variants of gender)
    e. Other (please specify)_____

5. Year in school:
    a. Freshman
    b. Sophomore
    c. Junior
    d. Senior
    e. Other (please specify)_____

6. Are you currently in a romantic relationship?
    a. Yes
    b. No

7. If you are currently in a romantic relationship, how long is your current relationship?
    a. (Please Specify)_____

8. If you are not currently in a romantic relationship, have you ever been in a romantic relationship?
    a. What is the length of your most recent romantic relationship? (Please Specify_____)

9. Have you ever had formal or informal training in mindfulness or mindful-meditation?
    a. No
    b. Yes (please specify)_____

Appendix B

Relationship Assessment Scale

Read each statement and answer according to your **CURRENT ROMANTIC RELATIONSHIP**. If you are not currently involved in a romantic relationship, please answer according to your **MOST RECENT ROMANTIC RELATIONSHIP**. Please mark on the answer sheet the letter for each item which best answers that item for you.

1. How well does your partner meet your needs?

A	B	C	D	E
Poorly		Average		Extremely well

2. In general, how satisfied are you with your relationship?

A	B	C	D	E
Unsatisfied		Average		Extremely satisfied

3. How good is your relationship compared to most?

A	B	C	D	E
Poor		Average		Excellent

4. How often do you wish you hadn't gotten in this relationship?

A	B	C	D	E
Never		Average		Very often

5. To what extent has your relationship met your original expectations:

A	B	C	D	E
Hardly at all		Average		Completely

6. How much do you love your partner?

A	B	C	D	E
Not much		Average		Very much

7. How many problems are there in your relationship?

A	B	C	D	E
Very few		Average		Very many

NOTE: Items 4 and 7 are reverse scored. A=1, B=2, C=3, D=4, E=5. You add up the items and divide by 7 to get a mean score.

Appendix C

Five Facet Mindfulness Questionnaire

Instructions: Please rate each of the following 39 statements using the scale provided. Write the number in the blank that best describes your own opinion of what is generally true for you.

1	2	3	4	5
never or very rarely true	**Rarely True**	**sometimes true**	**often true**	**very often or always true**

_____ 1. When I'm walking, I deliberately notice the sensations of my body moving.

_____ 2. I'm good at finding words to describe my feelings.

_____ 3. I criticize myself for having irrational or inappropriate emotions.

_____ 4. I perceive my feelings and emotions without having to react to them.

_____ 5. When I do things, my mind wanders off and I'm easily distracted.

_____ 6. When I take a shower or bath, I stay alert to the sensations of water on my body.

_____ 7. I can easily put my beliefs, opinions, and expectations into words.

_____ 8. I don't pay attention to what I'm doing because I'm daydreaming, worrying, or otherwise distracted.

_____ 9. I watch my feelings without getting lost in them.

_____ 10. I tell myself I shouldn't be feeling the way I'm feeling.

_____ 11. I notice how foods and drinks affect my thoughts, bodily sensations, and emotions.

_____ 12. It's hard for me to find the words to describe what I'm thinking.

1	2	3	4	5
never or very rarely true	**Rarely True**	**sometimes true**	**often true**	**very often or always true**

_____ 13. I am easily distracted.

_____ 14. I believe some of my thoughts are abnormal or bad and I shouldn't think that way.

____ 15. I pay attention to sensations, such as the wind in my hair or sun on my face.

_____16. I have trouble thinking of the right words to express how I feel about things

_____ 17. I make judgments about whether my thoughts are good or bad.

_____ 18. I find it difficult to stay focused on what's happening in the present.

_____ 19. When I have distressing thoughts or images, I "step back" and am aware of the thought or image without getting taken over by it.

_____ 20. I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing.

_____ 21. In difficult situations, I can pause without immediately reacting.

_____ 22. When I have a sensation in my body, it's difficult for me to describe it because I can't find the right words.

_____ 23. It seems I am "running on automatic" without much awareness of what I'm doing.

_____24. When I have distressing thoughts or images, I feel calm soon after.

_____ 25. I tell myself that I shouldn't be thinking the way I'm thinking.

_____ 26. I notice the smells and aromas of things.

_____ 27. Even when I'm feeling terribly upset, I can find a way to put it into words.

1	2	3	4	5
never or very rarely true	**Rarely True**	**sometimes true**	**often true**	**very often or always true**

_____ 28. I rush through activities without being really attentive to them.

_____ 29. When I have distressing thoughts or images I am able just to notice them without reacting.

_____ 30. I think some of my emotions are bad or inappropriate and I shouldn't feel them.

_____ 31. I notice visual elements in art or nature, such as colors, shapes, textures, or patterns of light and shadow.

_____ 32. My natural tendency is to put my experiences into words.

_____ 33. When I have distressing thoughts or images, I just notice them and let them go.

_____34. I do jobs or tasks automatically without being aware of what I'm doing.

_____ 35. When I have distressing thoughts or images, I judge myself as good or bad, depending what the thought/image is about.

_____ 36. I pay attention to how my emotions affect my thoughts and behavior.

_____ 37. I can usually describe how I feel at the moment in considerable detail.

_____ 38. I find myself doing things without paying attention.

_____ 39. I disapprove of myself when I have irrational ideas

Appendix D

The Four Horsemen of the Apocalypse Questionnaire

Read each statement and answer according to your **CURRENT ROMANTIC RELATIONSHIP**. If you are not currently involved in a romantic relationship, please answer according to your **MOST RECENT ROMANTIC RELATIONSHIP**. Place a check mark in the appropriate TRUE or FALSE box.

When we discuss our relationship issues:	**Response:**
I feel attacked or criticized when we talk	True☐ (1) False☐ (2)
I usually feel like my personality is being assaulted	True☐ (1) False☐ (2)
In our disputes, at times, I don't even feel like my partner likes me very much.	True☐ (1) False☐ (2)
I have to defend myself because the charges against me are so unfair.	True☐ (1) False☐ (2)
I often feel unappreciated by my partner.	True☐ (1) False☐ (2)
My feelings and intentions are often misunderstood.	True☐ (1) False☐ (2)
I don't feel appreciated for all the good I do in this relationship	True☐ (1) False☐ (2)
I often just want to leave the scene of an argument.	True☐ (1) False☐ (2)
I get disgusted by all the negativity between us.	True☐ (1) False☐ (2)
I feel insulted by my partner at times.	True☐ (1) False☐ (2)
I sometimes just clam up and become quiet.	True☐ (1) False☐ (2)
I can get mean and insulting in our disputes.	True☐ (1) False☐ (2)
I feel basically disrespected.	True☐ (1) False☐ (2)
Many of our issues are not just my problem.	True☐ (1) False☐ (2)
The way we talk makes me want to just withdraw from the whole relationship.	True☐ (1) False☐ (2)
I think to myself, "who needs all this conflict?"	True☐ (1) False☐ (2)
My partner never really changes.	True☐ (1) False☐ (2)
Our problems have made me feel desperate at times.	True☐ (1) False☐ (2)
My partner doesn't face issues responsibly and maturely.	True☐ (1) False☐ (2)
I try to point out flaws in my partner's personality that need improvement.	True☐ (1) False☐ (2)
I feel explosive and out of control about our issues at times.	True☐ (1) False☐ (2)
My partner uses phrases like "you always" or "you never" when complaining.	True☐ (1) False☐ (2)
I often get the blame for what are really our problems.	True☐ (1) False☐ (2)
I don't have a lot of respect for my partner's position on our basic issues.	True☐ (1) False☐ (2)
My partner can be quite selfish and self-centered.	True☐ (1) False☐ (2)
I feel disgusted by some of my partner's attitudes.	True☐ (1) False☐ (2)
My partner gets far too emotional.	True☐ (1) False☐ (2)
I am just not guilty of many of the things I get accused of.	True☐ (1) False☐ (2)
Small issues often escalate out of proportion.	True☐ (1) False☐ (2)
Arguments seem to come out of nowhere.	True☐ (1) False☐ (2)
My partner's feelings get hurt too easily.	True☐ (1) False☐ (2)
I often will become silent to cool things down a bit.	True☐ (1) False☐ (2)
My partner has a lot of trouble being rational and logical.	True☐ (1) False☐ (2)

Appendix E

Informed Consent

You are invited to participate in this research study, which is being conducted through Indiana University of Pennsylvania. You have been randomly selected from the Psychology Subject Pool to participate in this study. The following information is provided in order to help you to make an informed decision about whether or not to participate. If you have any questions, please do not hesitate to ask the researcher.

The purpose of this study is to investigate the relationships between communication, mindfulness, and relationship satisfaction. Participation in this study involves filling out a brief set of questionnaires using the online link that has been provided to you. Your responses will be recorded by the online software but will not be linked to your name or identification, and all information will be kept confidential. Your participation in this study should require approximately 10-15 minutes. You will receive research participation credit for your participation in this study.

Your participation in this study is voluntary. You are free to decide not to participate in this study or to withdraw at any time without adversely affecting your relationship with the investigator(s), with IUP, or your psychology professor. If you choose to participate, you may withdraw at any time by simply exiting out of the survey on your computer. Upon your request to withdraw, all information pertaining to you will be destroyed. If you choose to participate, all information will be held in strict confidence. The information obtained in this study may be published in scientific journals or presented at scientific meetings but your identity will always be kept strictly confidential and your responses will not be connected to your name.

If you are willing to participate in this study, please indicate so below by typing your name in the box and clicking the icon to indicate you understand this agreement. If you choose not to participate, simply indicate so below and close out of the internet program.

To obtain further information please contact:

Student Researcher:
Michael Lute, M.A.
Clinical Psychology Doctoral Student
Uhler Hall
1020 Oakland Avenue
Indiana, PA 15705
724-357-2426

Faculty Sponsor:
Derek Hatfield, Ph.D.
Associate Professor of Psychology
Uhler Hall, Rm. 238A
1020 Oakland Avenue
Indiana, PA 15705
724-357-4527

This project has been approved by the Indiana University of Pennsylvania Institutional Review Board for the Protection of Human Subjects (Phone: 724-357-7730).

Appendix F

Debriefing Form

The Relationships Between Communication, Mindfulness, and Relationship Satisfaction

Thank you for your participation in this study.

At the beginning of this study, you were informed that the purpose of the study is to investigate the relationship between communication, mindfulness, and relationship satisfaction. More specifically, the study aimed to look at how particular negative patterns of communication known as the "Four Horsemen of the Apocalypse" affect relationship satisfaction in college students and the possible roles that mindfulness skills play in this relationship.

Because the term "Four Horsemen of the Apocalypse" may have a negative connotation, this was referred to more generally in the study as "communication." It is important to note that research suggests that these communication patterns are present in varying levels in all relationships, and the presence of these communication patterns do not indicate anything in and of themselves.

By participating in this study, you contributed to research that can help inform clinicians and may eventually assist clinicians in helping college students work through their relationship problems. It is my hope that you feel proud to have participated in the study, and I thank you for your time and effort.

All of the information disclosed by participants during this study will be kept confidential. If you have any questions or would like further information about this study, including the results when the study has been completed, please contact the following individuals:

Student Researcher:
Michael Lute, M.A.
Clinical Psychology Doctoral Student

Uhler Hall
1020 Oakland Avenue
Indiana, PA 15705
724-357-2426

Faculty Sponsor:
Derek Hatfield, Ph.D.
Associate Professor of Psychology

Uhler Hall, Rm. 238A
1020 Oakland Avenue
Indiana, PA 15705
724-357-4527

Appendix G

Referral Sources

IUP Counseling Center……...…… (724) 357-2621

Center for Applied Psychology……... (724) 357-6228

Neuropsychiatric Assoc. INC PC…… (724) 464-0270

Community Guidance Center…….……. (724) 465-5576

Indiana Psychology Associates……... (724) 349-8021

Professional Psychologists and Associates.…….……... (724) 349-7580

Open Door Counseling and Crisis Center……..……..….... (724) 465-2605

24-hour hotline…...…….……... (800) 794-2112

Alice Paul House……..……..……. (724) 349-4444

Domestic Violence or Rape Crisis...……... (800) 435-7249

Clarion Psychiatric Center…..……..……...……..... (800) 253-4906

Appendix H

List of Additional Tables

Table 10

Eigenvalues for 4-Factor Confirmatory Factor Analysis for Items on the Four Horsemen of the Apocalypse Measure (N=406)

Variable	Eigenvalue	Proportion of Variance	Cumulative Proportion of Variance
1	7.75148	0.23489	0.23489
2	2.38249	0.07220	0.30709
3	1.85829	0.05631	0.36340
4	1.67430	0.05074	0.41414
5	1.53824	0.04661	
6	1.45232	0.04401	
7	1.37497	0.04167	
8	1.33708	0.04052	
9	1.09396	0.03315	
10	1.06501	0.03227	
11	0.99536	0.03016	
12	0.92093	0.02791	
13	0.88112	0.02670	
14	0.79557	0.02411	
15	0.73907	0.02240	
16	0.70901	0.02149	
17	0.68159	0.02065	
18	0.65297	0.01979	
19	0.61819	0.01873	
20	0.58825	0.01783	
21	0.54207	0.01643	
22	0.47973	0.01454	
23	0.45356	0.01374	
24	0.42055	0.01274	
25	0.36407	0.01103	
26	0.34125	0.01034	
27	0.30693	0.00930	
28	0.28760	0.00872	
29	0.24043	0.00729	
30	0.18179	0.00551	
31	0.15660	0.00475	
32	0.11079	0.00336	
33	0.00443	0.00013	

Table 11

Parallel Analysis for 4-Factor Confirmatory Factor Analysis of Four Horsemen of the Apocalypse Questionnaire (N = 406)

Variable	Real Data % of Variance	Mean of Random % of Variance	95th Percentile of Random % of Variance
1	24.2*	6.7	7.1
2	7.3*	6.2	6.6
3	5.7	5.8	6.1
4	5.2	5.5	5.8
5	4.6	5.2	5.5
6	4.3	5.0	5.2
7	4.2	4.8	5.0
8	4.0	4.6	4.8
9	3.4	4.3	4.6
10	3.3	4.2	4.3
11	3.1	4.0	4.1
12	2.9	3.8	4.0
13	2.7	3.6	3.7
14	2.5	3.4	3.6
15	2.3	3.3	3.4
16	2.2	3.1	3.2
17	2.1	2.9	3.1
18	2.0	2.8	2.9
19	1.9	2.6	2.7
20	1.8	2.4	2.6
21	1.7	2.3	2.4
22	1.4	2.1	2.3
23	1.3	1.9	2.1
24	1.2	1.8	1.9
25	1.0	1.6	1.8
26	0.9	1.4	1.6
27	0.9	1.3	1.5
28	0.8	1.2	1.3
29	0.5	0.9	1.1
30	0.4	0.7	0.9
31	0.3	0.5	0.7
32	0.1	0.3	0.5
33	0.0	0.0	0.0

Table 12

Subscales of the 28-item Four Horsemen of the Apocalypse Questionnaire

Subscale	Item	*α (N = 406)*
Criticism		.701
	1. I feel attacked or criticized when we talk.	
	3. In our disputes, at times, I don't even feel like my partner likes me very much.	
	10. I feel insulted by my partner at times.	
	17. My partner never really changes.	
	22. My partner uses phrases like "you always" or "you never" when complaining.	
	25. My partner can be quite selfish and self-centered.	
	27. My partner gets far too emotional.	
	31. My partner's feelings get hurt too easily.	
Defensiveness		.800
	4. I have to defend myself because the charges against me are so unfair.	
	6. My feelings and intentions are often misunderstood.	
	7. I don't feel appreciated for all the good I do in this relationship	
	14. Many of our issues are not just my problem.	
	23. I often get the blame for what are really our problems.	
	28. I am just not guilty of many of the things I get accused of.	
	29. Small issues often escalate out of proportion.	
	30. Arguments seem to come out of nowhere.	
Contempt		.780
	9. I get disgusted by all the negativity between us.	
	12.I can get mean and insulting in our disputes.	
	13. I feel basically disrespected.	
	19. My partner doesn't face issues responsibly and maturely.	
	24. I don't have a lot of respect for my partner's position on our basic issues.	
	26. I feel disgusted by some of my partner's attitudes.	
	33. My partner has a lot of trouble being rational and logical.	
Stonewalling		.654
	8. I often just want to leave the scene of an argument.	
	11. I sometimes just clam up and become quiet.	
	15. The way we talk makes me want to just withdraw from the whole relationship.	
	16. I think to myself, "who needs all this conflict?"	
	32. I often will become silent to cool things down a bit.	

Table 13

of the Four Horsemen of the Apocalypse Subscales (N=406)

Scale	Four Horsemen Total Score	Four Horsemen Criticism	Four Horsemen Defensiveness	Four Horsemen Contempt	Four Horsemen Stonewalling
4H Total Score	1	.900**	.906**	.871**	.759**
4H Criticism	.900**	1	.753**	.716**	.615**
4H Defensiveness	.906**	.753**	1	.717**	.517**
4H Contempt	.871**	.716**	.717**	1	.549**
4H Stonewalling	.759**	.615**	.517**	.549**	1

** $p < .01$

Appendix I

List of Figures

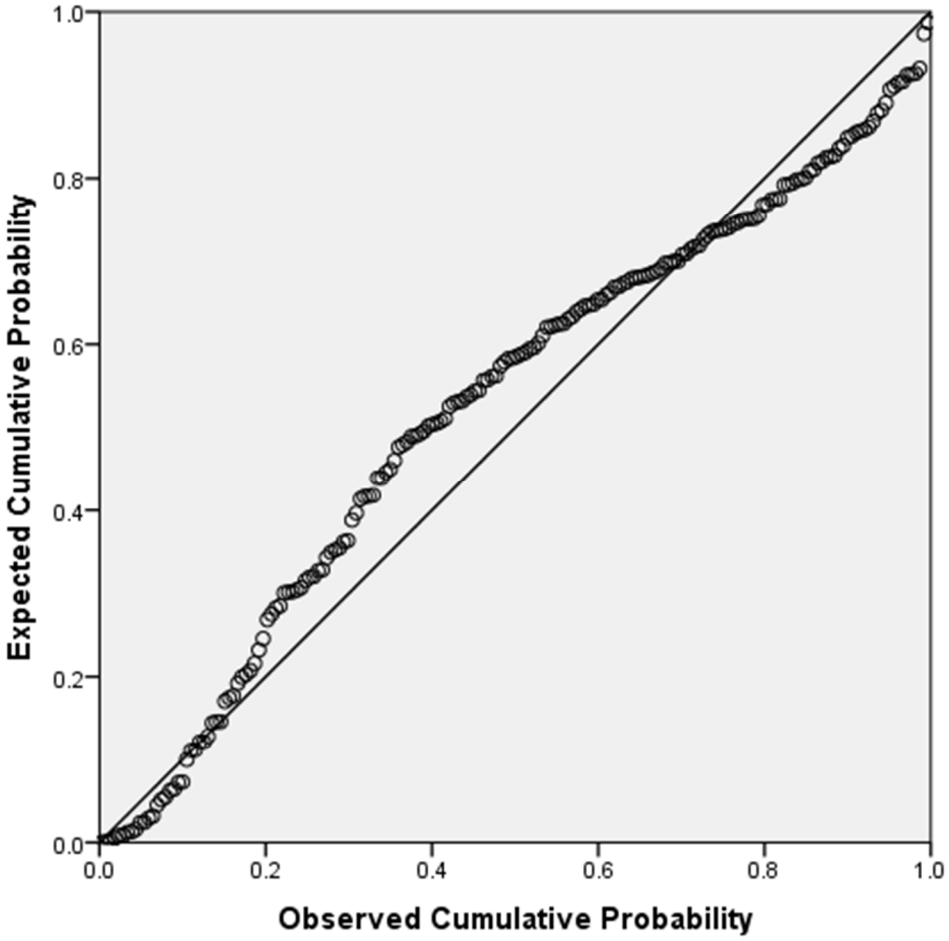

Figure 1. Normal P-P plot of regression standardized residual, dependent variable RAS total score.

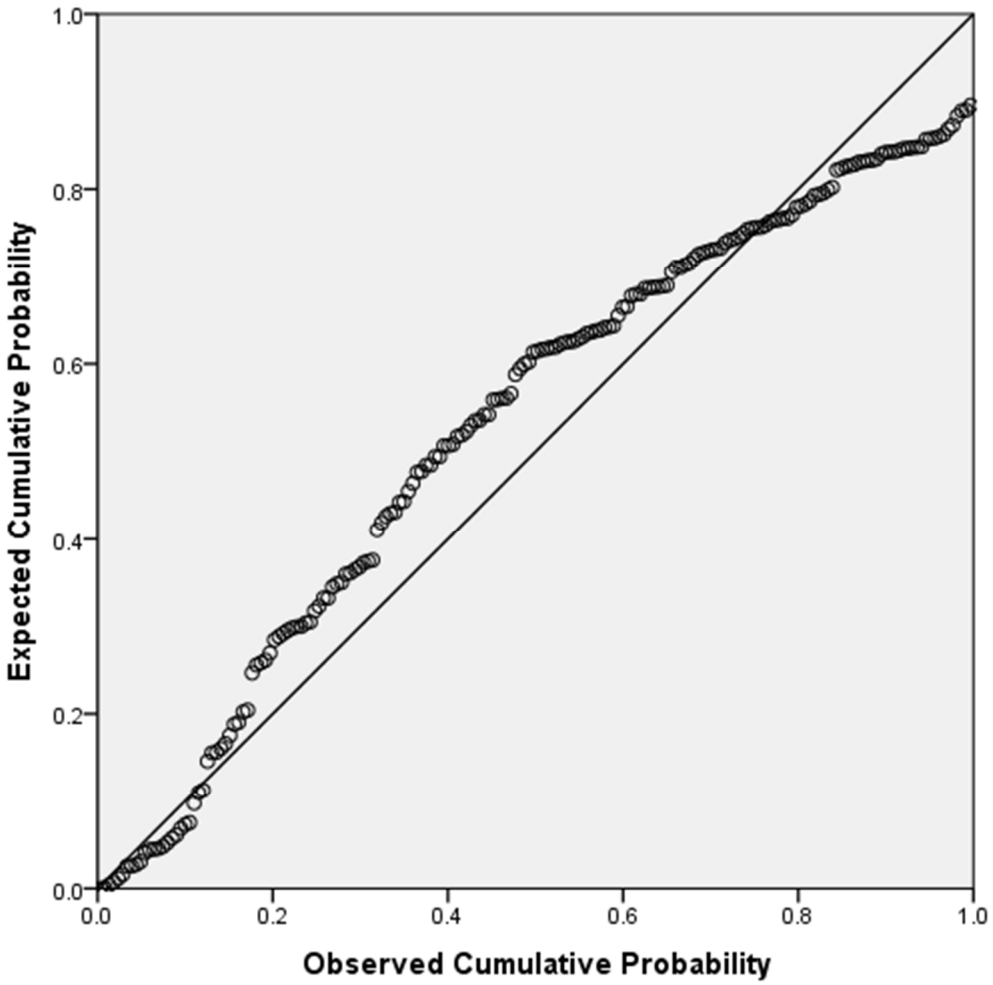

Figure 2. Normal P-P plot of regression standardized residual, dependent variable RAS total score.

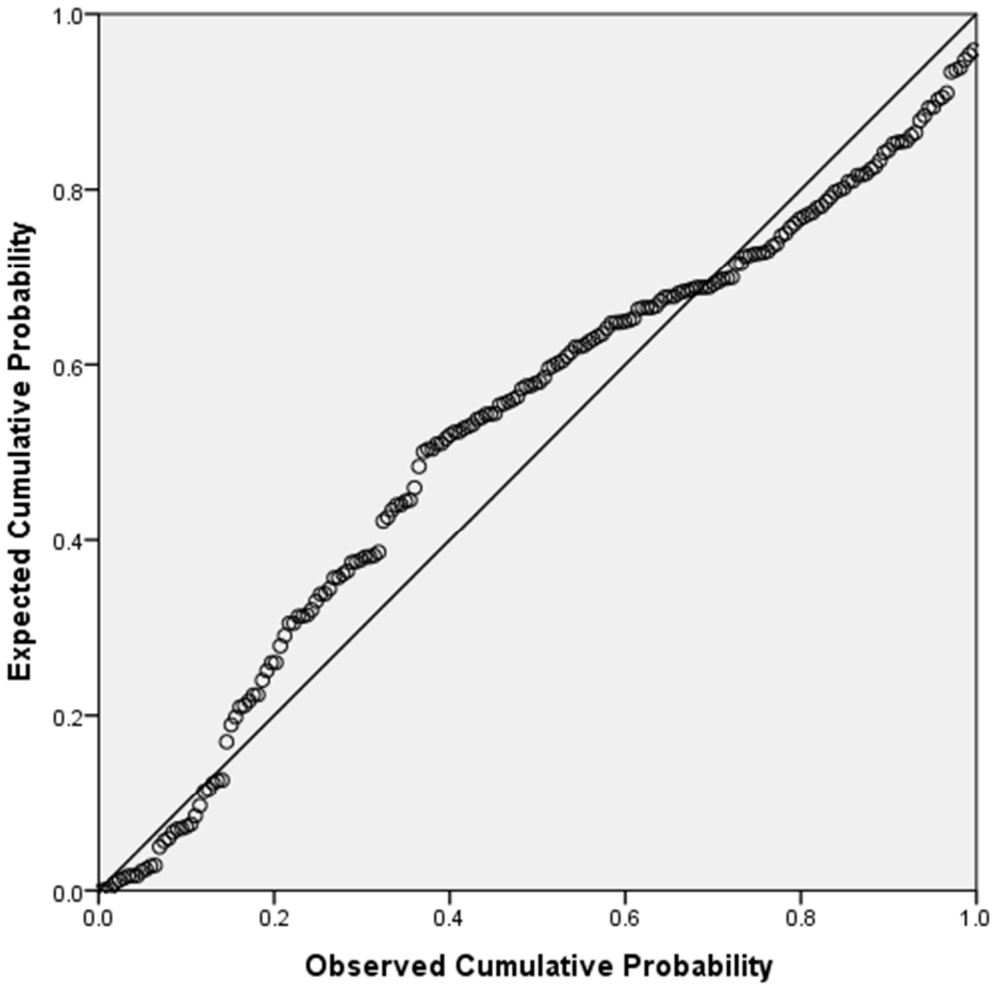

Figure 3. Normal P-P plot of regression standardized residual, dependent variable RAS total score.

Appendix J

Permissions

On Wed, 12 Feb 2014 17:13:31 -0800
ALAN KUNOVSKY <alan@gottman.com> wrote:
Hello Michael,

The Gottman Institute gives you permission to include the Four Horsemen Questionnaire in your dissertation research. Please quote Dr. Gottman as the author of the questionnaire where appropriate. Best of luck with your studies.

Thanks
Alan Kunovsky
CEO
The Gottman Institute
www.gottman.com
(206)-607-8691

From: Michael R Lute [mailto:m.r.lute@iup.edu]
Sent: Sunday, February 9, 2014 5:19 PM
To: info@gottman.com
Subject: Request to Use Gottman Measure in Dissertation

Hello, my name is Michael Lute, and I am currently a doctoral candidate in clinical psychology at the Indiana University of Pennsylvania. I am a big fan of The Sound Marital House, and I would like to include the Four Horsemen Questionnaire in my dissertation research. I can provide as much information on my project as needed, but briefly stated it involves looking at the prevalence of the Four Horsemen in dating college students and the relationships between the Four Horsemen, Mindfulness skills, and Relationship Satisfaction. Administration involves a giving a simple packet of questionnaires to subjects, and analysis involves correlation (regression).

If this is not the correct place to request permission to include the measure in my research, could you please direct me to the appropriate person? Thank you very much for your time!

Best Regards, Michael Lute

Michael Lute, M.A.
Doctoral Candidate
Clinical Psychology
Indiana University of Pennsylvania

Policy regarding e-mail communications: E-mail is neither secure nor confidential - other people may have access to your e-mail communications, even if you do not intend for them to have access. For this reason, e-mail communications should be limited to scheduling or canceling appointments, or similar administrative tasks. It is generally not advisable to share personal or "clinical" information (information about your problems or concerns, your functioning, your emotional state, crises that you may be experiencing, etc.) via e-mail.