

THESIS

DANGER SIGNS IN ROMANTIC RELATIONSHIPS: THE ROLE OF MINDFULNESS

Submitted by

Veronica O. Walton

Department of Human Development and Family Studies

In partial fulfillment of the requirements

For the Degree of Master of Science

Colorado State University

Fort Collins, Colorado

Summer 2019

Master's Committee:

Advisor: Kelley Quirk

Ashley Harvey
Jennifer Harman

Copyright by Veronica Octavia Walton 2019

All Rights Reserved

ABSTRACT

DANGER SIGNS IN ROMANTIC RELATIONSHIPS: THE ROLE OF MINDFULNESS

Danger signs in romantic relationships signal relational distress, dissolution, and dissatisfaction (Gottman, 1993; Markman, Stanley, & Blumberg, 2010b). Little is known about how mindfulness may improve danger sign identification and how important experiences may be influential in detection including one's betrayal trauma, interparental conflict, social isolation, and attachment style. Participants viewed videos of couples interacting and were instructed to identify negative interaction patterns through a digital analogue assessment via key presses. Half of participants were randomized to a mindfulness condition. Results revealed that mindfulness engagement was significantly related to the identification of danger signs, as compared to the control group. Additionally, results showed that higher reports of betrayal trauma and interparental conflict were significantly negatively associated with ability to recognize danger signs, including mindfully-induced participants. Interestingly, insecure attachment was significantly related to greater danger sign identification for both the main effect and moderation, and social isolation appeared insignificant. Importantly, this study lends support for the notion that early exposure to unhealthy relationship dynamics may be influential for future recognition of danger signs in intimate partnerships, and that mindfulness appears to play a key role in detection.

ACKNOWLEDGMENTS

This thesis is made possible due to the unwavering support, guidance, and trust of my advisor, Dr. Kelley Quirk. Throughout my graduate career, Kelley has guided my personal and professional growth; she has demonstrated and fostered steady patience and persistent critical thinking. Her trust in my development and process allowed for this study to evolve and provided a space for me to unearth overwhelming passion and curiosity for the field of relationship science. Likewise, I would also like to thank my committee members, Dr. Ashley Harvey and Dr. Jennifer Harman, for their vital contributions, valued perspectives, and important suggestions to advance this project and assist the investigation of future research. Furthermore, I would like to thank my mom and dad, whose untiring support and encouragement allowed me to begin and end this graduate degree with confidence and purpose. Finally, I would like to acknowledge my cohort and peers for their constant reassurance and loyal friendship. I continue to learn from each of you, and without you I would not be the clinician, scholar, friend, or person I have become.

TABLE OF CONTENTS

ABSTRACT	ii
ACKNOWLEDGMENTS	iii
LIST OF TABLES	vi
LIST OF FIGURES	vii
INTRODUCTION	1
DANGER SIGNS	2
The Four Horsemen of the Apocalypse	2
Destructive Patterns	3
MODERATING VARIABLES	7
Attachment	7
Social Isolation	8
Betrayal Trauma	10
Interparental Conflict	11
MINDFULNESS	13
CONNECTING MINDFULNESS TO RELATIONAL DISTRESS	15
SIGNIFICANCE OF YOUNG ADULT ROMANTIC RELATIONSHIPS	18
PRESENT STUDY	19
HYPOTHESES	20
Main Effect Hypotheses	20
Interaction Hypotheses	20
METHOD	22
Participants	22
A Priori Power Analysis	22
Recruitment and Eligibility	22
Participant Characteristics	23
Procedure	24
Study Design	24
Video Stimuli and Analogue Assessment Tool	24
Study Protocol	25
Measures	26
Mindfulness	26
Attachment	26
Social Isolation	27
Betrayal Trauma	27
Interparental Conflict	28
Danger Sign Recognition	29
DATA ANALYTIC APPROACH	30
RESULTS	31
DISCUSSION	32
Significant Findings	32
Mindfulness	32
Betrayal Trauma and Interparental Conflict	35

Unexpected Significance for Insecure Attachment	37
Insignificance of Social Isolation	39
Limitations and Future Directions.....	39
Sample Characteristics	40
Other-based Recognition	41
Key-press Assessment	42
Effectiveness of Mindfulness Intervention.....	43
Self-report Bias.....	44
Recall Bias.....	45
Interaction Effects	45
Variability of Insecure Attachment Style Responses	46
Implications	46
CONCLUSION	48
REFERENCES	53

LIST OF TABLES

TABLE 1: CORRELATION OF MEASURES	49
TABLE 2: DISCRIPTIVE INFORMATION FOR MEASURES.....	50
TABLE 3: MULTIPLE REGRESSION ANALYSES.....	51

LIST OF FIGURES

FIGURE 1: MODERATING HYPOTHESES CONCEPTUAL MODEL	52
--	----

INTRODUCTION

Following the peak of divorce rates in the 1980s, researchers have conducted thorough investigations regarding the maintenance of healthy and unhealthy relationship behaviors (Amato & Keith, 1991; Evans, Davies, & DiLillo, 2008; Halford, Markman, Kline, & Stanley, 2003; Halford, Markman, & Stanley, 2008; Knopp et al., 2017; Stanley, Blumberg, & Markman, 1999; Stanley, Markman, & Whitton, 2002). Estimates show that during the twentieth century, divorce rates increased until recent decades, with current research showing global rates of dissolution between 23-40% (Kennedy & Ruggels, 2014; Tach & Eads, 2015). Although the prevalence of divorce has dropped since the 1980's, the United States' divorce rates continue to alarm. National estimates surpass global averages by as much as 10% and appear highest in Western countries, showing between 40-50% of U.S. romantic relationships ending in divorce (Lawson & Satti, 2016; Schoen & Canudas-Romo, 2006), and numerous others committed to unhappy and unfulfilling relationships (Avellar & Smock, 2005; Tach & Eads, 2015). This trend concerns relationship scientists who seek to uncover specific behaviors and elements of communication that signal relationship distress, domestic violence, and divorce or dissolution.

DANGER SIGNS

The current body of research has identified specific behaviors and communication expressions that relate to relationship distress and divorce. Broadly, these expressions have been labeled “danger signs” (Markman, Stanley, & Blumberg, 2010b; Stanley et al., 1999), wherein consistent expressions of such signs in a relationship signal current and/or future negative relational functioning. The most widely tested sets of danger signs include Gottman’s (1993) Four Horsemen (contempt, criticism, defensiveness, and stonewalling), as well as Markman and colleague’s (2010b) Destructive Patterns (escalation, invalidation, negative interpretation, and withdrawal). These two collections of communication danger signs have been found to be associated with relational turmoil and dissolution of partnerships (Gottman, 1994; Markman et al., 2010b; Stanley et al., 1999).

The Four Horsemen of the Apocalypse

Gottman’s (1994) research on romantic relationships is one of the most influential and widely cited bodies of work on relational functioning. Observational studies of couples’ communication cycles revealed a consistent set of negative communication expressions, which these researchers labeled “the Four Horsemen of the Apocalypse.” The Four Horsemen include criticism, contempt, defensiveness, and stonewalling and have been shown to predict marital dissolution with 85% accuracy (Carrere & Gottman, 1999).

Criticism is the first of the Four Horsemen and is defined as an attack on a partner’s character (Gottman, 1994). It is important to distinguish criticism from a complaint, which identifies specific behaviors bothersome to a partner. Criticism takes the complaint and universalizes the behavior to be a flaw in their partner’s innate personality. The second danger

sign, contempt, is said to be the most detrimental of the Four Horsemen (Gottman, 1994), and the greatest predictor of marital dissolution. Contempt comprises both behaving and communicating in ways that express hostility and disgust through attacking a partner's self-concept with the intent of psychological abuse and/or insult. Contempt can include verbal expressions such as sarcasm, name-calling, and mockery, or non-verbal demonstrations through a hostile tone of voice, eye rolling, facial expressions, etc. Although similar, contempt is considered worse than criticism as it involves attacking the individual's character with malicious intent.

Defensiveness is the third danger sign of the Four Horsemen and is described as seeing the self as a victim and failing to accept responsibility in conflict (Gottman, 1994). The individual treats their partner as the aggressor, making excuses, ignoring the partner's complaints, blaming, and whining. An interesting aspect of danger signs is how they can interact with one another. Just as contempt and criticism are linked, so too are defensiveness and contempt, and defensiveness and criticism. These linkages between the first three danger signs can create a vicious cycle leading to the fourth danger sign: stonewalling. Stonewalling is an attempt to avoid conflict and negative emotions entirely through shutting down (Gottman, 1994). This is demonstrated through a severe lack of verbal expression beyond sporadic murmurs or grunts, and body language wherein the partner may leave the room, turn away from the partner, or cross their arms to close themselves off from further communication.

Destructive Patterns

Following John Gottman's (1994) research, Markman, Rhoades, Stanley, Regan, and Whitton (2010a) identified similar danger signs in communication. They termed these danger signs "Destructive Patterns" because these signs - escalation, invalidation, withdrawal, and negative interpretation - appeared to play a significant role in damaging core components to a

healthy and satisfying relationship, such as trust, safety, and respect (Scott, Rhoades, Stanley, Allen, & Markman, 2013; Stanley et al., 1999).

Escalation is the first of the four Destructive Patterns, illustrated through intensifying arguments wherein each partner ups the ante, growing not only the emotional turmoil present but oftentimes also the volume of their voice (Markman et al., 2010a). Escalation is usually one danger sign couples identify rather quickly, as the competitive nature of the conflict is much more overt than regular conversation and other danger signs. Another unique aspect of escalation is its progression. Starting in frustration, escalation morphs into a state of attack, often with a goal of hurting the other and increasingly veering from the original topic. This progression hinders the possibility of resolving the conflict, which also damages the potential for future conversations to break out of the escalation cycle.

Invalidation is Markman and colleagues' (2010a) second danger sign, whereby individuals respond to their partner with negativity, judgment, and criticism. In this way, partners belittle and depreciate the thoughts and feelings of the other, causing significant distress in the invalidated partner. These attacks can be subtle or explicit, and many times the response to this partially depends on whether the invalidation was noticeable or more artfully placed into conversation. Withdrawal, the third Destructive Pattern, is comparable to stonewalling in many ways in that withdrawal from conversation is driven by a desire to escape conflict and avoid the feelings, thoughts, and behaviors associated with negative conversations.

Finally, the fourth Destructive Pattern, negative interpretation, constitutes beliefs and theories about the motivation behind a partner's feelings, thoughts, behaviors, and expressions (Markman et al., 2010a). Negative interpretations assume a worst-case scenario, regardless of the intent behind the partner's action or verbalization. For example, if one partner fell asleep before

saying goodnight or I love you to their partner, the other partner with a tendency to negatively interpret communication or behaviors may believe their partner does not love them, is cheating on them, or is hiding something. Aside from communication danger signs, more recognizable behavior danger signs also exist, with physical violence at the height of severity and urgency.

From this body of research, danger signs have become an essential element of study in romantic relationships (Gottman, 1993; Gottman & Levenson, 1992). Previous findings have not only focused on one's ability to define danger signs, but also to reduce the expression of danger signs in romantic relationships (Allen, Rhoades, Markman, & Stanley, 2015; Markman et al., 2010b; Stanley et al., 1999). In fact, from self-reported measures, studies show relationship education programs can be a useful method to help reduce danger sign presentation. One such program is the Prevention and Relationship Education Program (PREP; Stanley et al., 1999), an educational program designed to both teach and implement effective communication and conflict management strategies and increase protective factors to relationship distress (Markman et al., 2010b; Markman, Renick, Floyd, Stanley, & Clements, 1993). Results show significant decreases in divorce and relationship dissolution, as well as lower self-reported rates of distress. However, because the existing literature relies solely on self-report measures of danger sign awareness, inherent biases in reporting has limited generalizability of results.

While some studies have been useful in acknowledging the role of danger signs in romantic relationships, so far, studies have failed to identify mechanisms by which danger sign expressions can be reduced. One such mechanism could simply be identifying danger signs in-the-moment. As such, a gap exists in how the identification of danger signs varies among individuals, as well as what moderates an individual's ability to detect danger signs. One way to reduce self-report bias in reporting perceptions of romantic relationship danger signs is to utilize

an analogue assessment. For example, instead of asking an individual to report on their level of awareness of danger signs in their own relationship, it may be more beneficial to have an individual watch videos of a couple interacting and report any perceived danger signs. With this new measurement technique, it will be important to also assess for individual attribute variables that may impact one's ability to detect these danger signs in-the-moment.

MODERATING VARIABLES

Attachment

The interaction of adult attachment styles and emotion regulation strategies have demonstrated importance for predicting romantic relationship quality (Collins & Read, 1990; Pascuzzo, Cyr, & Moss, 2013). Bowlby (1988) and Ainsworth's (1983) collective attachment theories are used to understand the extent to which one's early attachment needs and experiences impact one's perception of desired relationship behavior and communication patterns later in life. Bowlby (1969) established an influential body of attachment research, underscoring the importance of maintaining a sense of closeness with the primary caregiver. Ainsworth (1979) extended the concept by categorizing attachment into three groups: secure, anxious-insecure, and avoidant-insecure. Securely attached individuals are characterized as highly trusting and show ease in getting close to others (Suldo & Sandberg, 2000), whereas insecurely attached individuals often express suspicion and hesitancy. From Hazan and Shaver's (1987) research, one's infant internal working models are extended to dating partnerships whereby attachment needs must still be met. Based on early experiences, some adults may feel more hesitancy and anxiety concerning their relationship's dependability due to inconsistency or unavailability in their youth. On the other hand, infants who experienced a stable and available relationship with their primary caregiver may move to romantic relationships with similar expectations, avoiding any sense of anxiety or dependency regarding their relationship.

Based on their unique approaches and perceptions of relational security, attachment styles predict differing approaches to positive and negative interaction patterns in romantic relationships. When attachment needs are not met, or when attachment injuries are inflicted by

one's partner by mirroring early threatening experiences, distressing situations such as these trigger reactions of avoidance or responsiveness (Cosway, Endler, Sadler, & Deary, 2000). Securely attached individuals will often respond by reconciling differences through vulnerable and honest conversations, while insecurely attached individuals may either choose responsiveness by way of anger or avoidance in order to protect oneself from further harm. Thus, securely and anxiously attached individuals may see the negative interaction cycles as they are displayed, with the difference being securely attached partners assume positive expectations of their partner and subsequently address and resolve the negative behaviors (Mikulincer, 1998), while anxiously attached individuals may engage in the negative interaction patterns often through dysfunctional manifestations of hyperactivity and anger (Mikulincer & Shaver, 2005). On the other hand, the avoidant/dismissive style may react by dissociating, ignoring, or avoiding the negative behaviors and the ensuing confrontation altogether. This response suggests that this attachment classification has the highest risk of not only missing danger signs in relationships, but also the greatest probability of preserving a negative relationship. Anxiously attached adults may also maintain negative relationships, but for motives of sustaining close connection with another individual to avoid the fear of abandonment instead of the avoidance of maladaptive, negative interactions. Furthermore, insecurely attached individuals may also have less social support or connection outside of their romantic relationship due to limited attempts to reach out in times of distress (Mikulincer & Shaver, 2005). As such, an outside perspective of the relationship may not be considered when evaluating the presence of danger signs.

Social Isolation

Social isolation is an important variable of which focus should be directed when studying romantic relationship danger signs. Hawthorne (2006) defines social isolation as living without

social support, connectedness, or companionship. From this definition, one's level of perceived social isolation is linked to a quality of low, moderate, or high friendship acuity. One who feels socially isolated experiences low friendship acuity, marked by a perceived lack of close friends or significant others with whom trust, care, and loyalty are exchanged. Drawing from Bowlby's (1988) fundamental concepts of attachment, humans have an innate desire to connect with others (Aspy & Proeve, 2017; Baumeister & Leary, 1995). Because of this, people often search for close, intimate relationships to fill that fundamental need. Those who feel socially isolated may experience a longing for feelings of fondness, comfort, and stability that often accompany social connection. Consequently, the need to be connected can be so strong for individuals who feel socially isolated that they may become too dependent on their romantic partner to fulfill that biological need, regardless of the overall quality and satisfaction of that relationship (Hasan & Clark, 2017), thus potentially promoting an oversight of relationship danger signs. Givertz, Wosidlo, Segrin, and Knutson (2013) discuss how positive and healthy marriages are characterized by partners maintaining a high degree of interdependence on one another. From an attachment lens, achieving high-quality, close relationships fulfill the need for connection with others and thus, protect against feelings of loneliness and isolation. The reciprocal relationship of interdependence among partners maintains this connection. Taken together, those socially isolated may have significantly less experience in relationships, fewer companions with which to discuss one's current relationship health, lower chances to maintain close connection with others, and higher feelings of loneliness (Hawthorne, 2006); thus, social isolation may also lead to a deeper desire to sustain a romantic relationship, even in the face of negative interaction patterns.

Betrayal Trauma

Trauma can have a significant impact on one's ability to concentrate on the present moment, especially in romantic relationships. Even more, abuse perpetrated by a trusted individual produces a specific type of trauma brimming with inconsistent messages. Betrayal trauma theory outlines this form of trauma experienced from a perpetrator on which one must rely for survival (e.g. parent or caregiver perpetrator). Betrayal trauma theory suggests a dissociation effect can occur due to the individual's need to rely on the perpetrator for food, shelter, and survival (Freyd, 1994; Freyd, 1996; Freyd, 2008). Dissociation has been defined in many ways, including Nijenhuis, Van der Hart, and Steele's (2010) definition, which involves the splitting of one's personality into two parts: one that is responsible for completing daily tasks and responsibilities, and another part that experiences the emotion associated with the trauma. More generally, dissociation can be defined as the separation of connected processes of consciousness and memory in an effort to banish traumatic experiences (DePrince & Freyd, 2004). From these interpersonal betrayal traumas, survivors may use dissociation as a coping mechanism, as their connection to a trusted individual cannot be severed due to the necessity of that individual to their existence.

Importantly, DePrince (2005) found that young adults who had several betrayal trauma experiences performed worse on reasoning problems that focused on negative behavior and communication interaction patterns in romantic relationships compared to those who had not been revictimized in young adulthood. Owen, Quirk, and Manthos (2012) also found those who experience betrayal trauma reported higher frequencies of disrespect in their intimate relationship. These significant findings suggest a possible lack of awareness of danger signs for individuals who have experienced a history of abuse by a trusted individual. Moreover, Jacoby,

Krackow, and Scotti (2017) found that compared to adolescents who have not experienced betrayal trauma, those with a history of betrayal trauma reported greater difficulty regulating emotions, demonstrated higher rates of aggressiveness, and displayed more negative communication patterns. As such, this learned response to separate one's conscious awareness from present-moment experiences may be critically important in the detection (or lack thereof) of romantic relationship danger signs.

Interparental Conflict

Noteworthy empirical literature exists linking interparental conflict (often present in divorced family structures) with child relationship functioning later in life (Rhoades, Stanley, Markman, & Ragan, 2012). In fact, in transition from volume IV-TR to volume V, the Diagnostic and Statistical Manual of Mental Disorders added a new term: Child affected by parental relationship distress (CAPRD). This important diagnostic addition legitimized the long-term effects parental relationship discord has on the family, and especially children. Through this diagnosis, clinicians are able to identify that parental relationship distress and child emotional, behavioral, and cognitive outcomes are linked in numerous ways (American Psychiatric Association, 2013). Social learning theory (SLT; Bandura, 1977) also offers an important view on how the transgenerational relationship exists between parental and young adult romantic relationship conflict. SLT states that children learn social behavior and communication strategies partially through what they observe from their parents. Thus, through the modeling of poor communication strategies (i.e., great expressions of danger signs), parents often act as a template for later romantic relationship expectations, demonstrating communication strategies and behavioral patterns to children (Cui & Fincham, 2010; Steinberg, Davila, & Fincham, 2006; Rhoades et al., 2012). These learned interaction patterns may subsequently set the schema for

young adults that expressions of danger signs are normative, thereby decreasing the probability an individual would detect a negative communication expression as a danger sign in their own adult romantic relationship.

MINDFULNESS

Research interest in mindfulness has grown significantly over the last decade (Zoogman, Goldberg, Hoyt, & Miller, 2015). While the literature defines mindfulness in various ways, three important factors appear to be consistent: purposeful attention, non-judgment, and present-moment awareness (Aspy & Proeve, 2017; Barnes, Brown, Krusemark, Campbell, & Rogge, 2007; Broderick, 2017; Kabat-Zinn, 1990). By thoughtfully and purposefully focusing on the present moment, one may be able to suspend judgment and elicit awareness to the present moment. Because mindfulness is associated with meaningful benefits including heightened attention, reduced emotional distress, and lower emotional reactivity (Broderick, 2017), inducing a heightened state of mindfulness could provide valuable contributions to the investigation of danger sign recognition variability in romantic relationships.

One area that has gained empirical attention is the function of mindfulness in improving relationship quality. Khaddouma, Gordon, and Strand (2017) found that through mindfulness interventions, relationship quality increased in both the enrolled and non-enrolled partner's relationship satisfaction. It has also been noted that specific facets in mindfulness training may be more effective for different areas of relationship satisfaction. Namely, Allen and Kiburz (2012) discovered participants who increased mindfulness practices reported more satisfying work-family balance. Mindfulness has also shown to improve interpersonal emotional regulation (Khalifian & Barry, 2016). These areas of one's life have large impacts on relationship quality, as higher work-family balance reduces one's overall strain and one's ability to regulate emotionally can improve communication, patience, and problem-solving skills. Taken together, the benefits associated with mindfulness highlight the potential for impacting danger sign

recognition. Thus, a logical next step is to better understand how the difficulties in danger sign identification can be addressed with the strengths of mindfulness.

CONNECTING MINDFULNESS TO RELATIONAL DISTRESS

Previous research on mindfulness demonstrates significant benefits both for an individual's life satisfaction and positive affect, as well as romantic couples' conflict resolution, communication skills, and relationship satisfaction (Barnes et al., 2007; Gambrel & Keeling, 2010). The awareness one evokes through mindfulness appears to demonstrate important improvements in the ease of communicating effectively and empathetically in order to reduce overall relationship strain and distress. It becomes evident that through the decrease of negative communication patterns and more empathic and satisfying interactions, the identification and reduction of danger signs could depend on one's level of mindfulness.

While knowledge of different types of danger signs is beneficial, a disconnect exists between practically understanding how danger signs in relationships are exhibited and in-the-moment recognition of those signs. This discrepancy has been highlighted in research through the utilization of self-reported danger sign awareness compared to coded observations of danger signs. Heyman (2001) reviewed numerous studies involving observing couples' communication and found consistent support for divergence between self-reported distress and conflict frequency through observation. Additionally, observational studies of couple communication identify a higher frequency of negative interaction patterns than what was self-reported (Rhoades & Stocker, 2006), highlighting either a lack of awareness that danger signs are occurring, or failing to acknowledge distressing communication and behavioral patterns as danger signs. Additional studies have found support for this postulation, finding a disconnect between couples' ability to describe the presence of danger signs in the relationship while still reporting high levels of dedication (Vennum & Fincham, 2011). Hence, the importance of improving an individual's

accuracy of identifying danger signs relies heavily on also improving one's state of awareness through mindfulness.

Mindfulness literature reflects strong support for its connection with relationship satisfaction and reactions to interpersonal stress and conflict. Barnes and colleagues (2007) conducted two studies, both of which showed higher levels of mindfulness as a predictor for more satisfying romantic relationships and more productive reactions to relationship strain. Mindfulness was also shown to ameliorate relationship conflict interactions through the response quality and the positivity shown both before and after a conflict. Furthermore, mindfulness has been shown to positively affect relationship satisfaction, empathetic response development, and communication skills (Gambrel & Keeling, 2010; Zamir, Gewirtz & Zhang, 2017; Jones & Hansen, 2014), underscoring that mindfulness can, in fact, enhance one's skillful navigation through relationship turmoil by first improving awareness of danger sign and conflict presence. Awareness of danger signs must be introduced before danger signs can be diminished in romantic relationships. While reducing danger signs is beyond the scope of this study, this research naturally provides a beginning step in the sequence of danger sign reduction in romantic relationships, as mindfulness not only improves awareness in general, but also has shown through the literature to be a useful component of relationship satisfaction enhancement (Atkinson, 2013). This improvement is seen through communication changes, emotion and physiology regulation, and empathetic capacity.

Some of the literature focuses on trait mindfulness (individual mindfulness as a characteristic or dispositional daily pattern), and others focus on state mindfulness (alterable and behavioral mindfulness dependent on context) (Tanay & Bernstein, 2013). From studying both separately and together, studies have found that mindfulness training can be used to improve

one's general level of mindfulness over time (Zamir et al., 2017), highlighting the importance of mindfulness interventions to further support greater relationship satisfaction by improving awareness and identifying danger signs through one's developed state and trait mindfulness, especially in young adulthood.

SIGNIFICANCE OF YOUNG ADULT ROMANTIC RELATIONSHIPS

Dating throughout adolescence is a common developmental task. By the time individuals reach young adulthood, most have already experienced at least one partnership (Connolly & Josephson, 2007), and therefore, have begun constructing schemas about relationship expectations. By the time individuals reach their 20s, dating prevalence is at its highest in the lifespan. Danger signs and physical aggression are also possibly at their highest during this time, reaching up to half of both emerging and young adults (Andrews, Foster, Capaldi, & Hops, 2000). This early composition of relationship beliefs strikes at a time where individuals are still transitioning to adulthood, and where decision-making skills are underdeveloped. These changes make danger sign recognition especially critical at this point in development and introduces an important opportunity for scholars to examine interventions to encourage healthy relationship patterns and educate individuals about negative behaviors. If captured in time, maladaptive and harmful expectations can be discarded, making way for more productive communication and behavioral habits. However, if this opportunity is missed or prevention efforts are targeted too late, the potential for relationships to be wrought with distress, danger signs, or violence increases.

PRESENT STUDY

Based on the literature of danger sign presence in relationships, it is imperative to examine variables that may improve one's ability to identify romantic relationship danger signs. The apparent disparity in danger sign identification (Rhoades & Stocker, 2006) motivates an inquiry into whether improving one's mindfulness, and thus, present-moment awareness, could increase danger sign identification in romantic relationships. Grounded in the knowledge outlined in this paper, mindfulness could have an important role in one's ability to recognize specific danger signs in-the-moment, and that attachment, interparental conflict, betrayal trauma, and social isolation will moderate this effect. Low levels of attunement to the present may impact attunement to negative interaction indicators such as romantic relationship danger signs. Thus, mindfulness can be used as an advantageous means to improve awareness, especially in the midst of prior negative life events (Broderick, 2017).

HYPOTHESES

Main Effect Hypotheses

The following hypotheses are proposed: four predictor variables will be associated with individuals' ability to detect danger signs, such that: (1a) the greater betrayal trauma one reports, the fewer danger signs one will identify, (1b) the more secure one reports their adult romantic attachment, the more danger signs one will detect, (1c) the greater social isolation one reports, the less romantic relationship danger signs one will be able to identify, and (1d) the more one reports interparental conflict, the fewer danger signs one will report. Additionally, we hypothesize that (1e) that participants randomized to a mindfulness group will detect more danger signs compared to participants in a control group (no mindfulness manipulation).

Interaction Hypotheses

The degree to which mindfulness is related to romantic relationship danger sign recognition has not yet been explored in the empirical literature. In addition, the association between the predictor variables (adult romantic attachment, betrayal trauma, social isolation, and interparental conflict), and romantic relationship danger sign recognition has also not yet been tested. Grounded in the knowledge outlined in this paper, I hypothesize that: 2) betrayal trauma will moderate the effect of mindfulness on danger sign recognition, such that the impact of mindfulness will be greater for those who have experienced more betrayal trauma than those who experienced less betrayal trauma; 3) attachment will moderate the effect of mindfulness on danger sign recognition, such that the impact of mindfulness will be greater for those who are insecurely attached compared to those who are securely attached; 4) social isolation will moderate the effect of mindfulness on danger sign recognition, such that the impact of

mindfulness will be greater for those who are more socially isolated compared to those who are less socially isolated; and 5) interparental conflict will moderate the effect of mindfulness on danger sign recognition, such that the impact of mindfulness will be greater for those with a history of more interparental conflict compared to those with less interparental conflict in their childhood. See *Figure 1* for a conceptual model of all four hypotheses.

METHOD

Participants

A Priori Power Analysis. To determine the number of participants needed to detect an effect, an a priori power analysis (Cohen, 1992) was utilized. Because this study is the first in a line of studies to examine the role of mindfulness on romantic relationship danger sign identification in-the-moment, there are no effect sizes on these specific variables available in the empirical literature. Therefore, effect sizes were gathered from studies examining self-report danger sign awareness with relationship outcome variables (e.g. Quirk, Owen, & Fincham, 2014; Stanley & Markman, 1997; Vennum & Fincham, 2011). Based on the literature, we anticipated a small effect size for a two-tailed linear bivariate regression test, including the .05 criterion of statistical significance and 80% power detection. Based on these data and five predictor variables, we arrived at 92 participants needed to detect an effect.

Recruitment and Eligibility. Data were collected for this study in two ways. First, students at a large western United States university were offered extra credit in certain courses in exchange for participation. Second, participants were offered financial compensation (fifty cents) on the data collection platform Amazon Mechanical Turk, an internet labor marketplace utilized by social scientists whereby studies can be conveniently presented to gather a large and representative sample on-demand (Paolacci, Chandler, & Iperotis, 2010). Individuals who agreed to participate began by logging into an online portal, where they completed an informed consent form before proceeding to the videos and measures. The study could be completed at any location chosen by the participant, and the results remained anonymous. Individuals could

choose to cease participating at any time, and students could choose to complete a different study to earn their extra credit points.

Eligibility included Colorado State University students enrolled in a course with access to the HDFS Research Pool or individuals with access to the Mechanical Turk data platform.

Participants also must have been at least 18 years old and have been in at least one relationship for six months or more. Exclusion criteria included the inability to access a computer for two hours, individuals under age 18 (as young adults are the current study's population), and individuals who had been in a romantic relationship for zero to six months. As aforementioned, focusing the study on young adult romantic relationships allowed investigation of detecting negative interaction patterns early in relationships when adjustments to behaviors and communication patterns are more flexible.

Participant Characteristics. The data were drawn from 121 participants; 70 participants were from HDFS undergraduate level classes at a large university in the western United States. Fifty-one participants were recruited through the Mechanical Turk site. Of the final sample, 62.7% identified as female, 35.7% as male, 1% as transgender, 0.6% as gender queer participants. In this sample, 87.3% of participants identified as heterosexual, 9.2% identified as bisexual, 3.2% identified as gay, and 0.3% identified as other. Regarding ethnicity, 78.2% identified as European/White, 4.2% as Hispanic, 7.5% as Mixed Race, 8.5% as Black/African American, 1.6% as Asian. Participants ages ranged from 18 to 29 ($M = 24.1$, $SD = 2.93$). Participants reported the average number of romantic relationships experienced was 3.2 ($SD = 2.09$).

Procedure

Study Design. The study used a quantitative experimental individual differences design to test the hypotheses, with a control and intervention group. In the experimental group, mindfulness was manipulated via a mindfulness intervention (described below), and the control group received no such stimulus. Moderator variables were collected through self-report responses to questionnaires and responses to videos of couple interactions that depict danger signs (video stimulus described below).

Video Stimuli and Analogue Assessment Tool. Professional producers were hired to film the danger sign videos. Actors were recruited through a non-probability snowball sampling method, with the only criteria being that the individuals were in a real, committed relationship. Actors were chosen to display variation in age, sexual orientation, and ethnicity, thereby increasing relatability of actors to a diverse sample of participants. Actors were instructed to discuss relevant topics to their relationship and were assigned three different danger signs in addition to a neutral (no danger sign expressed) conversation to display around the first minute of the two-minute video. Two clinicians were present for each production night as well as a faculty supervisor to oversee the process and ensure only one danger sign was expressed for each video. The scripts of each danger sign video were created by a team of five clinicians and two faculty. Additionally, the scripts and danger sign videos post-production were expert validated by a team of danger sign researchers at the University of Denver.

While watching the danger sign videos, participants utilized a key-press to identify positive and negative communication patterns. This assessment tool has not yet been tested and represents an important contribution to a gap in the literature. To date, the empirical literature has relied on self-report measures to assess awareness of danger signs, which holds inherent bias

to accurately evaluating one's level of awareness. The study utilized this new assessment tool that does not rely on participants' self-reported levels of awareness, and instead measures danger sign recognition in real time.

Study Protocol. Participants were recruited the same way through both an undergraduate research pool at a large university, and through Mechanical Turks. In both recruitment settings, individuals view a list of several studies and select the study/studies they wish to participate in after reading the study description and inclusion criteria. Once the individual agrees to participate, they are then directed to an electronic link to complete the study. After reading and signing the informed consent document online, the participant viewed the study's instructions. This included a description of the videos depicting couples communicating, and instructions to provide perception responses to the communication in the form of key presses (Z and X keys to indicate any perceived positive or negative communication styles). After the videos, participants were directed to a self-report survey asking about experiences in romantic relationships, mental health, and a number of other variables. Responses to the survey were linked to their video responses via a randomly-generated number as their ID to maintain confidentiality. Additionally, participants were asked to complete the study in a quiet place, free of distractions, with access to headphones or speakers. The cover story was that researchers were interested in learning how young adults view different kinds of communication in romantic partnerships. Participants were also allowed the freedom to skip any distressing questions or videos. Those in the HDFS recruitment group received three points of extra credit for participating. Those in the Mechanical Turk group were paid 0.50 cents for participation.

Participants were randomized to one of two groups. For the intervention group, participants first engaged in a guided body scan (mindfulness intervention). They were then

directed to the danger sign videos. Although those in the intervention group watch two additional minutes of video than the control group, time was not expected to be a confounding variable, as the body scan video is designed to relax participants and guide their attention to the present moment. Participants in the control group did not view the mindfulness video. The first video control group participants viewed was the start of the series of danger sign videos. They began the study in a naturalistic state, as researchers were interested in what differences exist between those in a natural state and those in a mindfulness-induced state. Participants were given their compensation when the entire study was completed, which was estimated to take one hour. Although there were no direct benefits to participants, the findings of the study benefit clinicians and researchers in the promotion of healthy communication patterns in young adult romantic relationships.

Measures

Mindfulness. The mindfulness intervention was employed through engaging participants in a two-minute guided body scan video. This video instructed participants to focus on their mindful awareness of somatic sensations, which has been shown to improve focus and facilitate self-awareness in the present moment (Fischer, Messner, & Pollatos, 2017). Sixty participants were randomly assigned to the intervention group, while 61 were assigned to the control group.

Attachment. The attachment moderator was measured by the Experiences in Close Relationship Scale – Short Form (ECR-S; Wei, Russell, Mallinckrodt, & Vogel, 2007). This scale has been used to assess participants' romantic attachment style, with higher scores reflecting higher reports of secure attachment. The ECR-S includes Anxiety and Avoidance subscales, with each item rated on a 7-point scale from “1 (*Definitely not like me*) to 7 (*Definitely like me*).” Example items from each subscale include “I need a lot of reassurance that I am loved

by my partner,” (anxiety) and “I am nervous when partners get too close to me,” (avoidance). Validity for this shortened measure was supported by Wei and colleagues (2007) by examining the associations with variables including psychological well-being, fear of intimacy, loneliness, and comfort with self-disclosure measures. In addition, reliability for the measure has been demonstrated in recent studies with Cronbach alphas ranging from .75 to .80 (Owen & Fincham, 2012; Quirk, Owen, Fincham, 2014). The Cronbach alpha for the current study was .91.

Social Isolation. The moderating variable of social isolation was measured using the Friendship Scale (FS; Hawthorne, 2006). The FS measures low, moderate, or high friendship acuity through an assessment of six items. The total score range is 0-24, with high acuity marked at 19-24, moderate as 16-18, and low as 0-15. This scale represents a functionally interval-ratio Likert-type scale, with responses for each item ranging from 0-4. For questions 1, 3, and 4, responses include 4= “Almost always”, 3= “Most of the time”, 2 = “About half the time”, 1= “Occasionally”, and 0= “Never”. Items 2, 5, and 6 are reverse scored. Items inquire about participants’ previous four weeks, with sample items that include “It has been easy to relate to others” and “When with other people, I felt separate from them” (Hawthorne, 2006). Hawthorne and Griffith (2000) assessed FS scores with demographic characteristics and found adequate construct and criterion validity. Likewise, reliability of the FS is also acceptable ($\alpha = 0.76$; Hawthorne & Griffith, 2000), as internal consistency was analyzed by item loading for each item, suggesting that the five factors together comprise a unidimensional scale, measuring the social isolation construct consistently. The Cronbach alpha for the current study was .83

Betrayal Trauma. The measurement of betrayal trauma as a moderating variable was operationalized through the use of the Brief Betrayal Trauma Survey (BBTS; Goldberg & Freyd, 2006). The scale distinguishes between four categories of trauma experiences relating to betrayal

– interpersonal and non-interpersonal events, betrayal and other interpersonal events, childhood and adult events, and physical, sexual, and emotional abuse situations. Each item will be answered twice, once referencing childhood experiences, and the other referencing adult experiences. Additionally, due to the young adult population of the current study, only the interpersonal betrayal trauma subscale will be tested. Therefore, two items from the BBTS scale, which measure trauma experienced from natural disasters and accidents, have been excluded.

The remaining ten unique items will be answered twice, resulting in 20 total items assessing interpersonal betrayal trauma. Response choices are: “never”, “one or two times”, or “more than that.” Item samples include: “You were made to have some form of sexual contact, such as touching or penetration, by someone with whom you were very close (such as a parent or lover),” “You were deliberately attacked that severely by someone you were very close,” and “Witnessed someone with whom you were very close deliberately attack another family member so severely as to result in marks, bruises, blood, broken bones, or broken teeth” (Goldberg & Freyd, 2006). To score the BBTS, authors suggest a categorization of items into high, medium, and low betrayal. Low betrayal items included in this study consist of the items 4/16. Medium betrayal consists of items 3/15, 5/17, 7/19, 9/21, 11/23, and 12/24. Finally, high betrayal consists of items 6/18, 8/20, and 10/22. Test-retest reliability was assessed and found to indicate considerable stability among responses. The Cronbach alpha for the current study was .78

Interparental Conflict. The fourth moderating variable of interparental conflict was measured using the Children’s Perception of Interparental Conflict Scale (CPIC; Grych, Seid, & Fincham, 1992). This study will use the frequency and intensity categories of the scale, as to focus assessment on the presence and quality of interparental conflict during childhood. The frequency category is made up of six items (1, 10, 16, 20, 29, and 37), with items 1 and 29

reversed scored. The intensity category encompasses seven items (5, 14, 24, 33, 38, 40, and 45), with items 14 and 38 reversed scored. The CPIC includes a three-point scale made up with responses of “true”, “sort of true”, or “false”. Grych and colleagues (1992) report acceptable test-retest reliability, internal consistency, and validity, although one should note reliability may shift depending on the developmental stage of participants. Coefficient alpha was calculated to assess reliability and both subscales exceeded the recommended level of internal consistency ($\alpha = .70$) and test-retest reliability ($\alpha = .70$). Additionally, validity of conflict properties (intensity and frequency) was assessed by comparing the scores with reputable parent-rated measures of marital conflict (Porter & O’Leary, 1980) and by examining child’s adjustment related to the reported intensity and frequency of interparental conflict. The child reports of conflict properties were significantly related to the O’Leary-Porter Scale (OPS; .30), and significantly related to adjustment (internalizing and externalizing problems) for boys and girls. The Cronbach alpha for the current study was .70.

Danger Sign Recognition. The dependent variable was measured through an original analogue method, which will improve the bias associated with self-reporting. Through the video analogue assessment, participants viewed several interactions between actor couples who expressed empirically supported danger signs (Gottman, 1993; Markman et al., 2010a). Participants made key-presses throughout the video to indicate their perception of danger signs present. Accuracy of danger sign identification was measured by scoring key-presses with one point for every negative press made during the 30-40 second window that each danger sign was presented. This video stimulus and key-press technology has been described above.

DATA ANALYTIC APPROACH

One linear regression was conducted to test the main effects and moderation hypotheses with danger sign detection as the dependent variable. For each of these analyses, number of romantic relationships was entered as a control variable at step one. Betrayal trauma was entered as the predictor for hypothesis 1a, attachment was entered as the predictor for hypothesis 1b, social isolation was entered as the predictor for hypothesis 1c, and interparental conflict was entered as the predictor for hypothesis 1d. Group membership (mindfulness group versus control group) was the predictor for hypothesis 1e. For the interaction predictions, the predictor variables were first centered around the mean for comparison effects. Betrayal trauma and mindfulness were centered and multiplied to create the predictor interaction term for hypothesis 2. Attachment and mindfulness were centered and multiplied to create the predictor interaction term for hypothesis 3. Social isolation and mindfulness were centered and multiplied to create the predictor interaction term for hypothesis 4. Interparental conflict and mindfulness were centered and multiplied to create the predictor interaction term for hypothesis 5.

RESULTS

Descriptive information for the variables is provided in *Table 1* and *Table 2* (for bivariate correlations, see *Table 1*, for means and standard deviations, see *Table 2*). First, individual relationships between each predictor and each moderator variable with danger sign detection can be observed in the correlation table. One linear regression was conducted to examine the unique associations between the predictor variables and the outcome of danger sign detection. For each of these analyses (see *Table 3*), number of romantic relationships was entered as the control variable at step one.

The first hypothesis was supported wherein, after controlling for experiences of romantic relationships, self-reported experiences of betrayal trauma was a significant predictor of greater danger sign detection, $\beta = .21, p < .001$. Next, regression analyses revealed a negative significant relationship between greater secure attachment and greater danger sign recognition, $\beta = -.14, p < .05$, wherein those who report feeling more securely attached in romantic relationships identify fewer danger signs (thus, not supporting hypothesis 1b). Next, the association between social isolation and danger sign detection was found to be non-significant, $\beta = .09, p = .08$, thus not supporting hypothesis 1c. In addition, greater self-reported interparental conflict was associated with fewer danger signs detected, $\beta = -.19, p < .05$, wherein those who reported greater conflict between their parents during childhood reported fewer danger signs detected, thus supporting hypothesis 1d. Lastly, those in the mindfulness condition reported significantly more danger sign detection, $\beta = .23, p < .001$, thus supporting hypothesis 1e.

Interaction analyses were conducted to test hypotheses 2-5. First, the data supported hypothesis 2, $\beta = .20, p < .05$, wherein the greater reports of betrayal trauma heightened the effect

of the mindfulness condition effect. Data did not support hypothesis 3, with data supporting a negative significant relationship between the interaction of secure attachment and the mindfulness condition in the prediction of danger sign detection, $\beta = -.17, p < .05$, wherein those more securely attached in the mindfulness group reported greater danger sign detection. For hypothesis 4, data revealed a non-significant relationship, $\beta = .10, p = .11$, such that those more socially isolated in the mindfulness group demonstrated no significant difference in danger sign detection compared to those in the control group. Lastly, hypothesis 5 was supported, $\beta = .15, p < .05$, wherein those reporting greater interparental conflict in the mindfulness group reported greater danger sign detection.

DISCUSSION

Many studies have found relationship between poor communication patterns and relational distress and dissolution (Allen et al., 2015; Carrere & Gottman, 1999; Gottman, 1993; Gottman & Levenson, 1992; Markman et al., 2010b; Markman, et al., 1993; Scott et al., 2013; Stanley et al., 1999; Stanley et al., 2002). Taken from these findings, the accurate and prompt identification of these unhealthy communication and behavioral expressions, defined as danger signs, is paramount to the work in improving individual and couple well-being. The current study adds meaningful contribution to this body of literature, filling important gaps in the larger aim to reduce danger signs in relationships and to identify strategies that may boost awareness of danger signs in-the-moment. Until now, there has been no exploration of the role of mindfulness in danger sign identification. Importantly, this study also highlights that the relationship with mindfulness may not be equal for all individuals. Impactful experiences throughout one's lifetime, including higher levels of childhood betrayal trauma and interparental conflict may modify the effectiveness of mindfulness on danger sign identification. Additionally, the insignificance of social isolation and secure attachment on danger sign recognition in this study also communicate important conclusions.

Significant Findings

Mindfulness. Data from the current study supports mindfulness as a possible effective ingredient for improving danger sign identification. Results show engaging in a mindfulness practice was positively associated with an ability to recognize danger signs in the video stimuli. Success of this intervention highlights how one may be able to move from an abstract understanding of danger signs to applying this knowledge to relationship dynamics in-the-

moment through an improved state of present-moment awareness. Individuals in a natural state were comparatively less able to identify danger signs in real time.

Previous studies identify that engagement in mindfulness appears to promote a more conscious understanding of emotional, behavioral, and cognitive processes which previously escaped undetected by the unconscious mind (Karremans, Schellekens, & Kappen, 2017). Through this heightened level of awareness that engagement in mindfulness practice evokes, individual and relational level-benefits have been documented. For example, several studies identify increased empathetic responding, relationship satisfaction, self-control, anger expression, and accommodation through the introduction of a mindfulness intervention (Barnes, Brown, Campbell, & Rogge, 2007; Block-Lerner, Adair, Plumb, Rhatigan, & Orsillo, 2007; Burpee & Langer, 2005; Carson, Carson, Gil, & Baucom, 2004; Wachs & Cordova, 2007). Research also displays a positive relationship between engagement in mindfulness and a developed capacity to both recognize and communicate emotions and manage stress effectively (Barnes et al., 2007). These findings highlight that mindful awareness is not only an important element to the improvement of relationship satisfaction, facilitation of emotional insight and understanding, and reduction of emotion-based stress responses, but also an essential piece to healthier relationship functioning overall (Khaddouma & Gordon, 2018).

The gap in awareness of relational processes has been well supported by the literature, as previous studies show differences between observational and self-report studies of couples' communication patterns (Heyman, 2001). Taken together, these findings identify that this awareness deficit is an important component to understanding why danger sign recognition can be so difficult to perform, as results point to participants' inability to either label their communication and behavioral patterns as danger signs, or a general lack of awareness that these

negative interaction patterns occur at all (Rhoades & Stocker, 2006). Implications from the current study add to the available literature on mindfulness and relationship dynamics, suggesting that increasing your present-moment awareness through a brief body-scan exercise can make danger sign identification easier. Notably, this study is the first to identify a time-efficient and highly impactful way to momentarily adjust awareness and increase appraisal accuracy of danger signs, leading the way for research to more permanently influence awareness in order to positively shift relationship dynamics entirely.

Betrayal Trauma and Interparental Conflict. Additionally, it was predicted that higher rates of betrayal trauma and interparental conflict would be associated with lower danger sign recognition, and that mindfulness would improve danger sign recognition for those reporting high levels of betrayal trauma and interparental conflict. Results supported both the main effect and moderation hypotheses, identifying that betrayal trauma and interparental conflict were associated with fewer danger signs detected, but that the introduction of a mindfulness intervention may have improved danger sign identification for those reporting high childhood betrayal trauma and interparental conflict. It appears that these early experiences of conflict or trauma significantly reduce one's ability to identify danger signs in relationships later in life, potentially due to the influence of dissociation and modeling. However, these results also indicate that mindfulness may be an effective method to possibly offset or buffer the dissociation and early social scripts learned through modeling.

According to betrayal trauma theory (Freyd, 1994), dissociation is an important component to the significance of the trauma results, as the information about one's experience and one's relationship is processed differently with the presence of betrayal. When a perpetrator is someone in a position of trust or power, the victim not only experiences high levels of

betrayal, but must also adapt to that high-stress environment for the purposes of survival, usually through dissociation (Hocking, Simons, & Surette, 2016). Previous research identifies victims are less likely to remember traumas characterized with betrayal compared to those without (Freyd, DePrince, & Zurbriggen, 2001). This “betrayal blindness” (Freyd, 1996), or dissociation, acts as a functional skill to maintain one’s attachment bond while emotionally distancing from the impact of the trauma. Importantly, those who experience betrayal trauma in their childhood are more likely to experience betrayal traumas in adulthood as well (Gobin & Freyd, 2009; Mackelprang et al., 2014). This link is crucial to evaluating the present study’s results, as experiencing betrayal trauma may be related to an inability to cognitively identify warnings in close relationships that signal mistreatment or betrayal because the protective survival mechanism of dissociation blocks any conscious attempt to evaluate the relationship’s dynamics (DePrince, 2005; Gobin & Freyd, 2009). This previously protective tool now appears to hinder relationship interaction appraisals, which highlights the significance of mindfulness’ improvement to danger sign recognition for those who have learned to separate their conscious awareness from present-moment experiences. When one engages in a mindfulness practice, the gap between conscious and unconscious recognition is bridged, thereby possibly improving recognition of danger signs in-the-moment. It appears that even a brief exercise that encourages present-moment awareness may be strong enough to counteract a lifelong protective mechanism to encourage healthy evaluation of relationship dynamics.

Additionally, an important way in which children learn what to expect in relationships long before first-hand experiences is through parental modeling. SLT asserts that observing parent relationship dynamics, children learn social behavior and communication strategies (Bandura, 1977). Clearly, when a young adult perceived their childhood as witnessing highly

conflictual parental relationship dynamics frequently and intensely, they may have had significant exposure to direct modeling of poor communication strategies and danger sign expression. In fact, high levels of interparental conflict in one's childhood home has been associated with more conflict in young adults' romantic relationships, as more constructive methods to managing conflict were not taught or modeled (Amato & Booth, 2001; Cui & Fincham, 2010; Rhoades, Stanley, Markman, & Ragan, 2012). Similarly, the same conflict patterns one observed in their parents' relationship also appear in one's own romantic relationships (Whitton et al., 2008). Parents seem to act as a guide for their child, demonstrating what one should expect from romantic relationship experiences later in life as well as showing children how to respond in times of distress or conflict (Cui & Fincham, 2010; Steinberg, Davila, & Fincham, 2006; Rhoades et al., 2012). Taken together, early experiences set the schema for how to interpret and respond to danger sign presentation in romantic relationships later in life. Individuals seem to become desensitized to danger sign presentation, either through dissociating from relationship dynamics altogether or by learning to normalize danger sign expression in romantic relationships. These patterns may be prevented through engaging in mindfulness practices, which could encourage awareness to the present moment in order to more accurately assess current experiences through an updated perspective instead of reacting to the present from the lens of one's past.

Unexpected Significance for Insecure Attachment

We predicted the more securely attached one was, the more danger signs one would detect. Surprisingly, results suggest that the more *insecure* attachment one reported, the more danger signs one was able to detect. Mikulinver and Shaver (2005) introduce hyperactivity as an important element to relational functioning for insecurely attached individuals. This tendency to

be hyperactive towards identifying danger in one's relationship is motivated by a belief that relationships are unsafe, unpredictable, and untrustworthy, and highlights the hesitancy and suspicion present for insecurely attached individuals in romantic relationships (Suldo & Sandberg, 2000). It appears that there is development of irrational relationship beliefs in childhood and maintenance of these beliefs into young adult romantic relationships (Stackert & Bursik, 2003).

As such, one's attachment style creates a structure for conceptualizing one's self-concept and a framework for understanding and behaving in intimate partnerships. Insecurely attached individuals operate with a weaker sense of self, fostering heightened dependence to one's irrational beliefs learned either through conflict-ridden family dynamics or as a protective tool to cope (Stackert & Bursik, 2003). Especially prevalent for avoidant-insecure attachment styles, one reacts to perceived relationship threats by distancing oneself from intimacy and potential rejection (Mikulincer et al., 2003). Therefore, those insecurely attached are not only more hypervigilant to danger sign presence in romantic relationships, but many may respond by withdrawing from intimacy and disrupting attachment needs when danger signs are evident (Hocking et al., 2016). The introduction of mindfulness may then act as an evaluative tool for those who feel hyperactive toward threats to their relationship, allowing individuals to gauge whether their perceived threat is realistic for the present-moment, or a threat they learned through parent-child relationships that may no longer exist. Alternatively, people who are securely attached may not be as hypervigilant in detecting negative interaction patterns, and thus, may be less likely to interpret subtle danger signs as danger signs in-the-moment. Securely attached individuals may feel such a sense of safety and trust that they do not see intimate relationships as a place in which self-protection may be warranted (Feeney & Karantzas, 2017;

Stackert & Bursik, 2003). Subsequently, this leads to significantly more danger signs caught by insecurely attached individuals, whose reinforced relational script teaches them to be hyperaware toward relationship threats.

Insignificance of Social Isolation

It was also hypothesized that greater social isolation would be related to less danger sign recognition. Results showed no significant differences. The insignificance of main effect or moderation results of this variable show that for this study, perception of social isolation either does not influence danger sign recognition, or that there was not enough power to detect any differences. Similar to the interparental conflict predictor, modeling could be an important aspect to how social isolation could be related to lower danger sign identification, assuming this study did not have enough power to detect differences. SLT operates under the belief that behaviors are learned through observation and taught through modeling (Bandura, 1977). Healthy relationship dynamics are learned through a reinforcement of positive experiences and punishment of negative or dangerous exchanges (Johnson & Bradbury, 2015). Therefore, those socially isolated may lack basic foundational experiences that inform what should be identified as “healthy” and “unhealthy” interpersonal interaction patterns, thus leaving them without a relationship narrative to operate from. Without this script, socially isolated individuals may miss any sign of negative patterns. However, because this study did not find significant differences for the social isolation predictor, other possible outcomes could be likely.

Limitations and Future Directions

Assessing danger sign identification is an intricate process with several factors influencing one’s assessment accuracy of danger sign presentation. This complexity is heightened when adding real-time recognition through the use of an analogue assessment tool

newly introduced to the literature. As is common with novel and innovative studies, several limitations were identified, which further expand the future growth potential for this area of research.

Sample Characteristics. The sample gathered for this study was restricted in its demographics, causing constraint in its ability to generalize to the population of young adults as a whole. Specifically, the sample's gender, race/ethnicity, and sexual orientation were largely comprised of majority populations, as was expected. Future research could utilize a more inclusive sample recruitment strategy or source from various locations around the country in order to balance the distribution of gender, race, ethnicity, and sexual orientation to further improve population generalizability. Likewise, the use of two different recruitment platforms may have permitted the sample to responded to and engage in the study in meaningfully different ways. The HDFS Research Pool sample was likely composed of younger females compared to the MTurk sample, as MTurk participants possibly contained more older males (Huff & Tingley, 2015). While the inclusion of both the undergraduate and MTurk subsamples allowed for this study's sample to be more diverse overall, participants from these two settings may have responded in meaningfully different ways. Future studies that utilize these recruitment strategies should include a variable to identify which platform participants were sourced from and perform a t-test analysis to evaluate if participants differed significantly. Likely, participants who were over 22 years old were potentially recruited from MTurk, especially as we know the range of participants' ages was 18-29, with an average age of 24.1 years. Therefore, post-hoc analyses could also reveal an estimate of how similarly or differently these subsamples responded.

In addition, although this study found significant results with 121 participants, increasing the sample size may have strengthened the significance found for mindfulness, betrayal trauma,

interparental conflict, and insecure attachment, uncovered significance for the social isolation moderator, and/or ensured results of this study were not a false positive. Future research should utilize additional recruitment strategies and a longer data collection period in order to gather more participants to meet requirements for large effect size detection.

Other-Based Recognition. It was beyond the scope of our study to assess for identification of danger signs in one's own relationship. Due to the use of an analogue assessment tool, wherein participants used key presses to identify danger signs in other couples' interactions, it is difficult to understand how much overlap there is between responding to others' relationship dynamics and recognizing danger signs in one's own relationship. Even so, this study is an important precursor in developing an ability to recognize danger signs in the self by first recognizing them in others. Therefore, a gap still exists between recognizing danger signs in videotaped couple sessions versus one's own relationship. It will be important for future studies to build from this study, possibly through combining the use of observational and self-report methodology to compare expert observation with self-report following conversations with one's partner. Another opportunity for moving danger sign research toward the goal of improving couple's ability to recognize and then decrease danger signs in their own relationships could be through the combination of educating about danger signs and then practicing detecting danger signs in their own relationship interactions. While this could be an important starting point to cross over from other recognition to recognition in one's own romantic relationship, research on reducing stigma and discrimination has mixed results on the effectiveness of education and practice interventions.

For example, while some studies show benefit to education for self-stigma reduction (Griffiths, Carron-Arthur, Parsons, & Reid, 2014; Quinn et al., 2014), other studies highlight that

brief educational interventions and mental health literacy campaigns, especially those aimed at adults, do not significantly reduce stigma or discriminatory behaviors (Livingston, Cianfrone, Korf-Uzan, & Coniglio, 2014; National Academies of Sciences, Engineering, and Medicine [NASEM], 2016). However, an important component to education that has shown support in longer-lasting change is targeting interventions toward adolescents and young adults (Borschmann, Greenberg, Jones, & Henderson, 2014; Corrigan, Morris, Michaels, Rafacz, & Rusch, 2012). Much like the current study's focus on young adults, these interventions target youth in order to create social scripts, rather than attempting to rewrite them. Additionally, the added component of practicing recognition may add the benefit of furthering behavior change, rather than only mental awareness shifts. Payne and Smith (2010) led an educational training of LGBTQ stigma. Limitations to this intervention emphasized that one-time training was helpful to briefly heighten awareness and attunement, but that follow-up training, continuing conversation, and opportunities to apply information to role-play and real-world situations were crucial. Therefore, while combining education and practice interventions to further the growth of danger sign research may have limitations, results from these studies could identify important and unique factors in danger sign research that could improve understanding of the underlying mechanisms that support other-based recognition more effectively.

Key-Press Assessment. While this study introduces a groundbreaking new way to measure danger sign recognition without relying on self-report through the key-press analogue assessment tool, the results of this study are unable to identify or explain the intention of a key press. Specifically, because it was beyond the scope of this study to identify what specific danger signs were perceived during the moment of each key press, we are unable to know what exactly led to participants' perception of positive or negative interactions. Future research focusing more

specifically on accurate identification of each individual danger sign may entertain the procedure of defining danger signs for participants and providing them with a word bank of danger signs to look for and identify. While this specific method holds its own set of limitations, including priming and excluding the ability to assess naturalistic engagement of control-group participants, identifying what participants are perceiving and understanding how they interpret the interactions that lead to a key press will be imperative.

Effectiveness of Mindfulness Intervention. Additionally, we are unable to determine if the mindfulness intervention truly produced a mindful state. While significance was found both in the main effect and moderation of the mindfulness intervention, the scope of success of the mindfulness intervention could have been slightly hindered due to a potential lack of participant engagement, as participants were able to complete the study without the supervision of a researcher. It is impossible to be certain about how engaged participants really were to the mindfulness intervention and, therefore, if there is possibility for a confounding variable to be producing the results shown. What we do know from this study is that there is a very strong and significant relationship between mindfulness and danger sign recognition. To address this ambiguity, future research should bring participants into a lab to perform an in-person mindfulness intervention, where participants are led through a mindfulness exercise, asked to rate their engagement in the intervention, and then instructed to watch and participate in the danger sign videos in the lab.

Researchers could also connect participants to physiological measurement technology to examine their bodily reactions to the mindfulness intervention and danger sign videos. Through this assessment, researchers would be able to monitor engagement, evaluate intervention effectiveness, compare to self-reported engagement, and understand how a mindfulness

intervention improves danger sign recognition. Including this assessment tool could also allow researchers to incorporate the evaluation of mind-body connection, an important component of mindfulness that was unable to be measured in the current study. Likewise, adding this vital element to mindfulness research could open up future studies to add numerous types of mindfulness interventions. Through this research, one could explore the effectiveness of different mindfulness interventions on danger sign recognition, as some studies show other meditations to be even more effective at evoking a heightened level of present-moment awareness or ease in decentering (viewing one's internal experience objectively) in individuals (Aspy & Proeve, 2017; Feldman, Greeson, & Senville, 2010) when compared to progressive muscle relaxation (similar to a body scan with the addition of tensing muscles as you scan the body).

Self-Report Bias. Furthermore, there is inherent self-report bias in the moderator variables of attachment, social isolation, and interparental conflict. We are unable to observe and code interactions with parents and children in order to identify participants' attachment styles and levels of interparental conflict during their childhood. Similarly, we are also unable to observe participants' average social interaction over a span of time. Because of these limitations in our methodology, self-report questionnaires were the best method to measure these items. Participants are the most knowledgeable reporters of their own experience. Thus, it may be just as important to assess their perceived level of interparental conflict, social isolation, and attachment, rather than assessing the perspective of an observer's evaluation. It would be noteworthy for future researchers to investigate this potential difference further. Specifically, to better understand this dynamic, researchers may assess what important differences exist between one's perception versus observed interparental conflict and social isolation, and how these variables measured differently are related to danger sign identification in young adults.

Recall Bias. Moreover, betrayal trauma and interparental conflict may also have recall bias. Given that we are asking about trauma and conflict that occurred at least several years ago, there may be the influence of time having passed on their accurate recall of early experiences and emotions. Additionally, the literature does not have a measure directly assessing how much parents actually fought that is not reliant upon self-reports. This further highlights the importance of assessing participants' perception of events. For example, assessing how much one perceived interparental conflict in childhood may provide more meaningful insight into the emotional experience of one's youth rather than directly assessing the actual fighting frequency in the household.

Interaction Effects. Also, there may be some overlap between attachment and betrayal trauma, as well as interparental conflict and attachment. Some insecure attachment styles develop due to the lack of trust, predictability, reliability, and/or warmth of a parent (Feeney, 1999; MacDonald, Locke, Spielmann, & Joel, 2012). Similarly, higher interparental conflict has exhibited associations with negative consequences to the family unit as a whole, including children. These consequences are not limited to one sphere but are rather multifaceted negative consequences that include the domains of one's social, emotional, behavioral, and physical life. Therefore, it is likely that insecure attachment styles of children are more often produced from conflictual marriages in the parent relationship than from a conflict-free upbringing (Conger, Cui, Bryant, & Elder, 2000). In fact, research about adolescents interparental conflict perceptions and poor subsequent adult romantic relationships found insecure attachment to be an important mediator (Steinberg, Davila, & Fincham, 2006). This interaction effect between moderators was beyond the scope of the current study, but one of importance for future research to delve into deeper.

Variability of Insecure Attachment Style Responses. Finally, another possible interaction to consider is within the construct of insecure attachment. Insecure attachment can be categorized into two groups: anxious-insecure and avoidant-insecure, with anxious individuals motivated by the fear of abandonment and avoidant individuals reacting from an avoidance of negative or harmful interactions (Ainsworth, 1989). These two subcategories react to relationship threats in unique but opposing ways, either through hyperactivity (anxious) or dissociation or ignoring (avoidant) (Cosway et al., 2000; Mikulincer & Shaver, 2005). Therefore, the hyperactivity of more anxious types could potentially cancel out the deactivation, avoidance, or dissociation of more avoidant types. One could utilize post-hoc analyses to separate anxious and avoidant insecurely attached individuals to identify if any relationship or interaction between the two exist. Additionally, future studies could begin by separating these two styles in the analysis and include anxious-insecure and avoidant-insecure as two different hypotheses.

Implications

Considering the limitations of this study, there are powerful implications to consider. Primarily, mindfulness has shown to be an advantageous means of improving danger sign recognition. This groundbreaking finding bridges the gap danger sign research has faced thus far. In fact, mindfulness may be such a significant factor for danger sign recognition that a more mindful state appeared able to possibly buffer against extremely impactful prior childhood events, so much so that individuals with higher betrayal trauma, greater interparental conflict, and a more insecure attachment style seemed to demonstrate an enhanced ability to recognize danger signs in-the-moment compared to participants who did not engage in the mindfulness intervention. The improvement of present-moment awareness is an important starting point whereby relationship scientists can build to aid in supporting healthy relationship functioning

and overall relationship satisfaction and well-being, even in the face of prior negative experiences. Especially in young adulthood when relationship appraisals have less experience from which to reference, identifying ways to improve communication and behavioral patterns from the start will have lasting impacts that reach well into adulthood.

Additionally, results from this study highlight how specific childhood experiences of betrayal trauma and interparental conflict continue to impact relational functioning throughout one's life. Without intervention, dissociation and desensitization may become characteristic to future relationships, possibly from individuals learning that people are distrustful, or danger signs are normal (Gobin & Freyd, 2009; Whitton et al., 2008). Furthermore, for other experiences that are based in childhood but modified throughout one's life (i.e. attachment and social isolation) a basic knowledge of what relationships are and should be like is fundamental. For insecurely attached young adults, hyperactivity protects from danger signs, whereas socially isolated individuals may simply lack experiences where relationships have been modeled for them, possibly relating to less development and practice of identifying what a danger sign is in-the-moment. These factors inform not only how competent one is at recognizing danger signs, but also how influential mindfulness can be as an intervention to improve detection.

CONCLUSION

Broadly, early frameworks of danger sign presentation and the relationship expectations that are modeled and reinforced may impact your ability to detect danger signs. By furthering the knowledge gained from this study, researchers can work toward promoting healthy communication and behavioral patterns in romantic relationships through mindfulness, thus potentially propelling improved overall individual and relational well-being in the young adult population. The long-term benefits start at individual peace and introspection and have potential to reach societal-level well-being through encouraging healthy communication and behavioral patterns among couples, and reducing the prevalence of divorce, unhappy marriages, and domestic violence in the general population.

Table 1

Correlation of Measures

Note. This table depicts the correlation between each measure. “Trauma” refers to scores on the Brief Betrayal Trauma Survey and reflect experiences of trauma involving betrayal in childhood (younger than 18) and adulthood (after age 18). “Attachment” refers to scores from the Experiences in Close Relationship Scale – Short Form. The scale is created here to reflect higher scores are higher reports of secure attachment. “Social Isolation” refers to scores from the Friendship Scale and reflect experiences of low, moderate, or high friendship acuity. “Interparental Conflict” refers to scores on the Children’s Perception of Interparental Conflict Scale, whereby the frequency and intensity subscales were used to reflect the presence and quality of interparental conflict one perceived during childhood. “Mindfulness” refers to the two-minute guided body scan reflecting the mindful intervention of the study. “Danger Signs” refers to the key-presses used throughout the danger sign videos to indicate perceived healthy or unhealthy communication or behavioral patterns.

	1	2	3	4	5
1 Trauma	--				
2 Attachment	-.56***	--			
3 Social Isolation	.30**	.20*	--		
4 Interparental Conflict	.49***	.28**	.10	--	
5 Mindfulness	.21*	.11*	.12*	.11	--
6 Danger Signs	.33**	-.28**	.20*	-.31**	.39***

* $p < .05$, * $p < .01$, ** $p < .001$ ***

Table 2

Descriptive Information for Measures

Note. The values depicted show the means (M), standard deviations (SD), item value ranges (Range), and Cronbach alphas (α) for each measure. “Number of Relationships” refers to participants’ reported amount of relationships one has had. “Trauma” refers to scores on the Brief Betrayal Trauma Survey. “Attachment” refers to scores from the Experiences in Close Relationship Scale – Short Form. The scale is created to reflect higher scores are higher reports of secure attachment. “Social Isolation” refers to scores from the Friendship Scale. “Interparental Conflict” refers to scores on the Children’s Perception of Interparental Conflict Scale. “Danger Sign Detection” refers to the key-presses used throughout the danger sign videos.

<i>Variable</i>	<i>M</i>	<i>SD</i>	<i>Range</i>	<i>α</i>
Number of Relationships	3.20	2.09	1.00-6.00	--
Trauma	1.41	1.00	1.00-3.00	.78
Attachment	5.10	.61	1.00-7.00	.91
Social Isolation	11.44	2.84	1.00-24.00	.83
Interparental Conflict	3.89	.30	1.00 – 39.00	.70
Danger Sign Detection	31.03	10.69	1.00-78.00	--

Table 3

Multiple Regression Analyses

Note. The beta values (β) depicted are measures of how strongly each predictor variable influences the dependent variable (danger sign recognition). “Trauma” refers to scores on the Brief Betrayal Trauma Survey. “Attachment” refers to scores from the Experiences in Close Relationship Scale – Short Form. The scale is created to reflect higher scores are higher reports of secure attachment. “Isolation” refers to scores from the Friendship Scale. “Interparental Conflict” refers to scores on the Children’s Perception of Interparental Conflict Scale. “Mindfulness” refers to the two-minute guided body scan reflecting the mindful intervention of the study. “Danger Sign Recognition” refers to the key-presses used throughout the danger sign videos.

Predictor Variable	β	<i>SE</i>	<i>Sig.</i>
Trauma	.21***	.17	$p < .001$
Attachment	-.14*	.21	$p < .05$
Isolation	.09	.04	$p < .08$
Parent Conflict	-.19*	.15	$p < .05$
Mindfulness	.23***	.18	$p < .001$
BTTxMindfulness	.20*	.16	$p < .05$
ATTxMindfulness	-.17*	.19	$p < .05$
IsolationxMindfulness	.10	.05	$p = .11$
ParConflxMindfulness	.15*	.20	$p < .05$

* $p < .05$, * $p < .01$, ** $p < .001$ ***

Dependent Variable: Danger Sign Recognition.

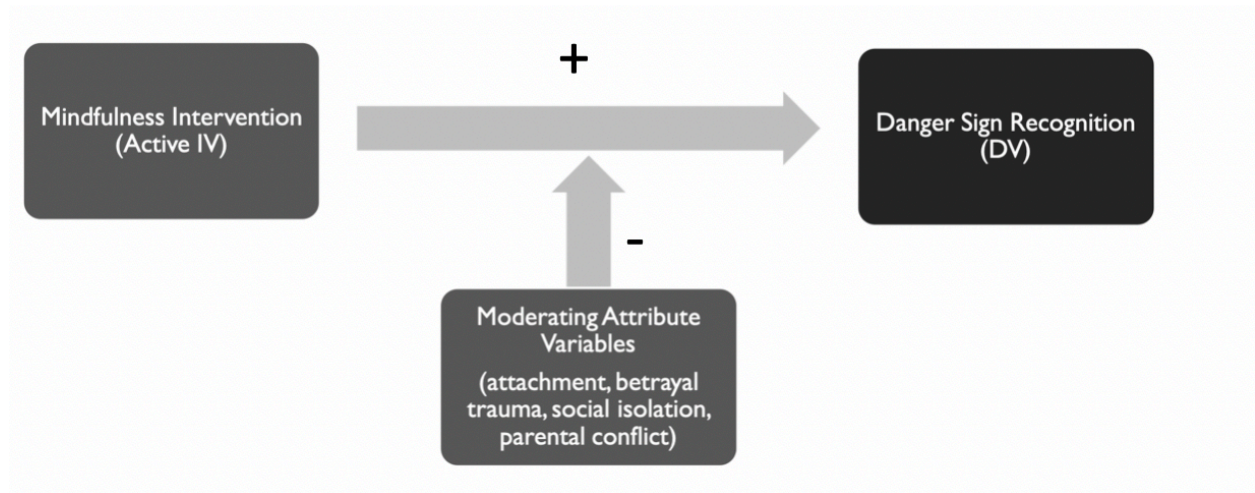


Figure 1. Moderation hypotheses conceptual model. This figure summarizes all four moderation hypotheses of the current study. Mindfulness is predicted to improve danger sign recognition, but the moderating attribute variables are predicted to weaken the strength of the relationship of the IV on the DV.

REFERENCES

- Ainsworth, M. D. S. (1979). Infant-mother attachment. *American Psychologist*, 34(10), 932-937.
- Ainsworth, M. D. S. (1989). Attachments beyond infancy. *American Psychologist*, 44(4), 709-716.
- Allen, T. D., & Kiburz, K. M. (2012). Trait mindfulness and work-family balance among working parents: The mediating effects of vitality and sleep quality. *Journal of Vocational Behavior*, 80(2), 372-379.
- Allen, T. D., Rhoades, G. K., Markman, H. J., & Stanley, S. M. (2015). PREP for strong bonds: A review of outcomes from a randomized clinical trial. *Contemporary Family Therapy*, 37(3), 232-246.
- Amato, P. R., & Booth, A. (2001). The legacy of parents' marital discord: Consequences for children's marital quality. *Journal of Personality and Social Psychology*, 81(4), 627-638.
- Amato, P. R., & Keith, B. (1991). Separation from a parent during childhood and adult socioeconomic attainment. *Social Forces*, 70, 187-206.
- American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders (5th ed.). Arlington, VA: American Psychiatric Publishing.
- Andrews, J. A., Foster, S. L., Capaldi, D., & Hops, H. (2000). Adolescent and family predictors of physical aggression, communication, and satisfaction in young adult couples: A prospective analysis. *Journal of Consulting and Clinical Psychology*, 68(2), 195-208.
- Aspy, D. J., & Proeve, M. (2017). Mindfulness and loving-kindness meditation: Effects on connectedness to humanity and to the natural world. *Psychological Reports*, 120(1), 102-117.

- Atkinson, B. J. (2013). Mindfulness training and the cultivation of secure, satisfying, couple relationships. *Couple and Family Psychology: Research and Practice*, 2(2), 73-94.
- Avellar, S., & Smock, P. J. (2005). The economic consequences of the dissolution of cohabiting unions. *Journal of Marriage and Family*, 67, 315-327.
- Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, NJ: Prentice Hall.
- Barnes, S., Brown, K. W., Krusemark, E., Campbell, W. K., & Rogge, R. D. (2007). The role of mindfulness in romantic relationship satisfaction and responses to relationship stress. *Journal of Marital and Family Therapy*, 33(4), 482-500.
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 117, 497-529.
- Bhattacharjee, A. (2012). *Social science research: Principles, methods, and practices*. Tampa, FL: Creative Commons Attribution.
- Block-Lerner, J., Adair, C., Plumb, J. C., Rhatigan, D. L., & Orsillo, S. M. (2007). The case for mindfulness-based approaches in the cultivation of empathy: Does nonjudgmental, present-moment awareness increase capacity for perspective-taking and empathic concern?. *Journal of Marital & Family Therapy*, 33, 501-516.
- Borschmann, R., Greenberg, N., Jones, N., Henderson, R. (2014). Campaigns to reduce mental illness stigma in Europe: A scoping review. *Die Psychiatrie*, 11(1), 43-50.
- Bowlby, J. (1969). *Attachment and loss, Vol 1: Attachment*. New York, NY: Basic Books.
- Bowlby, J. (1988). *A secure base: Parent-child attachment and healthy human development*. New York: Basic Books.

- Broderick, P. C. (2017). *Learning to breath: A mindfulness curriculum for adolescents to cultivate emotion regulation, attention, and performance*. Oakland, CA: New Harbinger Publications, Inc.
- Burpee, L. C., & Langer, E. J. (2005). Mindfulness and marital satisfaction. *Journal of Adult Development, 12*(1), 43-51.
- Carrere, S., & Gottman, J. M. (1999). Predicting divorce among newlyweds from the first three minutes of a marital conflict discussion. *Family Process, 38*(3), 293-301.
- Carson, J. W., Carson, K. M., Gil, K. M., & Baucom, D. H. (2004). Mindfulness-based relationship enhancement. *Behavior Therapy, 35*, 471-494.
- Cassidy, J. (1994). Emotion regulation: Influences of attachment relationships. *Monographs of the Society for Research in Child Development, 59*, 228-249.
- Cohen, J. (1992). A power primer. *Psychological Bulletin, 112* (1), 155-159.
- Collins, N. L., & Read, S. J. (1990). Adult attachment, working models, and relationship quality in dating couples. *Journal of Personality and Social Psychology, 58*, 644-663.
- Conger, R. D., Cui, M., Bryant, C. M., & Elder, G. H. Jr. (2000). Competence in early adult romantic relationships: A developmental perspective on family influences. *Journal of Personality and Social Psychology, 78*(2), 224-237.
- Connolly, J., & Josephson, W. (2007). Aggression in adolescent dating relationships: Predictors and prevention. *The Prevention Researcher, 14*(5), 3-5.
- Corrigan, P. W., Morris, S., Michaels, P. J., Rafacz, J. D., Rusch, N. (2012). Challenging the public stigma of mental illness: A meta-analysis of outcome studies. *Psychiatric Services, 63*(10), 963-973.

- Cosway, R., Endler, N. S., Sadler, A. J., & Deary, I. J. (2000). The coping inventory for stressful situations: Factorial structure and associations with personality traits and psychological health. *Journal of Applied Biobehavioral Research*, 5(2), 121-143.
- Cui, M., & Fincham, F. D. (2010). The differential effects of parental divorce and marital conflict on young adult romantic relationships. *Personal Relationships*, 17, 331-343.
- Cui, M., Fincham, F. D., & Pasley, B. K. (2008). Young adult romantic relationships: The role of parents' marital problems and relationship efficacy. *Personality and Social Psychology Bulletin*, 34, 1226-1235.
- DePrince, A. P. (2005). Social cognition and revictimization risk. *Journal of Trauma and Dissociation*, 6, 125-141.
- DePrince, A. P., & Freyd, J. J. (2004). Forgetting trauma stimuli. *Psychological Science*, 16, 336-340.
- Evans, S. E., Davies, C., & DiLillo, D. (2008). Exposure to domestic violence: A meta-analysis of child and adolescent outcomes. *Aggression and Violent Behavior*, 13, 131-140.
- Feeney, J. A. (1999). Adult attachment, emotional control, and marital satisfaction. *Personal Relationships*, 6, 169-185.
- Feeney, J. A., & Karantzas, G. C. (2017). Couple conflict: Insights from an attachment perspective. *Current Opinion in Psychology*, 13, 60-64.
- Feldman, G., Greeson, J., & Senville, J. (2010). Differential effects of mindful breathing, progressive muscle relaxation, and loving-kindness meditation on decentering and negative reactions to repetitive thoughts. *Behavior Research and Therapy*, 48(10), 1002-1011.

- Fischer, D., Messner, M., & Pollatos, O. (2017). Improvement of interoceptive processes after an 8-week body scan intervention. *Frontiers in Human Neuroscience, 11*, 1-12.
- Freyd, J. J. (1994). Betrayal trauma: Traumatic amnesia as an adaptive response to childhood abuse. *Ethics & Behavior, 4*, 307-329.
- Freyd, J. J. (1996). *Betrayal trauma: The logic of forgetting childhood abuse*. Cambridge, MA: Harvard University Press.
- Freyd, J. J. (2008). Betrayal trauma. In Reyes, G., Elhai, J. D., & Ford, J. D. (Eds.) *Encyclopedia of psychological trauma*. (p. 76). New York: John Wiley & Sons.
- Freyd, J. J., DePrince, A. P., & Zurbriggen, E. L. (2001). Self-reported memory for abuse depends upon victim-perpetrator relationship. *Journal of Trauma & Dissociation, 2*(3), 5-15.
- Gambrel, L. E., & Keeling, M. L. (2010). Relational aspects of mindfulness: Implications for the practice of marriage and family therapy. *Contemporary Family Therapy, 32*(4), 412-426.
- Givertz, M., Woszidlo, A., Segrin, C., & Knutson, K. (2013). Direct and indirect effects of attachment orientation on relationship quality and loneliness in married couples. *Journal of Social and Personal Relationships, 30*(8), 1096-1120.
- Gobin, R. L., & Freyd, J. J. (2009). Betrayal and revictimization: Preliminary findings. *Psychological Trauma: Theory, Research, Practice, and Policy, 1*, 242-257.
- Goldberg, L. R., & Freyd, J. J. (2006). Self-reports of potentially traumatic experiences in an adult community sample: Gender differences and test-retest stabilities of the items in a brief betrayal-trauma survey. *Journal of Trauma and Dissociation, 7*(3), 39-63.
- Gottman, J. M. (1993). A theory of marital dissolution and stability. *Journal of Family Psychology, 7*, 51-75.

- Gottman, J. M. (1994). *What predicts divorce?: The relationship between marital processes and marital outcomes*. Hillsdale, NJ: Lawrence Erlbaum.
- Gottman, J. M., & Levenson, R. W. (1992). Marital processes predictive of later dissolution: Behavior, physiology, and health. *Journal of Personality and Social Psychology*, 63(2), 221-233.
- Griffiths, K. M., Carron-Arthur, B., Parsons, A., & Reid, R. (2014). Effectiveness of programs for reducing the stigma associated with mental disorders. A meta-analysis of randomized, controlled trials. *World Psychiatry*, 13(2), 161-175.
- Grych, J. H., Seid, M., & Fincham, F. D. (1992). Assessing marital conflict from the child's perspective: The children's perception of interparental conflict scale. *Child Development*, 63, 558-572.
- Halford, W. K., Markman, H. J., Kline, G. H., & Stanley, S. M. (2003). Best practice in couple relationship education. *Journal of Marital and Family Therapy*, 29, 385-406.
- Halford, W. K., Markman, H. J., & Stanley, S. (2008). Strengthening couples' relationships with education: Social policy and public health perspectives. *Journal of Family Psychology*, 22, 497-505.
- Hasan, M., & Clark, E. M. (2017). I get so lonely, baby: The effects of loneliness and social isolation on romantic dependency. *The Journal of Social Psychology*, 157(4), 429-444.
- Hawthorne, G. (2006). Measuring social isolation in older adults: Development and initial validation of the friendship scale. *Social Indicators Research*, 77, 521-548.
- Hawthorne, G., & Griffith, P. (2000). *The friendship scale: Development and properties*. Melbourne: Centre for Health Program Evaluation.

- Hazan, C., & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology*, 52, 511-524.
- Heyman, R. E. (2001). Observation of couple conflicts: Clinical assessment applications, stubborn truths, and shaky foundations. *Psychological Assessment*, 13, 5-35.
- Hocking, E. C., Simons, R. M., & Surette, R. J. (2016). Attachment style as a mediator between childhood maltreatment and the experience of betrayal trauma as an adult. *Child Abuse & Neglect*, 52, 94-101.
- Huff, C., & Tingley, D. (2015). "Who are these people?" Evaluating the demographic characteristics and political preferences of MTurk survey respondents. *Research and Politics*, 2(3), 1-12.
- Jacoby, V. M., Krackow, E., & Scotti, J. R. (2017). Betrayal trauma in youth and negative communication during a stressful task: The mediating role of emotion dysregulation. *The International Journal of Aging and Human Development*, 84(3), 247-275.
- Johnson, M. D., & Bradbury, T. N. (2015). Contributions of social learning theory to the promotion of healthy relationships: Asset or liability?. *Journal of Family Theory & Review*, 7, 13-27.
- Johnson, C. A., Stanley, S. M., Glenn, N. D., Amato, P. R., Nock, S. L., Markman, H. J., Dion, M. R. (2002). Marriage in Oklahoma: 2001 baseline statewide survey on marriage and divorce. *Bureau for Social Research, Oklahoma State University*, 1(6), 1-48.
- Jones, S. M., & Hansen, W. (2014). The impact of mindfulness on supportive communication skills: Three exploratory studies. *Mindfulness*, 6(5), 1115-1128.
- Kabat-Zinn, J. (1990). *Full catastrophe living*. New York, NY: Delta Publishing.
- Karremans, J. C., Schellekens, M. P., & Kappen, G. (2017). Bridging the sciences of

- mindfulness and romantic relationships a theoretical model and research agenda. *Personality and Social Psychology Review*, 21(1), 29–49.
- Kennedy, S., & Ruggles, S. (2014). Breaking up is hard to count: The rise of divorce in the United States, 1980-2010. *Demography*, 51(2), 587-598.
- Khaddouma, A., & Gordon, K. C. (2018). Mindfulness and young adult dating relationship stability: A longitudinal path analysis. *Mindfulness*, 9, 1529-1542.
- Khaddouma, A., Gordon, K. C., & Strand, E. B. (2017). Mindfulness mates: A pilot study of the relational effects of mindfulness-based stress reduction on participants and their partners. *Family Process*, 56(3), 636-651.
- Khalifian, C. E., & Barry, R. A. (2016). Trust, attachment, and mindfulness influence intimacy and disengagement during newlyweds' discussions of relationship transgressions. *Journal of Family Psychology*, 30(5), 592-601.
- Lawson, E. J., & Satti, F. (2016). The aftermath of divorce: Post-divorce adjustment strategies of South Asian, Black, and White women in the United States. *Journal of Divorce and Remarriage*, 57(6), 411-431.
- Livingston, J. D., Cianfrone, M., Korf-Uzan, K., & Coniglio, C. (2014). Another time point, a different story: One-year effects of a social media intervention on the attitudes of young people toward mental health issues. *Social Psychiatry and Psychiatric Epidemiology*, 49(6), 985-990.
- MacDonald, G., Locke, K. D., Spielmann, S., & Joel, S. (2012). Insecure attachment predicts ambivalent social threat and reward perceptions in romantic relationships. *Journal of Social and Personal Relationships*, 30(5), 647-661.
- Mackelprang, J. L., Klest, B., Najmabadi, S. J., Valley-Gray, S., Gonzalez, E. A., & Cash, R. E.

- (2014). Betrayal trauma among homeless adults: Associations with revictimization, psychological well-being, and health. *Journal of Interpersonal Violence*, 29, 1028–1049.
- Markman, H. J., Renick, M. J., Floyd, F. J., Stanley, S. M., & Clements, M. (1993). Preventing marital distress through communication and conflict management training: A 4- and 5-year follow-up. *Journal of Consulting and Clinical Psychology*, 61(1), 70-77.
- Markman, H. J., Rhoades, G. K., Stanley, S. M., Ragan, E. P., & Whitton, S. W. (2010a). The premarital communication roots of marital distress and divorce: The first five years of marriage. *Journal of Family Psychology*, 24, 289-298.
- Markman, H. J., Stanley, S. M., & Blumberg, S. L. (2010b). *Fighting for your marriage* (3rd ed.). San Francisco, CA: Jossey-Bass.
- Mikulincer, M. (1998). Adult attachment style and individual differences in functional versus dysfunctional experiences of anger. *Journal of Personality and Social Psychology*, 74, 513-524.
- Mikulincer, M., & Shaver, P. R. (2005). Attachment theory and emotions in close relationships: Exploring the attachment-related dynamics of emotional reactions to relational events. *Personal Relationships*, 12, 149-168.
- Mikulincer, M., Shaver, P. R., & Pereg, D. (2003). Attachment theory and affect regulation: The dynamics, development, and cognitive consequences of attachment-related strategies. *Motivation and Emotion*, 27, 77-102.
- National Academies of Sciences, Engineering, and Medicine. (2016) *Ending discrimination against people with mental and substance use disorders: The evidence for stigma change*. Washington, DC: The National Academies Press.

- Nijenhuis, N., Van der Hart, O., Steele, K. (2010). Trauma-related structural dissociation of the personality. *Activitas Nervosa Superior*, 51, 1-23.
- Owen, J., & Fincham, F. D. (2012). Friends with benefits relationships as a start to exclusive romantic relationships. *Journal of Social and Personal Relationships*, 29(7), 982-996.
- Owen, J., Quirk, K., & Manthos, M. (2012). I get no respect: The relationship between betrayal trauma and romantic relationship functioning. *Journal of Trauma and Dissociation*, 13, 175-189.
- Paolacci, G., Chandler, J., & Ipiertis, P. G. (2010). Running experiments on Amazon Mechanical Turk. *Judgment and Decision Making*, 5(5), 411-419.
- Pascuzzo, K., Cyr, C., & Moss, E. (2013). Longitudinal association between adolescent attachment, adult romantic attachment, and emotion regulation strategies. *Attachment and Human Development*, 15, 83-103.
- Payne, E., & Smith, M. (2010). Reduction of stigma in schools: An evaluation of the first three years. *Issues in Teacher Education*, 19(2), 11-36.
- Porter, B., & O'Leary, K. D. (1980). Marital discord and childhood behavior problems. *Journal of Abnormal Child Psychology*, 8, 287-295.
- Quinn, N., Knifton, L., Goldie, I., van Bortel, T., Dowds, J., Lasalvia, A., ... Thornicroft, G. (2014). Nature and impact of European anti-stigma depression programmes. *Health Promotion International*, 29(3), 403-413.
- Quirk, K., Owen, J., & Fincham, F. (2014). Perceptions of partner's deception in friends with benefits relationships. *Journal of Sex and Marital Therapy*, 40(1), 43-57.

- Rhoades, G. K., Stanley, S. M., Markman, H. J., & Ragan, E. P. (2012). Parents' marital status, conflict, and role modeling: Links with adult romantic relationship quality. *Journal of Divorce and Remarriage*, 53(5), 348-367.
- Rhoades, G. K., & Stocker, C. M. (2006). Can spouses provide knowledge of each other's communication patterns? A study of self-reports, spouses' reports, and observational coding. *Journal of Family Process*, 45, 499-511.
- Schoen, R., & Canudas-Romo, V. (2006). Timing effects on divorce: 20th century experience in the United States. *Journal of Marriage and Family*, 68(3), 749-758.
- Scott, S. B., Rhoades, G. K., Stanley, S. M., Allen, E. S., & Markman, H. J. (2013). Reasons for divorce and recollections of premarital intervention: Implications for improving relationship education. *Couple and Family Psychology: Research and Practice*, 2(2), 131-145.
- Stackert, R. A., & Bursik, K. (2003). Why am I unsatisfied? Adult attachment style, gendered irrational relationship beliefs, and young adult romantic relationship satisfaction. *Personality and Individual Differences*, 34, 1419-1429.
- Stanley, S. M., Blumberg, S. L., & Markman, H. J. (1999). Helping couples fight for their marriages: The PREP approach. In R. Berger, & M. T. Hannah (Eds.), *Preventative approaches in couple's therapy* (279-303). Philadelphia, PA: Brunner/Mazel.
- Stanley, S. M., & Markman, H. J. (1997). *Marriage in the 90s: A nationwide random phone survey*. Denver, CO: PREP.
- Stanley, S. M., Markman, H. J., & Whitton, S. W. (2002). Communication, conflict, and commitment: Insights on the foundations of relationship success from a national survey. *Family Process*, 41(4), 659-675.

- Steinberg, S. J., Davila, J., & Fincham, F., (2006). Adolescent marital expectations and romantic experiences: Associations with perceptions about parental conflict and adolescent attachment security. *Journal of Youth and Adolescence*, 35, 333-348.
- Suldo, S. M., & Sandberg, D. (2000). Relationship between attachment styles and eating disorder symptomatology among college women. *Journal of College Student Psychotherapy*, 15(1), 59-73.
- Tach, L. M., & Eads, A. (2015). Trends in the economic consequences of marital and cohabitation dissolution in the United States. *Demography*, 52, 401-432.
- Tanay, G., & Bernstein, A. (2013). State mindfulness scale (SMS): Development and internal validation. *Psychological Assessment*, 25(4), 1286-1299.
- Vennum, A., & Fincham, F. D. (2011). Assessing decision making in young adult romantic relationships. *Psychological Assessment*, 23(3), 739-751.
- Wachs, K., & Cordova, J. V. (2007). Mindful relating: Exploring mindfulness and emotion repertoires in intimate relationships. *Journal of Marital and Family Therapy*, 33(4), 464–481.
- Wei, M., Russell, D. W., Mallinckrodt, B., & Vogel, D. L. (2007). The experiences in close relationship scale (ECR) – short form: Reliability, validity, and factor structure. *Journal of Personality Assessment*, 88, 187-204.
- Whitton, S. W., Waldinger, R. J., Schulz, M. S., Crowell, J. A., Hauser, S. T., & Allen, J. P. (2008). Prospective associations from family-of-origin interactions to adult marital interactions and relationship adjustment. *Journal of Family Psychology*, 22(2), 274–286.
- Zamir, O., Gewirtz, A. H., & Zhang, N. (2017). Actor-partner associations of mindfulness and marital quality after military deployment. *Family Relations*, 66(3), 1-13.

Zoogman, S., Goldberg, S. B., Hoyt, W. T., & Miller, L. (2015). Mindfulness interventions with youth: A meta-analysis. *Mindfulness*, 6(2), 290-302.