

DISSERTATION

DETECTION OF UNHEALTHY COMMUNICATION PATTERNS IN ROMANTIC
RELATIONSHIPS

Submitted by

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ABSTRACT

DETECTION OF UNHEALTHY COMMUNICATION PATTERNS IN ROMANTIC RELATIONSHIPS

Unhealthy communication expressions are predictive of distress and poor functioning in romantic relationships yet the ability to detect these expressions is understudied. Study 1 presents the validation of a new procedure allowing for the objective assessment of detection abilities producing a final set of 15 videos (11 unhealthy interactions and 4 neutral conflict interactions). Six real-life couples volunteered to film four two-minute videos each for the creation of this procedure. Each couple was asked to portray three interactions including an assigned unhealthy communication expression and one neutral interaction on topics of their choice. The total sample of 24 videos were viewed by Gottman Couple Therapy Level 1 or Level 2 certified couples' therapists currently enrolled in or recently graduated from a COAMFTE-accredited Marriage and Family Therapy graduate program. Each therapist rated the videos on whether the video showed unhealthy communication expressions, their concern for the relationship based on the interaction, and the level of satisfaction they perceived the couple had with their relationship. Nine videos failed to be validated with two videos having contradictory ratings in their portrayal of unhealthy communication patterns from what was intended, two for having low levels of internal reliability related to concern for the relationship, two for ratings of level of concern inconsistent with the hypothesis, and three for ratings of level of satisfaction inconsistent with the hypothesis. Implications for the use of this procedure in future research are provided.

In Study 2, binary logistic regression models were used to explore individual level predictors of observed detection abilities based on four of the videos validated in Study 1. Participants were asked to view the series of four videos, two of which portrayed unhealthy communication patterns and two of which portrayed neutral conflict interactions. Based on Social Learning Theory and documented errors in directed attention, three early childhood variables (attachment, interparental conflict, and betrayal trauma) and two attention related variables (dissociation and mindfulness) were tested. Results revealed that self-blame related to interparental conflict predicted lower detection abilities, including both over- and under-detection and trait dissociation predicted under-detection. Attachment anxiety, attachment avoidance, betrayal trauma, and trait mindfulness were not significant predictors of detection ability. A discussion of the findings and implications for future research are provided.

Study 3 was designed to evaluate the effectiveness of a mindfulness-based relationship education program for individuals at improving the ability to form healthy relationships including the ability to detect early warning signs of unhealthy relationships, confidence in making decisions in relationships, use of skillful communication, and relationship satisfaction. . Participants were undergraduate students currently enrolled in a college course on intervention and prevention programs and were randomly assigned to two conditions: (1) relationship education program with a mindfulness component or (2) standard relationship education program. Repeated-measures ANOVAs revealed significant pre-/post-test differences related to confidence in the ability to detect early warning signs of unhealthy relationship functioning and trend level differences in confidence in decision making and skillful communication. No significant differences were found between groups. Implications for future research are provided.

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DEDICATION

To Lisa,

For clapping when I jumped rope with an imaginary rope (and all the other times).

Thank you for your unwavering confidence in me.

Love always, “Bearykins”

TABLE OF CONTENTS

ABSTRACT.....	ii
ACKNOWLEDGEMENTS.....	iv
DEDICATION.....	vi
LIST OF TABLES.....	x
LIST OF KEYWORDS.....	xiii
Chapter 1 – Introduction.....	1
Chapter 2 – Study 1 Literature Review.....	5
Existing Measurement of Unhealthy Romantic Relationship Communication Patterns	5
Assessment of Awareness of Warning Signs.....	7
Rationale for New Procedure.....	9
Hypotheses for Study 1	10
Chapter 3 – Study 1 Methods.....	13
Participants.....	13
Procedure.....	13
Video Development Procedure.....	13
Validation Procedure	14
Data Analysis.....	15
Descriptive Statistic Tables for Study 1.....	17
Chapter 4 – Study 1 Results.....	22
Concern for the Relationship.....	22
Relationship Satisfaction.....	25
Differences Between Unhealthy Communication Patterns and Neutral Videos.....	25
Data Analytic Tables for Study 1.....	27
Chapter 5 – Study 1 Discussion.....	35
Limitations.....	37
Implications	38
Chapter 6 – Study 2 Literature Review.....	40
Defining Detection.....	40
Childhood Experiences and Variation in Detection Abilities	41
Attachment.....	43
Exposure to Interparental Conflict.....	46
Betrayal Trauma	48
Directed Attention.....	50
Dissociation.....	52
Mindfulness.....	53
Hypotheses for Study 2.....	53
Chapter 7 – Study 2 Methods.....	55
Participants.....	55
Procedure.....	55
Measures.....	56
Detection of Unhealthy Communication Patterns	56
Attachment.....	57

Interparental Conflict.....	58
Betrayal Trauma.....	59
Dissociation.....	60
Mindfulness.....	60
Data Analysis.....	61
Descriptive Statistic Tables for Study 2	62
Chapter 8 – Study 2 Results.....	64
Data Analytic Tables for Study 2.....	67
Chapter 9 – Study 2 Discussion.....	87
Early Childhood Experiences.....	87
Attachment.....	87
Betrayal Trauma.....	88
Exposure to Interparental Conflict.....	89
Directed Attention	90
Dissociation.....	90
Mindfulness	91
Limitations.....	92
Implications.....	94
Chapter 10 – Study 3 Literature Review.....	96
Relationship Education.....	97
Within My Reach.....	97
Anticipated Outcomes.....	98
Mindfulness.....	100
Study 3 Hypotheses.....	102
Chapter 11 – Study 3 Methods.....	104
Participants.....	104
Procedure.....	104
Measures.....	106
Detection and Decision Making.....	106
Skillful Communication.....	107
Relationship Satisfaction.....	107
Mindful Partnering.....	108
Data Analysis.....	108
Descriptive Statistic Tables for Study 3	110
Chapter 12 – Study 3 Results.....	113
Within Group Differences.....	113
Between Group Differences.....	113
Data Analytic Table for Study 3.....	114
Chapter 13 – Study 3 Discussion.....	116
Confidence in Detecting Warning Signs of Unhealthy Relationships.....	116
Confidence in Decision Making and Positive Communication Skills.....	117
Relationship Satisfaction.....	118
Mindfulness.....	119
Limitations.....	120
Power.....	120
Characteristics of Sample.....	121

Missing Data.....	122
Implications.....	123
Chapter 14 – Conclusion.....	125
Future Directions.....	128
References.....	130

LIST OF TABLES

Table 1.1.....	17
<i>Descriptive Information of Video Content and Couple Demographic Information</i>	
Table 1.2.....	20
<i>Descriptive Statistics for Unhealthy Communication Pattern Video Ratings</i>	
Table 1.3.....	21
<i>Descriptive Statistics for Neutral Video Ratings</i>	
Table 1.4.....	27
<i>One-Sample t-Test for Presence of Unhealthy Communication Patterns in Unhealthy Communication Patterns Videos</i>	
Table 1.5.....	28
<i>One-Sample t-Test for Presence of Unhealthy Communication Patterns in Neutral Videos</i>	
Table 1.6.....	29
<i>One-Sample t-Test for Concern for Relationship in Unhealthy Communication Patterns Videos</i>	
Table 1.7.....	30
<i>One-Sample t-Test for Concern for Relationship in Neutral Videos</i>	
Table 1.8.....	31
<i>One-Sample t-Test for Future Violence in Unhealthy Communication Patterns Videos</i>	
Table 1.9.....	32
<i>One-Sample t-Test for Relationship Satisfaction in Unhealthy Communication Patterns Videos</i>	
Table 1.10.....	33
<i>One-Sample t-Test for Relationship Satisfaction in Neutral Videos</i>	
Table 1.11.....	34
<i>Paired-Samples t-Test Comparisons of Presence of Unhealthy Communication Patterns, Concern for Relationship, and Relationship Satisfaction between Video Types</i>	
Table 2.1.....	62
<i>Key Participant Demographics for Study 2</i>	
Table 2.2.....	63
<i>Descriptive Statistics for Key Variables in Study 2</i>	
Table 2.3.....	67
<i>Multinomial Logistic Regression Coefficients for Attachment Style on Detection Abilities in Videos Portraying Unhealthy Communication Patterns</i>	
Table 2.4.....	68
<i>Multinomial Logistic Regression Coefficients for Attachment Style on Detection Abilities in Videos Portraying Neutral Conflict Interactions</i>	
Table 2.5.....	69
<i>Multinomial Logistic Regression Coefficients for Exposure to Interparental Conflict on Detection Abilities in Videos Portraying Unhealthy Communication Patterns</i>	

Table 2.6.....	70
<i>Multinomial Logistic Regression Coefficients for Exposure to Interparental Conflict on Detection Abilities in Videos Portraying Natural Conflict Interaction</i>	
Table 2.7.....	71
<i>Multinomial Logistic Regression Coefficients for Betrayal Trauma on Detection Abilities in Videos Portraying Unhealthy Communication Patterns</i>	
Table 2.8.....	72
<i>Multinomial Logistic Regression Coefficients for Betrayal Trauma on Detection Abilities in Videos Portraying Neutral Conflict Interactions</i>	
Table 2.9.....	73
<i>Multinomial Logistic Regression Coefficients for Dissociation on Detection Abilities in Videos Portraying Unhealthy Communication Patterns</i>	
Table 2.10.....	74
<i>Multinomial Logistic Regression Coefficients for Dissociation on Detection Abilities in Videos Portraying Neutral Conflict Interactions</i>	
Table 2.11.....	75
<i>Multinomial Logistic Regression Coefficients for Mindfulness on Detection Abilities in Videos Portraying Unhealthy Communication Patterns</i>	
Table 2.12.....	76
<i>Multinomial Logistic Regression Coefficients for Mindfulness on Detection Abilities in Videos Portraying Neutral Conflict Interactions</i>	
Table 2.13.....	77
<i>Binary Logistic Regression Coefficients for Attachment Style on Detection Abilities in Videos Portraying Unhealthy Communication Patterns</i>	
Table 2.14.....	78
<i>Binary Logistic Regression Coefficients for Attachment Style on Detection Abilities in Videos Portraying Neutral Conflict Interactions</i>	
Table 2.15.....	79
<i>Binary Logistic Regression Coefficients for Exposure to Interparental Conflict on Detection Abilities in Videos Portraying Unhealthy Communication Patterns</i>	
Table 2.16.....	80
<i>Binary Logistic Regression Coefficients for Exposure to Interparental Conflict on Detection Abilities in Videos Portraying Natural Conflict Interaction</i>	
Table 2.17.....	81
<i>Binary Logistic Regression Coefficients for Betrayal Trauma on Detection Abilities in Videos Portraying Unhealthy Communication Patterns</i>	
Table 2.18.....	82
<i>Binary Logistic Regression Coefficients for Betrayal Trauma on Detection Abilities in Videos Portraying Neutral Conflict Interactions</i>	
Table 2.19.....	83
<i>Binary Logistic Regression Coefficients for Dissociation on Detection Abilities in Videos Portraying Unhealthy Communication Patterns</i>	
Table 2.20.....	84
<i>Binary Logistic Regression Coefficients for Dissociation on Detection Abilities in Videos Portraying Neutral Conflict Interactions</i>	

Table 2.21.....	85
<i>Binary Logistic Regression Coefficients for Mindfulness on Detection Abilities in Videos Portraying Unhealthy Communication Patterns</i>	
Table 2.22.....	86
<i>Binary Logistic Regression Coefficients for Mindfulness on Detection Abilities in Videos Portraying Neutral Conflict Interactions</i>	
Table 3.1.....	110
<i>Key Participant Demographics for Study 3</i>	
Table 3.2.....	111
<i>Descriptive Statistics for Key Variables in Study 3 – Time 1</i>	
Table 3.3.....	112
<i>Descriptive Statistics for Key Variables in Study 3 – Time 2</i>	
Table 3.4.....	114
<i>Means, Standard Deviations, and Repeated Measures ANOVAs for Within My Reach Outcomes</i>	

LIST OF KEYWORDS

Keywords: unhealthy communication patterns, romantic relationships, four horsemen, danger signs, relationship education, mindfulness

INTRODUCTION

Healthy romantic relationships have been well documented to be associated with positive physical health indicators and general well-being (Kiecolt-Glaser & Newton, 2001; Proulx et al., 2007; Robles et al., 2014). However, not all romantic relationships function positively, and poor relationship functioning indicators, such as conflict and dissatisfaction with the relationship, have been shown to be related to individual distress and negative well-being (Choi & Marks, 2008; Kiecolt-Glaser & Newton, 2001; Lehnart et al., 2010; Robles & Kiecolt-Glaser, 2003). Due to the association between poor relationship functioning and individual distress, it is important to understand the factors within relationships that predict poor functioning as well as ways to intervene to support positive relationship functioning.

Broadly, unhealthy relationship patterns are behaviors or communication expressions that have been consistently empirically linked to current or future negative relationship functioning. Unhealthy relationship behaviors can be operationalized in many ways including negative relationship maintenance behaviors (Dainton & Gross, 2008), such as jealousy or allowing control, physical aggression or violence, and the expression of unhealthy communication patterns. The current study will focus on the expression of unhealthy communication patterns. Verbal and nonverbal communication patterns have been found to be predictive of relationship distress or termination (Bradbury et al., 2000; Christensen & Shenk, 1991; Gottman, 1994; Gottman & Levenson, 2000; Markman et al., 1994). This research suggests that unhealthy communication patterns may lead to larger relationship problems and impede healthy relational behaviors such as problem solving.

The first set of commonly studied unhealthy romantic relationship communication patterns, identified by John Gottman, are collectively referred to as the “four horsemen of the apocalypse” and have been found to be predictive of relational distress and divorce as well as to reduce connection and commitment within the relationship (Gottman, 1994; Gottman et al., 1998; Gottman & Gottman, 2015; Gottman & Levenson, 2000). The four communication expressions that comprise the four horsemen are contempt, criticism, defensiveness and stonewalling (Gottman, 1994; Gottman & Gottman, 2015). Contempt refers to verbal or nonverbal expressions such as eye-rolling, name-calling, or mocking which convey feelings of disgust and hostility towards one’s partner. Criticism refers to a specific type of complaint which points out a perceived deficit in their partner’s character. Defensiveness often occurs in response to criticism and is characterized by an unwillingness to accept responsibility for one’s contributions to a conflict and the placing of blame onto one’s partner. Lastly, stonewalling, which may occur in response to contempt, refers to disengagement from the conflict which can appear as engaging in distracting behaviors, not responding to one’s partner, or physically leaving a conversation.

Another commonly studied set of unhealthy romantic relationship communication expressions, referred to as “danger signs”, include escalation, invalidation, withdrawal, and negative interpretation of one’s partner (Markman et al., 1994; Stanley & Markman, 1997). Proposed by Scott Stanley and Howard Markman, these communication danger signs have also been found to be associated with relational distress and disillusionment (Julien et al., 2003; Markman et al., 2010; Stanley et al., 2004). Escalation describes an increase in the negative emotional intensity of an interaction characterized by a back and forth dynamic between partners. Invalidation occurs when one partner, either implicitly or explicitly, disregards the

point of view or feelings of their partner. Negative interpretation can be described as a lack of giving one's partner the "benefit of doubt" or automatically assuming malicious intent behind an action or statement made by one's partner. Lastly, withdrawal, which is similar to the fourth horseman of stonewalling, refers to physically or emotionally disengaging from the conversation or conflict.

Unhealthy communication patterns can range in severity, but conflict patterns typically escalate within relationships (Winstock et al., 2008) suggesting that even small unhealthy communication patterns may be predictive of more severe and consistent unhealthy communication patterns in the future. Further, as unhealthy communication expressions are related to poor relational outcomes, it is possible for couples to change by learning positive communication approaches (Gottman & Gottman, 2015; Markman et al., 1988). The ability to detect these communication patterns is an important first step in the process of improving communication and relationship functioning as it is difficult to address a problem when one is not aware that it exists. The detection of these small expressions of unhealthy communication patterns may allow individuals to adjust their relationship and communication patterns in ways that would prevent the development of more severe unhealthy communication patterns leading to future relationship distress, undesired termination, or possibly relational violence.

This pathway is supported as meta-analytic research on romantic relationships which has found that conflict within relationships is a common precursor to violence within intimate relationships (Fincham & Beach, 2010). Similarly, relationship education programs designed to address and improve unhealthy communication patterns have been used to prevent intimate partner violence by effectively reducing physical and psychological aggression (Braithwaite & Fincham, 2014). Despite the importance of this area of study, limited research has been

conducted on objective awareness of unhealthy communication patterns in romantic relationships.

To address this gap in the current literature, it is important to examine factors that are associated with lower levels of detection as well as ways in which the ability to detect unhealthy communication patterns can be improved. This dissertation consists of three studies: the first will focus on the validation of a procedure to assess detection ability beyond self-report, the second will focus on individual predictors of variation in detection, and the third will focus on an intervention designed to improve detection abilities.

STUDY 1 LITERATURE REVIEW

Unhealthy communication patterns are predictive of increased distress and reduced relational satisfaction (Bradbury et al., 2000; Christensen & Shenk, 1991; Gottman, 1994; Gottman & Levenson, 2000; Markman et al., 1994). Two of the most commonly used sets of unhealthy communication patterns are Gottman's four horsemen, criticism, contempt, defensiveness, and stonewalling (Gottman, 1994; Gottman & Gottman, 2015), and Stanley and Markman's danger signs, escalation, invalidation, withdraw, and negative interpretation (Markman et al., 1994; Stanley & Markman, 1997; Stanley et al., 2004). Although much research has been conducted about the impact of these communication patterns, little research has been conducted on the ability of individuals to recognize or detect these patterns. Current tools used in research about unhealthy communication patterns include those which assess the occurrence of unhealthy communication patterns in a current relationship and self-report measures related to the degree to which individuals are aware of their ability to identify these patterns within their relationships. Currently no procedure exists which allows for the assessment of the ability to detect these unhealthy patterns in an objective measure beyond current relationship dynamics or self-reports on awareness.

Existing Measurements of Unhealthy Romantic Relationship Communication Patterns

The current available body of research focused on unhealthy romantic relationship communication patterns is centered on one's current romantic relationship. To assess the four horsemen grouping of unhealthy communication patterns the Specific Affect Coding System (SPAFF; Gottman et al., 1995) and items taken from the self-assessments provided in Gottman's (1994) book for individuals to assess the strengths and weaknesses within their relationships

have been most frequently used (e.g., Cornelius et al., 2010; Fowler & Dillow, 2011; Holman & Jarvis, 2003; Sommer et al., 2019). The SPAFF is a coding scheme that is used to assess positive affect such as affection, humor, and validation, as well as negative affect, which includes codes for the four horsemen based on verbal and non-verbal behaviors and expressions. Gottman's self-assessments ask participants to rate whether they engage in specific behaviors using a yes/no answer format. Sample items include "In arguments, sometimes my response is to sigh or roll my eyes" and "At times, during an argument, I think it is best just not to respond at all."

To assess the second set of unhealthy communication expressions (referred to as "danger signs"), the Relationship Dynamics Scale (RDS; Stanley & Markman, 1997) and the Communication Skills Test (Saiz & Jenkins, 1996) have frequently been used (e.g., Beach et al., 2011; Einhorn et al., 2008; Owen et al., 2013; Stanley et al., 2005). The RDS asks participants to rate items pertaining to the frequency that each of the danger signs are expressed in their relationships, rated on a 3-point Likert scale ranging from "almost never or never" to "frequently". Items include "Little arguments escalate into ugly fights with accusations, criticisms, name-calling, and bringing up past hurts" and "My partner seems to view my words or actions more negatively than I mean them to be". Similarly, the Communication Skills Test asks participants to rate items pertaining to the degree to which specific communication patterns occur in their current romantic relationship on a 7-point Likert scale from "strongly disagree" to "strongly agree". Sample items include "I clam up when we disagree" and "It is hard to discuss issues without getting into a heated argument".

Though these measurements assess the occurrence of unhealthy communication patterns within a current romantic relationship, there are several limitations to these measures. First, these measures only assess expressions within a current romantic relationship and therefore only

provide insight into that specific relationship dynamic. Though this is valuable information that can be used to better understand the functioning of individual relationships, these measures do not assess the degree to which individuals can identify that unhealthy communication patterns are occurring. Additionally, these measures only assess the degree to which the individual perceives that these patterns occur and not whether the individual can detect that these patterns are unhealthy. Individuals may be able to report that communication patterns occur within their romantic relationships but for a variety of reasons, including the desensitization of such patterns, conclude that these patterns are not unhealthy. This is consistent with the finding that destructive beliefs about conflict are negatively associated with verbal aggression in romantic relationships (Aloia, 2017) suggesting that when individuals have more negative perceptions of conflict, they are less likely to engage in aggressive conflict behaviors. Though these measures provide valuable insight into the occurrence of unhealthy communication patterns within current romantic relationships, they do not provide information about the degree to which individuals are able to detect these patterns in an objective manner.

Assessment of Awareness of Warning Signs

There are a limited number of measures which focus on levels of awareness of unhealthy patterns within a relationship. The Relationship Deciding Scale (RDS; Vennun & Fincham, 2011) and the Awareness of Danger Signs scale (AoDS, Quirk et al., 2020) assess the ability of individuals to detect unhealthy patterns within relationships. The RDS asks participants to rate the degree to which they can detect warning signs of an unhealthy relationship on a 7-point Likert scale from “strongly disagree” to “strongly agree”. Sample items from this measure include “I am able to recognize early on the warning signs in a bad relationship” and “I am quickly able to see warning signals in a romantic relationship”. As such, the RDS provides

valuable information regarding confidence in ability to detect unhealthy dynamics within relationships but not provide insight into the actual, objective detection abilities.

The AoDS varies from the RDS in that it attempts to assess the outcomes of low detection abilities. As such, participants are asked a series of questions which about experiences they would likely have as outcomes of low ability to detect unhealthy patterns within relationships, such as unwanted relationship termination or difficulty choosing partners. Items include “I end up in bad relationships without knowing why” and “It is hard for me to know what partners are best for me”. This measure was designed to assess the limitations of asking individuals about their level of awareness, as asking about awareness inherently brings awareness to topics, by focusing on outcomes instead of the actual communication patterns (Quirk et al., 2020).

Though these measures ask participants to report on levels of awareness of unhealthy communication patterns within relationships, they both rely upon participant self-report. This limitation is significant as participants may not be able to accurately represent their detection abilities due to social desirability bias. Social desirability bias describes the tendency to report answers based on something other than the content of the question (Krumpal, 2013; Paulhus, 1984; Saunders, 1991). Social desirability bias typically occurs in two ways. The first, self-deception, is an unconscious process by which individuals rate responses about themselves more favorably than would be accurate but believe these answers to be true (Paulhus, 1984; Nederhof, 1985). In the case of detection of unhealthy communication patterns in romantic relationships, self-deception could occur when participants inadvertently over or underestimate their abilities. The second type of social desirability bias is known as other-deception or impression management and occurs when participants consciously responds to questions in a way that the

participant believes would create a favorable impression of themselves (Paulhus, 1984; Nederhof, 1985). In the case of detection of unhealthy communication patterns, this could occur when individuals report better detection abilities to communicate that they are successful at romantic relationships.

There are multiple ways of handling social desirability bias. One method is by controlling for this bias using questionnaires of social desirability (Saunders, 1991; Nederhof, 1985) such as the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960), short forms of the Marlowe-Crowne Social Desirability Scale (Reynolds, 1982; Stahan & Gerbasi, 1972), the Other-Deception and Self-Deception Questionnaires (ODSDQ; Sackeim & Gur, 1979), the Social Desirability Response Set (Hays et al., 1989), and the Social Desirability Scale-17 (SDS-17; Stober, 2001). This is a technique that is commonly used in research across topics related to romantic relationships (ex: Aviram & Amichai-Hamburger, 2017; Craig et al., 2006; Fincham et al., 2008; Olmstead et al., 2013). Structure of surveys, such as self-administration of questions, using forced-choice response questions, using a “bogus pipeline” which communicates that in some way the researcher would know if the participant was lying, and reducing discomfort of participants in the phrasing of questions can also be used to mitigate the effects of social desirability (Krumpal, 2013; Saunders, 1991; Nederhof, 1985). However, none of these methodologies completely controls for the effects of social desirability bias (Nederhof, 1985).

Rationale for New Procedure

Though the previously described measures provide important information regarding current relationship functioning and confidence in their ability to detect unhealthy communication patterns, no procedures or tools currently exist that are designed to assess objective detection of romantic relationship unhealthy communication expressions. Objectively

measuring the degree to which individuals can detect that an interaction includes unhealthy communication patterns or is a neutral conflict interaction helps to address many of the limitations involved in self-report procedures. The novel procedure and assessment outlined in this paper is centered on asking participants to view a series of videos which portray couples interacting in a conflict discussion that include unhealthy communication expressions or neutral interactions.

Validation of these videos by experts in couple communication would allow researchers to be confident that the videos accurately portray the specific empirically supported unhealthy communication expressions. These videos could be used to assess detection abilities by asking individuals to report whether they see unhealthy communication expressions within the interaction, demonstrating either accurate detection, over-detection (detecting unhealthy communication patterns in a neutral video), or under-detection (detecting no unhealthy communication patterns in a video which portrays unhealthy patterns). By directly testing the degree to which individuals could detect the presence of unhealthy communication patterns, a new procedure would contribute to the extension of this area of literature by moving from the confidence an individual has that they can detect unhealthy communication patterns to whether or not they actually can detect these behaviors.

Hypotheses for Study 1

Study 1 is designed to validate a set of videos portraying empirically supported danger signs. Establishing a validated set of videos which participants could watch and rate for the presence of unhealthy communication patterns would provide researchers with a way to assess objective detection abilities of participants. This new procedure could be used to provide a more

complete understanding of variables which influence the ability to detect unhealthy communication patterns in relationship beyond the self-report measures that currently exist.

For the videos to be a valid procedure to use, it is important that they meet two criteria. First, it is important that they accurately demonstrate either unhealthy communication patterns or a neutral communication pattern so that accurate, over-, or under-detection can be tested. Second, it is important that the videos accurately invoke the real-life correlates of unhealthy communication patterns, such concern for the future of the relationship (as unhealthy communication predicts future relationship distress and termination, as previously described) and relationship satisfaction (as unhealthy communication patterns are linked with lower relationship satisfaction as previously described). Ensuring that the videos accurately portray real-life correlates will help to make these videos as naturalistic as possible, thus supporting the ability of this tool to make some conclusions related to the ability of individuals to detect unhealthy communication patterns in the real world.

Specifically, it is predicted that the videos designed to display either one of the four horsemen or danger sign communication patterns will be rated by experts in detecting unhealthy communication patterns as adequately representing these unhealthy communication patterns (Hypothesis 1a), and the videos designed to portray neutral conflict interactions will be rated as not including any unhealthy communication patterns (Hypothesis 1b). Additionally, it is predicted that raters will report concern for the future of the relationship in the unhealthy communication pattern videos (Hypothesis 2a) and will report no concern for the future of the relationship in the neutral videos (Hypothesis 2b). Similarly, it is predicted that the raters will report perceived dissatisfaction for the relationship in the unhealthy communication pattern videos (Hypothesis 3a), and the neutral videos will be rated as portraying satisfaction with the

relationship (Hypothesis 3b). Rating for each video will be determined through asking experts in identifying unhealthy communication patterns and the outcomes associated with these patterns to watch the videos and rate on 5-point scales their concern for the relationship and their perceptions of the satisfaction within each relationship.

Lastly, it is predicted that the videos in which the couples engaged in unhealthy communication patterns will vary significantly from the neutral interaction videos. In other words, it is not just that the neutral videos will show no unhealthy communication patterns, low levels of concern, and high levels of relationship satisfaction while the unhealthy communication patterns demonstrate the opposite, but that there will be significant differences between the videos. Specifically, we hypothesize that the neutral videos will portray significantly fewer unhealthy communication patterns compared to the videos intended to include such patterns (Hypothesis 4a). Additionally, the videos intended to include unhealthy communication patterns will be rated as having greater concern for the future of the relationship (Hypothesis 4b) and less satisfaction with the relationship (Hypothesis 4c) compared to the neutral videos.

STUDY 1 METHODS

Participants

Recent graduates and second-year students at a Commission on Accreditation for Marriage and Family Therapy Education (COAMFTE) accredited Marriage and Family Therapy master's program who are registered psychotherapists were recruited for participation in this study. As part of the program requirements, all students complete the Gottman Couple Therapy Level One Training, which includes training in the ability to recognize and intervene in unhealthy communication patterns such as Gottman's four horsemen. As this training specifically targets developing the ability of therapists to detect unhealthy communication patterns, the outcomes associated with these unhealthy communication patterns, and interventions to improve relationship functioning through improving communication, the completion of the training establishes the participants as experts in this area. All participants reported completion of the Gottman Couple Therapy Level One Training, and three participants reported completion of the Gottman Couple Level Therapy Two Training. The completion of this specialized training combined with the training in relational therapy in a COAMFTE-accredited program establishes the participants as experts for the detection and severity of unhealthy couple communication patterns. A total of 11 participants completed the procedures. No identifying or demographic information was collected from participants.

Procedure

Video Development Procedure

The videos used in this study were created using real-life couples engaging in a conflict discussion who volunteered to be recorded for the creation of this procedure. Of the six volunteer

couples, two are interracial couples and one couple is a same-sex couple. Ages of the volunteers range from early-20s to mid-60s. Prior to recording the videos, the volunteer couples were assigned to either engage in a neutral (i.e., no unhealthy communication patterns) conflict discussion or to use an assigned unhealthy communication pattern that was either one of the four horsemen or one of the danger signs. The prompts for each unhealthy communication pattern were reviewed by three experts in unhealthy communication patterns at the University of Denver for adherence to the definitions of each term. The volunteer couples were directed to self-select a topic for the discussions in order to increase the degree to which the interactions felt natural. Six couples participated in the recording of the videos, and each couple recorded four interactions, resulting in a total of 24 videos. Each video was approximately 2 minutes in length. Information about the couples, the video prompts, and their discussion topics in each video are provided in Table 1.1.

Validation Procedure

After obtaining institutional review board (IRB) approval, participants for the validation procedure were contacted through email or Facebook Messenger inviting them to participate in the study online or complete an availability poll to attend an in-person data collection event. Participants completed the same procedure whether they completed the survey in-person or online. After completing the informed consent document, participants were asked to watch the series of 24, two-minute videos of couples portraying a conflict interaction. Participants were instructed that the couples in the videos were actors asked to portray either a neutral conflict interaction or a conflict interaction with unhealthy communication patterns. Of the total 24 videos, six showed neutral interactions and 18 included unhealthy communication patterns. As

each couple was shown in multiple videos, participants were also instructed to rate each video independently.

After watching each video, participants were asked to indicate which unhealthy communication pattern they saw in the video from a list of containing the eight previously described unhealthy communication patterns (contempt, criticism, defensiveness, stonewalling, escalation, invalidation, negative interpretation, and withdrawal) or none/neutral. Participants were not limited in the number of options that they selected. Following each video, participants were also asked to rate a series of three questions about their concern for the relationship (i.e., “How concerned are you for the future of this relationship?”; “How worried are you that these behaviors you see in this interaction may escalate and get worse over time?”; “How worried are you about this couple becoming violent towards each other, if they were to stay together?”) and one question about the couple’s level of satisfaction (i.e. “How satisfied do you think this couple is with their relationship?”). Each question about concern/satisfaction was rated on a five-point Likert scale. Descriptive statistics about responses are provided in Table 1.2 (unhealthy communication pattern videos) and Table 2.2 (neutral videos).

Data Analysis

One-sample *t*-tests were used to assess whether the neutral videos were neutral (i.e. no unhealthy communication patterns present) and that they showed minimal levels of concern and high levels of satisfaction. One-sample *t*-tests were used to assess whether the unhealthy communication pattern videos accurately portrayed these patterns in the interactions, that they indicated concern for the relationship, and demonstrated low levels of relationship satisfaction. Specifically, one-sample *t*-tests were used to determine whether each interaction displayed unhealthy communication patterns using a test value of 1 (indicating the presence of one or more

unhealthy communication patterns was identified) for the unhealthy communication pattern videos and 0 (indicating that the interaction was rated as having no unhealthy communication patterns) for the neutral videos. To test concern for the relationship, unhealthy communication videos were compared to the test values of 4, 3.5, 3, and 2.5 (indicating a range of concern for the relationship) using a series of one-sample *t*-tests, and neutral videos were compared to the test value of 1 (indicating no concern for the future of the relationship). To test relationship satisfaction, unhealthy communication patterns were compared to the test values 4, 3.5, and 3 (indicating neutral to negative levels of satisfaction), and neutral videos were compared to the values of 1 and 1.5 (indicating high levels of satisfaction. Different test values were utilized as it is expected that the videos may represent a range of levels of concern and satisfaction. Using multiple test values which indicate various levels of concern and satisfaction allow videos to be validated at varying levels of severity. Paired-samples *t*-test were used to assess the differences in levels of concern and levels of satisfaction between the neutral and unhealthy communication pattern videos.

Descriptive Statistic Tables for Study 1

Table 1.1

Descriptive Information of Video Content and Couple Demographic Information

Video	Assigned Communication Pattern	Couple ID	Approx. Age	Sexual Orientation	Race/Ethnicity	Brief Description of Conversation Topic
1	Stonewalling	1	Early to Mid 40s	Same-Sex (Male)	Caucasian and Asian	Reducing spending
2	Invalidation	2	Early 20s	Heterosexual	Hispanic and Caucasian	Deciding whether to move
3	Contempt	3	Mid-60s	Heterosexual	Caucasian	Responsibility for planning all events/outings
4	Neutral	4	Mid 20s-30s	Heterosexual	Caucasian	Deciding on wedding venues
5	Defensiveness	5	Mid 20s	Heterosexual	Caucasian	Work-life balance and taking new opportunities at work
6	Criticism	6	Mid to Late 30s	Heterosexual	Caucasian	Holding child accountable for completing chores
7	Contempt	1	Early to Mid 40s	Same-Sex (Male)	Caucasian and Asian	Missing friend's birthday party due to work obligation
8	Escalation	2	Early 20s	Heterosexual	Hispanic and Caucasian	Planning for future and if to have children
9	Invalidation	3	Mid-60s	Heterosexual	Caucasian	Feeling overwhelmed at work

Video	Assigned Communication Pattern	Couple ID	Approx. Age	Sexual Orientation	Race/ Ethnicity	Brief Description of Conversation Topic
10	Withdrawal	4	Mid 20s-30s	Heterosexual	Caucasian	Parent coming to live with the couple temporarily
11	Negative Interpretation	5	Mid 20s	Heterosexual	Caucasian	Making plans with others vs spending time as a couple on the weekend
12	Neutral	6	Mid to Late 30s	Heterosexual	Caucasian	How much to allow teenage daughter to drive their car
13	Defensiveness	1	Early to Mid 40s	Same-Sex (Male)	Caucasian and Asian	Missing family experiences due to work
14	Negative Interpretation	2	Early 20s	Heterosexual	Hispanic and Caucasian	Expressing need for more alone time
15	Neutral	3	Mid-60s	Heterosexual	Caucasian	Planning holiday events and navigating in-law relationships
16	Escalation	4	Mid 20s-30s	Heterosexual	Caucasian	Budgeting and how to spend money
17	Criticism	5	Mid 20s	Heterosexual	Caucasian	Being late to a wedding due to error in directions
18	Withdraw	6	Mid to Late 30s	Heterosexual	Caucasian	Expressing desire for partner to help child with homework more often

Video	Assigned Communication Pattern	Couple ID	Approx. Age	Sexual Orientation	Race/ Ethnicity	Brief Description of Conversation Topic
19	Neutral	1	Early to Mid 40s	Same-Sex (Male)	Caucasian and Asian	What activities to enroll child in
20	Neutral	2	Early 20s	Heterosexual	Hispanic and Caucasian	Navigating in-law/family relationships
21	Withdraw	3	Mid-60s	Heterosexual	Caucasian	Responsibility for chores and desire for more help
22	Contempt	4	Mid 20s-30s	Heterosexual	Caucasian	Saving money and planning budget
23	Neutral	5	Mid 20s	Heterosexual	Caucasian	Planning rehearsal dinner location and budget
24	Defensiveness	6	Mid to Late 30s	Heterosexual	Caucasian	Request for partner to come home from work earlier

Table 1.2

Descriptive Statistics for Unhealthy Communication Pattern Video Ratings

Video	Concern for Relationship		Concern for Future Violence		Relationship Satisfaction	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
1	2.39	0.61	1.36	0.51	3.00	0.89
2	2.73	0.88	1.73	1.01	3.00	1.00
3	1.64	0.53	1.00	0.00	2.55	0.93
5	1.52	0.52	1.09	0.30	2.18	0.60
6	1.82	0.62	1.18	0.41	2.27	1.01
7	2.67	0.42	1.36	0.51	3.55	0.69
8	3.15	0.52	1.73	0.79	3.55	0.69
9	2.00	0.39	1.09	0.30	3.09	0.83
10	2.15	0.40	1.09	0.30	2.73	0.79
11	1.91	0.40	1.09	0.30	2.45	0.69
13	2.76	0.70	1.18	0.41	3.55	1.21
14	2.64	0.43	1.18	0.41	3.27	0.79
16	2.73	0.66	1.55	0.69	3.55	0.82
17	1.73	0.49	1.09	0.30	2.27	0.65
18	2.45	0.52	1.09	0.30	3.45	0.93
21	2.21	0.45	1.18	0.41	2.82	0.98
22	2.85	0.69	1.55	0.69	3.36	0.92
24	2.00	0.56	1.09	0.30	2.73	0.79

Table 1.3

Descriptive Statistics for Neutral Video Ratings

Video	Concern for Relationship		Concern for Future Violence		Relationship Satisfaction	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
4	1.00	0.00	1.00	0.00	1.45	0.69
12	1.00	0.00	1.00	0.00	1.36	0.67
15	2.06	0.59	1.09	0.30	2.91	0.83
19	1.27	0.42	1.18	0.41	2.18	1.08
20	1.03	0.10	1.00	0.00	1.55	0.69
23	1.00	0.00	1.00	0.00	1.55	0.69

STUDY 1 RESULTS

Hypothesis 1a was supported for all but one unhealthy communication pattern video and Hypothesis 1b was supported for all but one neutral video. Of the 18 total videos, 17 videos were not significantly different ($p > .05$) from the test value, indicating the presence of unhealthy communication patterns in the videos. One video, Video 5, was significantly different from the test value, $t(10) = -2.39, p = .04$. As this video did not meet the validation criteria of consistently showing unhealthy communication patterns, it was dropped from the final group of videos and further analyses. See Table 1.4 for results of Hypothesis 1a. Of the six neutral videos, five videos were not significantly different ($p > .05$) from the test value, indicating that the interactions were neutral and did not contain unhealthy communication patterns. One video, Video 15, was significantly different from the test value, $t(10) = 6.71, p < .001$. Video 15 was rated by two participants as neutral, as showing criticism by two participants, as showing contempt by four participants, as showing defensiveness by three participants, as showing negative interpretation by two participants, as showing escalation by one participant, and as showing invalidation by three participants. As this video did not meet the validation criteria for consistently showing neutral communication patterns, it was dropped from the final group of videos and further analyses. See Table 1.5 for results of Hypothesis 1b.

Concern for the Relationship

To test Hypotheses 2a and 2b, further one-sample t-tests were used. As three questions were used which related to concern for the relationship, an overall concern scale was computed. The three items pertained to different types of concern for the relationship (concern for the relationship broadly, escalation of the conflict, and future violence), an assessment of the

reliability of these items was necessary to determine that the questions were targeting an overall concern level and not conceptually different factors. When all three items were included, Cronbach's alphas ranged from .22 to .78, with one video (Video 20) having a Cronbach's alpha of 1.76 due to several items with no variance. To improve the reliability of the scale, the item pertaining to violence (i.e. "How worried are you about this couple becoming violent towards each other, if they were to stay together?") was dropped. When computed for the two-item scale, reliability was assessed using the Spearman-Brown coefficient which is the best reliability statistic to report with two item scales (Eisinga et al., 2013). Two videos, both portraying unhealthy communication patterns, had Spearman-Brown coefficients below the acceptable threshold $\alpha < .70$, (Video 10: $\rho = .61$ and Video 21: $\rho = .54$). Due to the low levels of internal reliability, these two videos were dropped from the sample and further analyses. The remaining videos had Spearman-Brown statistics as ranging from .73 to .95 (note: Spearman-Brown coefficients could not be computed for four of the neutral videos due to no variation indicating 100% interrater agreement).

Hypothesis 2a was supported for all videos portraying unhealthy communication patterns except one. The 5-point Likert scale used for the items in the concern scale is labeled such that a rating of 4 indicates a moderate level of concern, a rating of 3 indicates some concern, and a rating of 2 indicates a little concern. Two videos were not significantly different ($p > .05$) from the test value of 4; seven videos were not significantly different from the test value of 3.5; two videos were not significantly different from the test value of 3; four videos were not significantly different from the test value of 2.5. One video (Video 3) was significantly lower compared to 2.5, $t(10) = -5.45, p < .001$. As this indicates that only minimal levels of concern were reported

for this interaction, the video was dropped from the final sample and further analyses. See Table 1.6 for results of Hypothesis 2a.

Hypothesis 2b was supported for all but one video. One-sample t -tests for three of the five remaining videos were not able to be computed as the standard deviation was equal to 0 ($M = 1.0$) indicating 100% agreement between participants that they expressed no concern for each video. Of the remaining two videos, one was not significantly different ($p > .05$ level) from the test value. One video (Video 19) was significantly different from the test value $t(10) = 2.28, p = .046$, indicating that participants endorsed some concern based on the interaction. As this did not meet the validation criteria of having no concern for the relationship in the neutral interactions, the video was dropped from the final sample and future analyses. See Table 1.7 for results of Hypothesis 2b.

To further explore level of concern, one-sample t -tests were used to examine the level of concern for violence reported in each video which was excluded from the overall concern scale. The 5-point Likert scale used to assess concern for violence is labeled such that that a rating of 2 indicates a little concern and a rating of 1 indicates no concern. Of the videos portraying unhealthy communication patterns, four were not significantly different from 2 ($p > .05$), and three were not significantly different from 1.5 ($p > .05$). No videos were dropped from the final sample or further analyses for lack of concern related to future violence. See Table 1.8 for results. One-sample t -tests were not able to be computed for concern related to future violence for any neutral videos as the standard deviation was equal to 0 ($M = 1.0$) indicating 100% agreement between participants that they felt no concern for each video.

Relationship Satisfaction

Hypothesis 3a was supported for all but three videos. The 5-point Likert scale used to assess relationship satisfaction was labeled such that a rating of 4 indicates moderate dissatisfaction and a score of 3 indicates neither satisfaction nor dissatisfaction. Four videos were not significantly different ($p > .05$) from 4, five were not significantly different ($p > .05$) from 3.5, and two were not significantly different ($p > .05$) from 3. Three videos were significantly different from 3, $t(10) = -2.39, p = .04$ (Video 6), $t(10) = -2.63, p = .03$ (Video 11), and $t(10) = -3.73, p = .004$ (Video 17). As these results indicate that participants reported at least moderate satisfaction for the relationship, these videos were dropped from the final sample and further analysis. See Table 1.9 for results of Hypothesis 3a.

Hypothesis 3b was supported for all the remaining neutral videos. The 5-point Likert scale used to assess relationship satisfaction was further labeled such that a rating of 1 indicates high levels of satisfaction and a score of 2 indicates moderate levels of satisfaction. All the remaining neutral videos were validated for satisfaction, as two videos were not significantly different ($p > .05$) from 1, and two videos were not significantly different ($p > .05$ level) from 1.5. See Table 1.10 for results of Hypothesis 3b.

Differences Between Unhealthy Communication Patterns and Neutral Videos

To test Hypotheses 4a, 4b, and 4c, paired-samples t -tests were used to compare the average ratings for the final set of unhealthy communication pattern videos and neutral videos. There was a significant difference between the unhealthy communication pattern videos and neutral videos such that the unhealthy communication pattern videos were significantly higher in the occurrence of unhealthy communication patterns, $t(10) = 17.89, p < .001$, and the level of concern for the future of the relationship, $t(10) = 14.15, p < .001$, compared to the neutral videos.

The unhealthy communication pattern videos were also significantly lower in the level of relationship satisfaction, $t(10) = 8.46, p < .001$, compared to the neutral videos. See Table 1.11 for results of Hypothesis 4.

Data Analytic Tables for Study 1

Table 1.4

One-Sample t-Tests for Presence of Unhealthy Communication Patterns in Unhealthy Communication Patterns Videos

Video	<i>M</i>	<i>SD</i>	<i>T</i>
1	1	0	NA
2	1	0	NA
3	0.91	0.30	-1.0
5	0.64	0.51	-2.39*
6	0.91	0.30	-1.0
7	1	0	NA
8	1	0	NA
9	1	0	NA
10	1	0	NA
11	1	0	NA
13	1	0	NA
14	1	0	NA
16	1	0	NA
17	0.91	0.30	-1.0
18	1	0	NA
21	1	0	NA
22	1	0	NA
24	1	0	NA

Note: * $p < .05$; gray indicates dropped from the final sample of videos

Table 1.5

One-Sample t-Tests for Presence of Unhealthy Communication Patterns in Neutral Videos

Video	<i>M</i>	<i>SD</i>	<i>T</i>
4	0	0	NA
12	0	0	NA
15	9.82	9.41	6.71***
19	0.27	0.47	1.94
20	0.09	0.30	1.0
23	0	0	NA

Note: *** $p < .001$; gray indicates dropped from the final sample of videos

Table 1.6

One-Sample t-Tests for Concern for Relationship in Unhealthy Communication Patterns Videos

Video	<i>M</i>	<i>SD</i>	<i>T</i>
Test Value = 4			
8	3.86	0.64	-0.71
13	3.54	0.99	-1.53
Test Value = 3.5			
2	3.23	1.03	-0.88
7	3.32	0.64	-0.94
14	3.36	0.60	-0.76
16	3.32	.82	-0.74
18	3.14	0.78	-1.56
22	3.5	1.03	0.00
Test Value = 3			
1	2.91	0.74	-0.41
24	2.45	0.82	-2.21
Test Value = 2.5			
3	1.64	0.53	-5.45***
6	2.14	0.87	-1.39
9	2.45	0.61	-0.25
11	2.32	0.51	-1.17
17	2.05	0.72	-2.09

Note: *** $p < .001$; gray indicates dropped from the final sample of videos

Table 1.7

One-Sample t-Tests for Concern for Relationship in Neutral Videos

Video	<i>M</i>	<i>SD</i>	<i>t</i>
Test Value = 1			
4	1.0	0	NA
12	1.0	0	NA
19	1.32	0.46	2.28*
20	1.05	0.15	1.0
23	1.0	0	NA

Note: * $p < .05$; gray indicates dropped from the final sample of videos

Table 1.8

*One-Sample t-Tests for Concern for Future Violence in Unhealthy Communication Patterns**Videos*

Video	<i>M</i>	<i>SD</i>	<i>t</i>
Test Value = 2			
2	1.73	1.01	-0.90
8	1.73	0.79	-1.15
16	1.55	0.69	-2.19
22	1.55	0.69	-2.19
Test Value = 1.5			
1	1.36	0.51	-0.90
6	1.18	0.41	-2.61*
7	1.36	0.51	-0.90
9	1.73	0.79	-4.5**
11	1.09	0.30	-4.5**
13	1.18	0.41	-2.61*
14	1.18	0.41	-2.61*
17	1.09	0.30	-4.5**
18	1.09	0.30	-4.5**
24	1.55	0.69	-0.22

Note: * $p < .05$, ** $p < .01$

Table 1.9

One-Sample t-Tests for Relationship Satisfaction in Unhealthy Communication Patterns Videos

Video	<i>M</i>	<i>SD</i>	<i>t</i>
Test Value = 4			
7	3.55	0.69	-2.19
8	3.55	0.69	-2.19
13	3.55	1.21	-1.24
16	3.55	0.82	-1.84
18	3.45	0.93	-1.94
Test Value = 3.5			
1	3.0	0.90	-1.85
2	3.0	1.0	-1.66
9	3.09	0.83	-1.63
14	3.27	0.79	-0.96
22	3.36	0.92	-0.49
Test Value = 3			
6	2.27	1.00	-2.39*
11	2.45	0.69	-2.63*
17	2.27	0.65	-3.73**
24	2.73	0.79	-1.15

Note: * $p < .05$, ** $p < .01$; gray indicates dropped from the final sample of videos

Table 1.10

One-Sample t-Tests for Relationship Satisfaction in Neutral Videos

Video	<i>M</i>	<i>SD</i>	<i>t</i>
Test Value = 1			
4	1.45	0.69	2.19
12	1.36	0.67	1.79
Test Value = 1.5			
20	1.55	0.69	0.22
23	1.55	0.69	0.22

Table 1.11

Paired-Samples t-Test Comparisons of Presence of Unhealthy Communication Patterns, Concern for Relationship, and Relationship Satisfaction Between Video Types

Variable	Unhealthy Communication Pattern Videos		Neutral Videos		<i>t</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Presence of Unhealthy Communication Patterns	1.0	0.0	0.27	0.13	17.89***
Concern for Relationship	2.58	0.38	1.01	0.03	14.15***
Relationship Satisfaction	3.28	0.52	1.62	0.64	8.46***

Note: *** $p < .001$

STUDY 1 DISCUSSION

Study 1 was designed to validate a set of developed videos of couples displaying empirically supported unhealthy communication patterns signs. Of the 24 initial videos, 15 videos were validated based on correct expression of either the unhealthy communication patterns or neutral interactions, level of concern for the future of the relationship, and level of satisfaction within the relationship. Of these 15 videos, 11 videos portray unhealthy communication patterns and four videos portray neutral conflict interactions.

Of the videos that were not validated, two videos were dropped for not accurately portraying unhealthy communication patterns or the neutral condition. Two videos were dropped for poor interrater reliability between the measures of concern, and two more videos were dropped due to levels of concern inconsistent with the hypothesis. Specifically, one video was dropped for showing lower than expected concern for the future of the relationship when portraying unhealthy communication patterns, and one video was dropped for showing higher than expected levels of concern for the future of the relationship when portraying a neutral interaction. Lastly, three videos were dropped for showing higher than expected levels of satisfaction when portraying unhealthy communication patterns.

In the final set of videos, the videos portraying unhealthy communication patterns were rated as portraying significantly more unhealthy communication patterns than the neutral videos. Additionally, the unhealthy communication pattern videos were rated significantly higher for levels of concern for the relationship and significantly lower for relationship satisfaction compared to the neutral videos. Together, these findings suggest that the final set of videos accurately portray the correct condition.

The videos that were dropped were assigned a variety of unhealthy communication patterns to express. Two videos (Video 6 and Video 17) were assigned criticism, two videos (Video 10 and Video 21) were assigned withdraw, Video 3 was assigned contempt, Video 5 was assigned defensiveness, and Video 11 was assigned negative interpretation. This suggests that the reason the videos failed to be validated was not due to the specific unhealthy communication pattern that was supposed to be expressed. Further, three videos that were dropped were from a variety of couples with one video of Couple 1 (Video 19), three videos of Couple 3 (Video 3, Video 21, and Video 19), three videos of Couple 5 (Video 5, Video 11, and Video 17), and two videos of Couple 6 (Video 6 and Video 10) being dropped.

Interestingly, Video 19 was designed to be a neutral video but failed the validation related to concern for the relationship. This video was the only video of Couple 1 to be dropped. It is possible that implicit bias related to LGBT relationships may have increased the level of concern for the relationship that was reported. Contrary to empirical findings, stereotypes of gay and lesbian relationship state that these relationships are less healthy or positive compared to heterosexual relationships (Peplau & Fingerhut, 2006). It is possible that internalized stigma of LGBT relationships contributed to the neutral video of the only same-sex couple being rated having higher levels of concern for the relationship compared to the other neutral videos.

Gender roles may influence the validation of the videos. Relational aggression by a female partner has been found to be rated as less severe compared to that by a male partner (Williams et al., 2012). Similarly, the seriousness of the incident is rated as more severe when the victim of relational violence is female compared to when the victim is male (Seelau et al., 2003). Across the eight videos which were dropped and portrayed a heterosexual, six included the female partner portraying the unhealthy communication pattern. The two remaining videos

showed the male partner portraying defensiveness and withdrawal, which while unhealthy, are not aggressive in nature. It is possible that gendered bias around the severity of unhealthy relationship dynamics may have influenced the ratings of these videos.

Further, the topic of discussion in the videos may influence the validation of the video beyond the dynamic of the unhealthy communication pattern. For example, Video 3 was validated as showing unhealthy communication patterns but not for concern for the future of the relationship. The conversation topic of this video was the couple talking about how they enjoyed spending time together and wanting to spend more time together, but that the female partner felt the male partner did not put effort into helping plan the event. It may be that this video was not validated as though unhealthy communication patterns were occurring, the couple was also communicating an intent to continue the relationship through wanting to do more events together. Future research should further examine the possibility of implicit bias related to the demographics of the couples and the validation of the video. Qualitative studies asking individuals to explain their perceptions of the couple may help to illuminate additional factors that influence the ratings of these interactions.

Limitations

Despite the promising findings of this study, there are several limitations which should be noted. First, a relatively small sample of 11 participants was used to validate these videos. Additionally, no demographic information was collected about the raters which prevented for the control of any factors such as sexual orientation, gender, personal romantic relationship status, or age which could influence the way in which they perceived the interactions. Second, six couples were portrayed across the videos, resulting in some couples being portrayed in multiple videos. In the final sample, one couple is portrayed in four videos, three couples are portrayed in three

videos each, and two couples are portrayed in one video each. As such, in future studies it is important to carefully select which videos are used together as showing participants of the same couple may potentially bias results.

None of the validated videos showed high levels of concern for the future of the relationship and only low levels of concern for violence were reported. While this allows the tool to be useful for identifying somewhat mild unhealthy communication patterns, the overall sample is limited related to variation in severity. This tool may benefit from the creation and validation of further videos which demonstrate greater concern for the relationship or future relationship dynamics.

Implications

Despite these limitations, this study provides for a promising new method that will provide a way to address a significant gap in the literature. The validation of these videos provides a useful, novel procedure to assess in-the-moment detection abilities of unhealthy communication patterns in romantic relationships that do not rely on self-report. Current methodologies for assessing unhealthy communication patterns either focus on communication patterns within a current romantic relationship, such as the Specific Affect Coding System (SPAFF; Gottman et al., 1995), self-assessments of engagement in the four-horsemen (Gottman, 1994), the Relationship Dynamics Scale (RDS; Stanley & Markman, 1997), and the Communication Skills Test (Saiz & Jenkins, 1996), or rely upon self-report of detection abilities, such as the Relationship Deciding Scale (RDS; Vennum & Fincham, 2011) or the Awareness of Danger Signs scale (AoDS; Quirk et al., 2020). The measures which focus on the current relationship do not provide information more broadly about whether the individual can perceive that they dynamics that are occurring are unhealthy or damaging to their relationship but only

that specific patterns exist. The two measures which focus on elements of self-reported detection have limitations related to potential social desirability bias. While social desirability bias can be mitigated through neutral worded questionnaires, self-administration of surveys (as compared to an interview format), and controlling for responses on social desirability measures, these approaches do not entirely eliminate the potential effects of social desirability (Krumpal, 2013; Saunders, 1991; Nederhof, 1985).

This procedure should be used in future research to assess variables which predict differences in levels of awareness to better understand which individuals may be at greatest risk for experiencing a lack of detection abilities, and thus allowing for interventions to target higher risk individuals. Additionally, this procedure may be used to assess the effectiveness of intervention programs at improving detection skills versus relying on the self-report of the participants. Further, these videos may be beneficial to use in the context of therapist training programs, helping new therapists learn to successfully differentiate unhealthy communication patterns from neutral conflict interactions.

STUDY 2 LITERATURE REVIEW

Little is known about the experiences and traits that predict variation in detection of unhealthy communication patterns. As Study 1 provided the first validation of an objective measure to assess detection of unhealthy communication patterns within romantic relationships, there is no research yet about factors which influence objective detection. Understanding which factors influence objective detection abilities may be useful in developing prevention or intervention programs which support improved detection abilities. Based on the principles of social learning theory (Bandura et al., 1961; Bandura et al., 1963; Bandura, 1977) and research in the area of errors in noticing stimuli in directed attention tasks (Jenson et al., 2011; Mack & Rock, 1998; Nelsser, 1979; Rensink et al., 1997; Simons & Chabris, 1999; Simons & Levin, 1998) it is hypothesized that experiences during childhood (such as attachment style, exposure to interparental conflict, and betrayal trauma) as well as individual traits associated with attention (such as dissociation and mindfulness) may predict variation in detection abilities.

Defining Detection

To be able to assess how childhood experiences and individual trait-like differences influence variation in detection abilities, detection must first be defined. As the investigation into observed detection is a novel area of research in the field, to our knowledge, detection abilities have not been previously operationalized within this field. Related areas of research which look at responses in situations which portray conflict or violence have focused on assessing the degree to which individuals have increase attention or increased avoidance of stimuli (ex: DePrince, 2005; Lucas-Thompson et al., 2017; McCoy et al., 2015; Shackman et al., 2007). Following these methodologies where individuals are assessed as either being over-aware or under-aware of

the stimuli, detection in this study will be defined using similar logic of over-detection or under-detection.

Specifically, in this study, detection is defined in three categories. Accurate detection refers to the ability of individuals to accurately indicate that there are unhealthy communication patterns occurring in situations where these patterns are present and, alternatively, to indicate that there are no unhealthy communication patterns in situations where these patterns are not present. Inaccurate detection occurs when individuals are not able to accurately indicate the presence of unhealthy communication patterns. This occurs in two ways. First, individuals may experience over-detection, which refers to situations in which an individual assesses that unhealthy communication patterns are present in an interaction that lacks these patterns. In other words, over-detection includes identifying unhealthy communication patterns when they are not actually present. Alternatively, under-detection refers to situations in which a person does not report seeing the presence of unhealthy communication patterns in interactions where these patterns are present. In other words, under-detection includes seeing an interaction which has unhealthy communication patterns and not identifying that these patterns are occurring.

Childhood Experiences and Variation in Detection Abilities

To understand how individuals can detect and identify the expression of unhealthy communication patterns, it is first important to understand how individuals learn to interact with others. Social learning theory posits that from a young age, individuals learn ways of interacting by experiencing the outcomes and relative success of specific behaviors, with those behaviors that solicit a preferred response being reinforced (Bandura, 1977). Through these experiences and observations, individuals begin to learn which behaviors will elicit desired results, allowing them to make predictions about the outcomes of future behaviors. Individuals engage in this type

of observational learning through both direct experience and through observation of models. In indirect learning, individuals watch the behaviors of a model, observe the outcomes of the behavior, and imitate successful behaviors. Though a combination of both direct and indirect learning occurs, learning using a model expedites learning new information, such as what behaviors are appropriate in a given context (Bandura, 1977). For example, this type of learning has been demonstrated to be linked to the transmission of aggressive behaviors in children in the well-known Bobo doll experiments. These studies found that children who observed an adult playing aggressively with a Bobo doll toy were more likely to play aggressively with the toy, and children who were rewarded for aggressive behavior were also more likely to play aggressively (Bandura et al., 1961; Bandura et al., 1963).

The concept that conflict patterns can be modeled by parents and transmitted into how their children engage in their own adult relationships is supported by social learning theory (Baptist et al., 2012; Bandura, 1977). Parents often provide children with the earliest example of the functioning of a romantic relationship. Several studies have utilized social learning theory to examine how individuals learn about romantic relationships through the observation during childhood (Rhoades et al., 2012; Whitton et al., 2008). Family of origin functioning, including parenting behaviors and interparental behaviors, have been found to be associated with later romantic relationship functioning, suggesting that the ways in which individuals learn about relationship during childhood are associated the ways in which they engage in romantic relationships (Conger et al., 2000; Cui et al., 2010; Rhoades et al., 2012; Whitton et al., 2008). Family of origin functioning and child experiences include many different types of experiences. In this study, the area of focus will be on attachment style, exposure to interparental conflict, and betrayal trauma which are described more in depth below.

Attachment

Romantic attachment styles may act as a filter that interferes with or promotes the ability to detect unhealthy communication expressions within intimate relationships. According to attachment theory, the early relational experiences between an infant and primary caregiver shape the internal working models, which guide later interactions and relationships (Bowlby, 1969; Bowlby, 1982). In early childhood, there are three predictable and observable styles of attachment: secure, anxious, and avoidant (Ainsworth et al., 1978; Harms, 2011). Infants who have a secure attachment style are observed to use their primary caregiver as a secure base and seek connection to their caregiver following a separation (Ainsworth et al., 1978; Harms, 2011). In contrast, anxious infants tended to both seek comfort from their caregiver while also demonstrating signs of anger or distress while avoidant infants tended to avoid or create distance between themselves and their caregiver (Ainsworth et al., 1978; Harms, 2011). Though the attachment system develops early in life, it remains important throughout life and prescribes the ways in which individuals seek proximity with others (Bowlby, 1988). Though Bowlby's theory described attachment styles in early childhood, adult attachment theory is an extension from this framework.

Adults form bonds with a romantic partner through a similar biosocial process between infants and their parents (Hazan & Shaver, 1987). In contrast to infant attachment, attachment classifications are based on feelings about emotional closeness as compared to stress-induced behaviors (such as the actual separation from a caregiver in the assessment of infant attachment) (Hazan & Shaver, 1987). In other words, adult attachment can be characterized by the degree of avoidance and anxiety individuals feel related to emotional intimacy (Brennan et al., 1998;

Shaver & Mikulincer, 2009). From this, three adult attachment groupings were identified: secure, avoidant and anxious (Hazan & Shaver, 1987).

Secure attachment, which is the most common attachment style, is characterized by low anxiety and avoidance, which appears as comfort with emotional intimacy, a willingness to depend on a partner, and acceptance and responsiveness to others (Bartholomew & Horowitz, 1991; Hazan & Shaver, 1987; Mickelson & Kessler, 1997; Shaver & Mikulincer, 2009). Secure attachment style has been related to many positive outcomes such as higher relationship satisfaction, trust, commitment, psychological well-being, and more constructive communication patterns such as active problem solving and willingness to compromise (Brennan & Shaver, 1995; Hadden et al., 2014; Holland & Roisman, 2010; Feeney & Noller, 1990; Karreman & Vingerhoets, 2012; Shi, 2003; Simpson, 1990).

In contrast, avoidant attachment style is characterized by discomfort with emotional intimacy, which may lead to intentional emotional distance and resistance towards dependency upon a partner (Bartholomew & Horowitz, 1991; Hazan & Shaver, 1987; Shaver & Mikulincer, 2009). Avoidant attachment features an avoidance of close relationships due to a fear of rejection, a desire for independence, and engagement in behavior which provide protection against potential disappointment from close relationships (Bartholomew & Horowitz, 1991). In contrast, the anxious attachment style is characterized by a desire for emotional connection and intimacy accompanied by fear of rejection or the unavailability of one's partner and increased attention towards negative cues within the relationships to avoid feelings of abandonment (Bartholomew & Horowitz, 1991; Campbell et al., 2005; Hazan & Shaver, 1987; Shaver & Mikulincer, 2009).

Meta-analytic research has found that both attachment avoidance and anxiety are associated with decreases in relationship satisfaction, constructive interactions (which include factors which support mutual understanding and conflict resolution), general support, positive emotions associated with the relationship (Li & Chan, 2012). Both attachment avoidance and anxiety were also found to be associated with increases in destructive interactions (which includes factors such as unhealthy communication patterns within conflict), negative emotions associated with the relations, and conflict in romantic relationships (Li & Chan, 2012). Attachment anxiety was found to be more strongly associated with increased conflict within the relationship compared to avoidance whereas avoidance was more strongly related to lowered relationship satisfaction, connection and support (Li & Chan, 2012).

As described here, individuals' attachment styles are associated with the way that they perceive romantic partners and their own needs in romantic relationships. These perceptions, in turn, help to move individuals towards or away from current or potential partners, and may operate as a filter through which the individual conceptualizes and makes decisions pertaining to their close relationships. This idea is supported as all styles of attachment have been found to be related to the ability and processes through which individuals make decisions (Deniz, 2011). As attachment style filters the ways in which interactions with romantic relationships and romantic partners relationships are (Li & Chan, 2012; Tougas et al., 2016; Young & Acitelli ,1998), it is possible that attachment style may also influence the ability of individuals to accurately perceive unhealthy communication expressions. Both attachment avoidance and anxiety have previously been found to be related to a lack of awareness of unhealthy communication patterns in romantic relationships (Quirk, 2020), which suggests that they are also related to the ability of individuals to detect unhealthy communication patterns.

As avoidant attachment is related to a discomfort with emotional intimacy and a tendency to distance from romantic partners (Bartholomew & Horowitz, 1991; Hazan & Shaver, 1987; Shaver & Mikulincer, 2009), it is likely that individuals with this style of attachment may be prone to under-detection of unhealthy communication patterns. The distance that individuals create within their relationships in an attempt to protect themselves from feeling overwhelmed may also lead to a lowered ability to focus on interactions, particularly when there is conflict, which may increase these feelings of being overwhelmed, thus leading individuals to miss that unhealthy behaviors are occurring. In contrast, as attachment anxiety is related to a fear of rejection hyperattention to negative cues in relationships (Bartholomew & Horowitz, 1991; Campbell et al., 2005; Hazan & Shaver, 1987; Shaver & Mikulincer, 2009), it is likely that this style of attachment would be related to over-detection of unhealthy communication patterns

Exposure to Interparental Conflict

As children learn about behavior in romantic relationships from observing their parents' or caregivers' relationship, it is possible that witnessing conflict between one's parents may influence the ability of an individual to detect unhealthy communication expressions within romantic relationships. Importantly, experiencing aggression and hostility during childhood is associated with reduced perceptions of conflict negativity, lower physiological responsiveness to conflict, and increased hostility in romantic relationships during adulthood (Aloia & Solomon, 2015; Conger et al., 2000; Cui et al., 2010). Additionally, witnessing interparental conflict during childhood has been found to be associated with higher levels of attachment insecurity, relational aggression and hostility, and conflict in romantic relationships in adolescence and adulthood (Cui & Fincham, 2010; Cusimano & Riggs, 2013; Kinsfogel & Grych, 2004; Simon & Furman, 2010; Stocker & Richmond, 2007). Overall, exposure to interparental conflict are associated can

children's perceptions of romantic relationships and reactions to negative expressions of emotions; thus, such experiences may also be associated the ability to detect unhealthy communication patterns within romantic relationships.

Individuals exposed to unhealthy relationship communication patterns during childhood may struggle to determine whether a communication pattern is unhealthy, even if they notice that the communication pattern is occurring. This process of transmission is described by the developmental-interactional model which asserts that through the processes described in social learning theory, observing how parents act with each other in the family of origin can inform the way that individuals engage in their own romantic relationships (Cui et al., 2010; Capaldi & Gorman-Smith, 2003). In other words, early exposure to interparental conflict may influence the way that individuals learn about communication and, therefore, what they have learned is an accepted or normal way to interact with a romantic partner. Empirical research supports this perspective documenting parental marital conflict has been associated with conflict during romantic relationships in young adulthood (Braithwaite et al., 2016; Cui & Fincham, 2010; Cui et al., 2008), suggesting that children may replicate the patterns of conflict within their parents' relationship within their own romantic relationship. Intergenerational transmission of romantic relationship functioning, including areas such as conflict and violence, is further supported in the findings of several longitudinal studies (Cui et al., 2010; Ehrensaft et al., 2003; Ehrensaft et al., 2011; Story et al., 2004).

Theoretically, it is not only the exposure to interparental conflict, but also characteristics of the conflict such as the frequency, intensity, and content of the interaction are related to how children will perceive this conflict (Grync & Fincham, 1990; Grync & Fincham, 1993). This is supported empirically studies which highlight differential outcomes for children depending upon

conflict characteristics (Cummings et al., 2003; Davies et al., 2008). Self-blame related to interparental conflict has been documented to increase attention to angry emotional interactions and both self-blame and perceived threat related to interparental conflict decreased attention to happy emotional interactions (Lucas-Thompson et al., 2017). Similarly, self-blame related to interparental conflict predicted coping by overinvolvement in the conflict whereas perceived threat predicted coping through avoidance of the conflict (Shelton & Harold, 2008). Further, both self-blame and perceived threat related to interparental conflict have been found to mediate the association between interparental conflict and child internalizing problems (Grych et al., 2000).

Exposure to interparental conflict continues to have associations with child functioning during young adulthood, particularly related to romantic relationship functioning (Cui & Fincham, 2010; Cusimano & Riggs, 2013; Kinsfogel & Grych, 2004; Simon & Furman, 2010; Stocker & Richmond, 2007). Therefore, exposure to interparental conflict may also influence the ability of individuals to detect unhealthy communication patterns within romantic relationships. As self-blame is related to coping heightened involvement in conflict (Shelton & Harold, 2008) and heightened attention to negative emotions (Lucas-Thompson et al., 2017) it is likely that self-blame would be associated with over-detection through increased focus on negative conflict. Similarly, as perceived threat related to interparental conflict is related to avoidance of positive emotions (Lucas-Thompson et al., 2017) and coping through avoidance of conflict (Shelton & Harold, 2008), it is likely that individuals may avoid negative interactions thus leading to under-detection of unhealthy communication patterns.

Betrayal Trauma

Social learning theory states that in addition to learning through modeling, individuals learn through their direct experiences (Bandura, 1977). Experiencing any form of trauma has

potentially severe outcomes for children, but betrayal trauma, or trauma where a child is dependent upon the perpetrator of abuse (such as a caregiver or trusted other), may be related to more severe outcomes (Freyd et al., 2005; Goldsmith et al., 2012). When a child experiences betrayal trauma, the child must find a way to cope with the abuse while continuing to depend on the perpetrator of abuse, as they are often reliant upon the perpetrator to meet their basic needs (Freyd, 1994). To cope with this dichotomy, children commonly experience dissociation or avoidance of the trauma (DePrince et al., 2012; Freyd, 1994). Although these responses can be related to many types of abuse, individuals who experienced childhood physical or sexual abuse and had trouble with memory related to the abuse retrospectively reported closer relationships with their perpetrator than those with no memory disturbances (DePrince et al., 2012). More simply stated, individuals who reported difficulty remembering traumatic experiences were more likely to report close relationships with their perpetrator. Similarly, clinical/pathological dissociation scores have been found to be related to abuse by family members but not from other individuals, even after accounting for age of experience and duration of the abuse (Plattner et al., 2003).

Individuals who experienced betrayal trauma during childhood are more likely to experience relational trauma later in life (Classen et al., 2005; DePrince, 2005; Gobin & Freyd, 2009). Similarly, individuals who experienced betrayal trauma have been found to be more likely to report high levels of partner disrespect, but there were no significant differences based on the experience of betrayal trauma related to relationship dedication or adjustment (Owen et al., 2012). These findings suggest that individuals who have experienced betrayal trauma may have difficulty in identifying relationship patterns which are unhealthy. The idea that betrayal trauma is linked to a lower ability to detect unhealthy patterns is supported by the findings that

individuals who have experienced betrayal trauma both before and after age 18 are more likely to have trouble detecting violations in social contract (situations related to rules of social exchange) and precautionary situations (situations related to rules of safety) (DePrince, 2005). These difficulties with detecting violations to social rules may have been adaptive in the context of betrayal trauma, as the child must still be able to depend on and interact with the caregiver with whom they are reliant for survival, and conscious recognition of the trauma would likely make this more difficult (DePrince, 2005; Freyd, 1994). The experience of betrayal trauma may function similarly for individuals tasked with detecting unhealthy communication patterns. In these situations, individuals may be less able to identify when communication patterns are unhealthy as they may have learned to accept or normalize such patterns of communication when they were exposed to betrayal trauma.

Directed Attention

In addition to variables related to how individuals learn to interact with others in intimate relationship, variables related to attention may influence the ability of individuals to detect unhealthy communication patterns. In attention tasks, even when individuals are instructed to pay attention to something specific, different factors can influence the degree to which individuals are successful in their attention. Two common forms of attention bias that occur are inattention blindness, the failure to notice something unexpected when engaged in an attention task, and change blindness, the failure to notice an obvious change during an attention task (Jensen et al., 2011; Mack & Rock, 1998; Rensink et al., 1997).

The classic example of inattention bias comes from studies in which participants were directed to watch a video, paying attention to the number of times a ball is passed in a group of people. During this video, an unexpected figure such as a woman with an umbrella or a gorilla

walk through the group, which often goes unnoticed by the participants (Neisser, 1979; Simons & Chabris, 1999). This lack of noticing what one was not directed to pay attention to is inattention blindness. One example of a procedure that has been used to illustrate change blindness is engaging a participant in a conversation with a researcher during which someone carrying a door walks between the participant and researcher, obscuring the participants view of the researcher and allowing the researcher to be replaced with another individual (Simons & Levin, 1998). Change blindness occurs when participants do not notice that the researcher was replaced indicating a lack of attention to a change.

Experiences in romantic relationships have been shown to influence attentional biases, such as individuals who experienced dating violence being more likely to allocate attention to more dysphoric stimuli or angry faces compared to more neutral stimuli/faces (Lee & Lee, 2012; Lee & Lee, 2014). Additionally, individuals who had experienced dating violence and symptoms of PTSD were more likely to pay more attention to violent images (Lee & Lee, 2012). Conversely, individuals that experienced interpersonal violence, such as sexual abuse, during childhood are at greater risk for sexual or physical victimization during adulthood (Nishith et al., 2010). One explanation that has been given for revictimization is that symptoms of trauma such as dissociation and other stress symptoms influence the ability of individuals to appraise risk (Iverson et al., 2013; Nishith et al., 2010). This research establishes that attention is susceptible to bias. As the detection procedure of watching videos and assessing whether unhealthy communication patterns occurred within an interaction is an attention task, it is therefore likely that variation in the ability to provide focused attention may influence detection abilities.

Dissociation

One way that attention may be altered is through dissociation. Dissociation refers to a lack of awareness or memory for what is occurring in the environment and may include disturbances in physical sensations (Diseth, 2005; Wieland, 2015). According to the American Psychiatric Association (APA, 2013), dissociation is “characterized by a disruption of and/or discontinuity in the normal integration of consciousness, memory, identity, emotion, perception, body representation, motor control, and behavior” (p. 291). Further, dissociative symptoms may be experienced as either intrusions into the awareness leading to continuity losses or the inability to access information or control the mental processes to access information that is typically easily accessible (APA, 2013).

Experiencing dissociation is associated with disconnectedness in relationships, fear of relationships, and preoccupation with intimate relationships (Dorahy, 2010; Dorahy et al., 2013; Dorahy et al., 2015). Dissociation was also found to predict revictimization in those who have experienced interpersonal violence (Iverson et al., 2013). Furthermore, when shown videotape segments of rape scenarios, women with high levels of trait dissociation rated the situations as less dangerous compared to women with lower levels of trait dissociation (Sandberg et al., 2001). This rating of dangerous situations as less dangerous may occur because individuals who experience dissociation when exposed to a violent situation may be more likely to be more emotionally removed from the distressing content compared to individuals who experienced less dissociation. In combination, these findings suggest that dissociation may be related to a lower ability to detect unhealthy or dangerous social situations. As such, dissociation may reduce the ability of individuals to detect unhealthy communication patterns and increase the degree to which they under detect these patterns.

Mindfulness

In contrast to dissociation, mindfulness is a form of focused attention that increases awareness of the present moment and promotes qualities such as compassion, acceptance, and non-judgement (Siegel et al., 2009). In relation to attention, mindfulness can be thought of as the opposite of dissociation, drawing focus to the present instead of away from the current situation. Mindfulness is associated with increases in emotion regulation (the ability to differentiate and identify emotions), confidence, mental health, and life satisfaction as well as decreases in anxiety and depression (Hill & Updegraff, 2012; Mesmer-Magnus et al., 2017; Wachs & Cordova, 2007). Mindfulness also has direct benefits to romantic relationship functioning, with more mindful individuals being likely to have lower levels of emotional stress responses from conflict within a romantic relationship, to have better communication quality with their partner during conflict, and to experience higher relationship satisfaction (Barnes et al., 2007; Kozlowski, 2013; Laurent et al., 2016). Furthermore, mindfulness is related to reduced defensiveness to social threats and greater empathy for others (Brown et al., 2008; Wachs & Cordova, 2007). Combined, these findings show that mindfulness helps individuals to identify emotions in themselves and others and regulate their emotions even when exposed to conflict. These skills may translate to the ability to accurately detect unhealthy communication patterns.

Hypotheses for Study 2

The present study will focus on examining predictors of the variation in the detection of unhealthy communication patterns within romantic relationships. Specifically, it is predicted that higher levels of self-reported anxious attachment tendencies (Hypothesis 1a) and self-reported avoidant attachment tendencies (Hypothesis 1b) will be associated with lower ability to accurately detect unhealthy communication patterns. Specifically, it is hypothesized that anxious

attachment tendencies will predict over-detection and that avoidant attachment tendencies will predict under-detection of unhealthy communication patterns. It is predicted that greater exposure to interparental conflict during childhood (Hypothesis 2a), greater perceived threat from interparental conflict (Hypothesis 2b), and greater self-blame for interparental conflict (Hypothesis 2c) as well as experiences of betrayal trauma during childhood (Hypothesis 3) will be associated with over-detection of unhealthy communication expressions. Additionally, it is predicted that greater levels of self-reported dissociation (Hypothesis 4) will be associated with under-detection less accurate detection and, in contrast, greater levels of trait mindfulness will be associated with more accurate detection (Hypothesis 5).

STUDY 2 METHODS

Participants

Participants were recruited from an undergraduate research pool at a large western university. A total of 139 participants provided informed consent and completed the study procedures. The participants were 92.8% female, 68.8% identified as Caucasian/White, and ranged in age from 18-27 ($M = 20.10$, $SD = 1.44$). Additionally, 51.8% of participants reported a current romantic relationship, 94.9% reported having had at least one romantic relationship, and 15.8% reported having experienced domestic violence. Participants were given the opportunity to earn 3 points of extra credit if enrolled in a Human Development and Family Studies course after completion of the study. No other incentives or payment were provided to participants. See Table 2.1 for key descriptive statistics of the sample.

Procedure

Participants were asked to complete the study remotely via an electronic Qualtrics survey link. After providing informed consent, participants were instructed to watch a series of four two-minute videos depicting couples engaging in a conversation task. Two videos (Video 8 and Video 13) portrayed couples engaging in unhealthy communication patterns and two videos (Video 4 and Video 12) portrayed neutral conflict discussions. As described in Study 1, Video 8 portrayed a mixed-race (Hispanic and Caucasian), heterosexual couple in their early-20s discussing the decision to start a family. In this video the female partner describes the male partner as being selfish for not wanting to have a child. Video 13 portrayed a mixed-race (Asian and Caucasian), same-sex male couple in their early to mid-40s discussing managing pick-up/drop-off from a child from school and balancing the family obligations with work obligations.

Video 4 portrayed a Caucasian, heterosexual couple in their mid-20s-30s discussing their selection of a wedding venue. Video 12 portrayed a Caucasian, heterosexual couple in their early to mid-40s discussing the amount they should allow their teenage daughter to drive a car.

These videos were selected based on the results from Study 1, with the neutral videos having been validated as having no concern and high relationship satisfaction. Similarly, the unhealthy videos were selected for having shown the highest levels of concern compared to the rest of the sample and low levels of satisfaction. No significant differences were found between the ratings of the two unhealthy communication pattern videos. Significant differences ($p = .001$) were found between the ratings of the two neutral videos such that the mean rating for Video 12 was lower compared to Video 4 indicating that the ratings of Video 12 were more accurate.

Prior to watching the videos, participants were informed that the videos may portray unhealthy communication patterns or neutral conflict interactions and that the individuals shown in the videos were actors. Following the videos, participants were asked to complete an online survey relating to their experiences. No identifying information was obtained from participants. IRB approval was obtained for all study procedures. See Table 2.2 for descriptive statistics of participant detection as well as for the following measures.

Measures

Detection of Unhealthy Communication Patterns

After watching each of the four videos, participants were asked to report if they saw the couple engage in unhealthy communication patterns (Y/N). As videos were previously validated for the presence of unhealthy communication patterns in Study 1, accuracy rating was based on whether the score matched with the validated response by experts in detecting unhealthy communication patterns. Specifically, correct identification for Video 8 and Video 13 was that

the interaction portrayed unhealthy communication patterns and correct identification for Video 4 and Video 12 was that the interaction did not portray unhealthy communication patterns. Responses for the two neutral videos were combined resulting in a scale of 1 = over-detection (i.e., over-detection in both videos), 0.5 = partial over-detection (i.e., accurate detection on one video, over-detection on the other video), and 0 = accurate detection (i.e., accurate detection in both videos). Similarly, responses for the two unhealthy communication pattern videos were combined resulting in a scale of 1 = accurate detection (i.e., accurate detection in both videos), 0.5 = partial under-detection (i.e., accurate detection on one video, under-detection on the other), and 0 = under-detection (i.e., under-detection in both videos). This resulted in 3 detection categories for each video type.

Next, a dichotomous scale was created by combining the partial under-/over-detection scales (0.5) with the respective over and under detection scales (0). In the new dichotomous variable for unhealthy communication pattern videos 0 = under-detection and 1 = accurate detection. In the new dichotomous variable for neutral interaction videos 0 = accurate detection and 1 = over-detection. This was done as only 5.8% ($N = 8$) of the unhealthy communication pattern videos and 12.2% ($N = 17$) of the neutral videos had complete over or under detection.

Attachment

The Experiences in Close Relationship Short-Form (ECR-S; Wei et al., 2007) is a 15-item measure developed from the Experiences in Close Relationship Scale (ECR; Brennan et al., 1998). Participants are asked to rate items (e.g. “It helps to turn to my romantic partner in times of need”) on a 7-point Likert scale from “strongly disagree” to “strongly agree”. The scale is scored on two dimensions: *Avoidance* and *Anxiety*. The scales are highly correlated with the original subscales by the same name (.95 and .94, respectively). Test-retest reliability for the

scales, across multiple studies ranged from .80 to .89 (Wei et al., 2007). For this sample, reliabilities were moderate to acceptable for both scales (*Avoidance*, Cronbach alpha = .74 and *Anxiety*, Cronbach alpha = .67).

Interparental Conflict

The Children's Perception of Interparental Conflict Scale (CPIC; Grych et al., 1992) consists of several subscales pertaining to the ways that children perceive conflict between their parents. Participants are asked to rate how true a statement is on a 3-point scale of "true", "sort of true", and "false" (e.g. "when my parents argue I worry about what will happen to me"). The measure contains three scales with good internal validity across two samples of *Conflict Properties* (19 items; Cronbach alpha = .90 and .89), *Threat* (12 items; Cronbach alpha = .83 and .83) and *Self-Blame* (9 items; Cronbach alpha = .78 and .84). Each scale includes two or three subscales creating a total of seven subscales: *Frequency*, *Intensity*, and *Resolution* (combining to create *Conflict Properties*), *Perceived Threat*, and *Coping Efficacy* (combining to create *Threat*), and *Content* and *Self-Blame* (combining to create *Self-Blame*). Each scale has been found to have adequate test-retest reliability ranging from .68 to .76 over a two-week period (Grych et al., 1992). Two additional subscales of *Triangulation* and *Stability* did not consistently map onto any of the three factors in the original scale development and were viewed as additional separate scales (Grych et al., 1992).

This factor structure has been replicated in adolescents with consistency across younger adolescent (as young as 9 years-old) and older adolescent (up to 25 years-old) samples (Moura et al., 2010; Reese-Weber & Hesson-McInnis, 2008). The CPIC scale has previously been demonstrated to be a valid measure for use in older adolescent/emerging adult (age 17-21) populations (Bickham & Fiese, 1997; Lucas-Thompson & Hostinar, 2013). For this study,

questions were phrased retrospectively (e.g. “when my parents argued I worried about what would happen to me”) and participants were asked to answer based on their experiences while growing up, as the focus of the study is on early perceptions of parent conflict versus current conflict in a college-aged sample.

The three subscales of *Conflict Properties*, *Perceived Threat*, and *Self-Blame* were used in the current study. Unfortunately, due to an error during data collection, one item (“Even if they don’t say it, I know I’m to blame when my parents argue”) from the *Self-Blame* subscale could not be used in the final scale creation. However, as the internal reliability of the scale remained consistent with what has been found in prior samples, the scale was used minus the one item. The internal reliability for the subscales in this sample ranged from good to excellent (*Conflict Properties*, Cronbach alpha = .94; *Perceived Threat*, Cronbach alpha = .86, *Self-Blame*, Cronbach alpha = .80).

Betrayal Trauma

The Brief Betrayal Trauma Scale (BBTS; Goldberg & Freyd, 2006) is a 12-item scale used to assess the experiences of trauma. Participants are asked to rate the number of times a traumatic event occurred to them on a scale of “never”, “1 or 2 times”, and “More than that” before age 18 and at age 18 or older. Items are categorized into two subscales, *Trauma with High Betrayal* and *Trauma with Low Betrayal*. The first, *Trauma with High Betrayal* focusing only on experience before the age of 18, were for this study given the focus of the hypothesis. This subscale is comprised of five items (e.g. “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)” or “you 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”).

The measure is reported to have good convergent validity and to have a 3-year test-retest reliability of 83% for childhood events and 75% for events that occurred during adulthood (Goldberg & Freyd, 2006). The internal reliability for this sample was adequate (Cronbach alpha = .72).

Dissociation

The Dissociative Experiences Scale (DES; Bernstein & Putnam, 1986) is a 28-item self-report measure of the degree to which participants experience dissociation. Participants are asked to indicate what percentage of the time they have a particular experience that people sometimes have (e.g. “some people find that sometimes they are listening to someone talk and they suddenly realize that they did not hear all or part of what was said”) on an 11-point scale from “never – 0%” to “always – 100%”. Scores are computed by summing the results with a minimum score of 0 and a maximum score of 280. A meta-analysis on the DES reported a high level of internal validity (average Cronbach’s alpha = .93), high convergent validity with other questionnaires and interviews of dissociation, and predictive validity related to PTSD and other psychological disorders (van IJzendoorn & Schungel, 1996). The internal reliability for this sample was excellent (Cronbach alpha = .97).

Mindfulness

The Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003) is a 15-item measure of trait mindful attention. Participants are asked to rate how frequently an experience occurs to them on a 6-point Likert scale ranging from “almost always” to “almost never” (e.g. “I tend to walk quickly to get where I’m going without paying attention to what I experience along the way”). Good internal reliability was found across multiple studies (Cronbach alpha = .81 and .89) (Brown & Ryan, 2003; MacKillop & Anderson, 2007). No significant gender differences

were found between men and women (MacKillop & Anderson, 2007). The internal reliability for this sample was good (Cronbach alpha = .87).

Data Analysis

To analyze the hypotheses, binary logistic regressions were used to predict the ability to detect unhealthy communication patterns in either the unhealthy communication pattern videos or the neutral videos. In each model, experience of domestic violence (Y/N), whether the participant had ever been in a romantic relationship (Y/N), and whether the participant was in a current romantic relationship (Y/N) were included in the first test. As the sample was rather homogeneous related to age and gender, these were not included as controls in any of the models. The test variables of attachment (avoidance and anxiety), experience of interparental conflict (exposure, threat, and self-blame), experience of betrayal trauma, trait dissociation, and trait mindfulness were then entered independently in the second step of each respective model.

Originally, multinomial logistic regressions were planned as this would allow for the use of the three categories described in the measures section. However, multiple models reported either unexpected singularities in the Hessian matrix or quasi-complete separation in the data. This occurs when complete or almost complete separation occurs which allows for complete distinction between the outcome groups. Using cross-tabulations, it was determined that the low numbers of participants in the under and over detection groups contributed to this problem. When performing the binary logistic regressions, these errors did not occur confirming this issue. *Post hoc* power analyses using the GPower software (Faul et al., 2007), revealed that with the given sample size and data analytic plan, there was adequate power (actual power > .80) to detect medium (power = 1.0) and large (power = 1.0) effect sizes but not to detect small effect sizes (power = .66).

Descriptive Statistic Tables for Study 2

Table 2.1

Key Participant Demographics for Study 2

Demographic	<i>M</i>	<i>SD</i>	%
Age	20.10	1.44	
Gender			
Female			92.8
Male			5.0
Non-Binary or Gender Queer			0.7
Other Gender Identity			0.7
Prefer Not to Respond			0.7
Race/Ethnicity			
Caucasian/White			69.8
Latinx/Hispanic			12.2
Mixed Race/Ethnicity			3.6
African American/Black			5.8
Asian/Pacific Islander			5.8
Middle Eastern			0.7
Did Not Respond			2.2
Ever Experienced a Romantic Relationship			92.8
Ever Experienced Domestic Violence			15.8
Currently in a Romantic Relationship			51.8

Note: *N* = 139

Table 2.2

Descriptive Statistics for Key Variables in Study 2

Variable	N	%	<i>M</i>	<i>SD</i>	Range	α
Detection in Unhealthy Communication Pattern Videos	139		0.80	0.30	0-1.0	.20
Correct Detection (score = 1)	90	64.7				
Partial Under Detection (score = 0.5)	41	29.5				
Under Detection (score = 0)	8	5.8				
Detection in Neutral Videos	138		0.27	0.35	0-1.0	.44
Correct Detection (score = 0)	81	58.7				
Partial Over Detection (score = 0.5)	40	29.0				
Over Detection (score = 1)	17	12.3				
Attachment Anxiety (<i>ECR-Anxiety</i>)	131		4.17	1.03	1.5-6.67	.67
Attachment Avoidance (<i>ECR-Avoidance</i>)	133		3.04	1.05	1-5.50	.74
Exposure to Interparental Conflict (<i>CPIC-Conflict Properties</i>)	130		1.97	0.48	1.11-2.89	.94
Threat of Interparental Conflict (<i>CPIC-Perceived Threat</i>)	135		1.79	0.46	1.0-2.83	.86
Self-Blame for Interparental Conflict (<i>CPIC-Self-Blame</i>)	132		1.35	0.38	1.0-2.5	.80
Betrayal Trauma (<i>BBTS</i>)	126		2.02	2.91	0-13.0	.72
Dissociation (<i>DES</i>)	135		54.15	44.66	2.0-240.0	.97
Mindfulness (<i>MAAS</i>)	134		3.77	0.78	2.20-6.00	.87

STUDY 2 RESULTS

Based on the original data analytic plan, a series of multinomial logistic regressions were computed with each model controlling for experience in a romantic relationship, experience of domestic violence, and whether the participant was currently in a romantic relationship. Model 1 included attachment avoidance and anxiety as predictors in the second step. Model 2 included exposure to interparental conflict, threat of interparental conflict interparental conflict, and self-blame related to interparental conflict. Model 3 included experience of betrayal trauma. Model 4 included trait dissociation, and Model 5 included trait mindfulness. Each model was performed with the presence of unhealthy communication patterns in a) unhealthy communication pattern videos and b) neutral videos. No models were significant at the $p < .05$ level. See Tables 2.3-2.12 for results.

As explained in the data analytic section, the multinomial models experienced unexpected singularities in the Hessian matrix or quasi-complete separation in the data leading to a series of binary logistic regressions being performed and reported as the main results in this study. Results of the multinomial models are still reported as control variables in the binary logistic models were selected based on these results. Models were first performed with the same three control variables as the multinomial regressions, but no model was significant. As the control variable of exposure to domestic violence was not significant in any model it was removed. The control variables of current relationship status and experience in a romantic relationship (Y/N) were removed from the models following patterns of non-significance in the multinomial models (no significance was found for either in any binomial model).

Hypothesis 1 was not supported, as the model examining the prediction of attachment anxiety and avoidance on detection ability in videos portraying unhealthy communication patterns while controlling for experience in a romantic relationship was not significant, $\chi^2(3) = 1.68, p = .64$. Similarly, the model examining the prediction of attachment avoidance and anxiety on detection ability (controlling for current romantic relationship status) was not significant, $\chi^2(3) = 5.78, p = .12$. See Table 2.13 and 2.14 for regression coefficients.

Hypothesis 2 was partially supported (Hypothesis 2a and 2b were not supported while Hypothesis 2c was fully supported), as the model examining the prediction of exposure to interparental conflict, perceived threat from interparental conflict, and self-blame for interparental conflict on detection ability in videos portraying unhealthy communication patterns (while controlling for experience in a romantic relationship) was not significant, though it trended towards significance, $\chi^2(4) = 8.53, p = .07$. Self-blame for interparental conflict was the only significant predictor of ability to detect unhealthy communication patterns at the $p < .05$ level, such that those who reported higher levels of self-blame were at an increased likelihood to experience under detection ($OR = 0.24$). See Table 2.15 for regression coefficients. The model examining the prediction of exposure to interparental conflict, perceived threat from interparental conflict, and self-blame for interparental conflict on detection ability in the neutral videos (controlling for current romantic relationship status) was significant, $\chi^2(4) = 11.00, p = .03$. Self-blame for interparental conflict was a significant predictor at the $p < .05$ level, such that those who reported higher levels of self-blame were at an increased likelihood to experience over detection ($OR = 3.75$). See Table 2.16 for regression coefficients.

Hypothesis 3 was not supported, as the model examining the prediction detection ability by betrayal trauma in videos portraying unhealthy communication patterns (while controlling for

experience in a romantic relationship) was not significant, $\chi^2(2) = 1.50, p = .47$. Similarly, the model examining the prediction of detection ability by betrayal trauma in videos portraying neutral conflict interactions (while controlling for current romantic relationship status) was not significant, $\chi^2(2) = 0.07, p = .97$. See Tables 2.17 and 2.18 for regression coefficients.

Hypothesis 4 was supported, as the model examining the prediction of dissociation in videos portraying unhealthy communication patterns (while controlling for experience in a romantic relationship) to predict detection ability was significant, $\chi^2(2) = 6.91, p = .03$. Trait dissociation was a significant predictor of ability to detect unhealthy communication patterns at the $p < .05$ level, meaning that those who reported dissociative traits tended to under-detect unhealthy patterns. Conversely, having been in a romantic relationship also predicted more accurate detection of unhealthy communication patterns ($OR = 0.99$). See Table 2.19 for regression coefficients. The model predicting detection abilities in the neutral videos was not significant based on dissociation (while controlling for current romantic relationship status), $\chi^2(2) = 3.54, p = .17$. See Table 2.20 for regression coefficients.

Hypothesis 5 was not supported, as the model examining the role of mindfulness in videos portraying unhealthy communication patterns (while controlling for experience in a romantic relationship) to predict detection ability was not significant, $\chi^2(2) = 4.65, p = .09$. Similarly, the model predicting detection ability in the neutral videos by mindfulness (controlling for current romantic relationship status) was not significant, $\chi^2(2) = 2.43, p = .30$. See Tables 2.21 and 2.22 for regression coefficients.

Data Analytic Tables for Study 2

Table 2.3

Multinomial Logistic Regression Coefficients for Attachment Style on Detection Abilities in Videos Portraying Unhealthy Communication Patterns

Predictor Variable	Detection of Unhealthy Communication Patterns			
	<i>B</i>	<i>SE B</i>	<i>Wald</i>	<i>Exp(B)</i>
Compared to Under Detection (=0)				
Intercept	-0.60	2.20	0.07	
Ever Experienced a Romantic Relationship (=0)	22.00	0.00		
Ever Experienced Domestic Violence (=0)	-0.90	1.29	0.49	0.41
Currently in a Romantic Relationship (=0)	-19.56	1.30	227.48	3.21***
Avoidance	0.12	0.52	0.05	1.22
Anxiety	-0.45	0.55	0.67	0.64
Compared to Partial Under Detection (=0.5)				
Intercept	-1.00	1.13	0.78	
Ever Experienced a Romantic Relationship (=0)	0.43	0.97	0.19	1.54
Ever Experienced Domestic Violence (=0)	0.01	0.55	0.00	1.01
Currently in a Romantic Relationship (=0)	-0.05	0.42	0.01	0.95
Avoidance	-0.03	0.20	0.02	0.98
Anxiety	0.07	0.19	0.15	1.08

Note. Nagelkerke $R^2 = .102$

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

Table 2.4

Multinomial Logistic Regression Coefficients for Attachment Style on Detection Abilities in Videos Portraying Neutral Conflict Interactions

Predictor Variable	Detection of Unhealthy Communication Patterns			
	<i>B</i>	<i>SE B</i>	<i>Wald</i>	<i>Exp(B)</i>
Compared to Under Detection (=0)				
Intercept	1.94	1.67	1.35	
Ever Experienced a Romantic Relationship (=0)	-0.38	0.98	0.15	0.68
Ever Experienced Domestic Violence (=0)	0.61	0.78	0.62	1.84
Currently in a Romantic Relationship (=0)	-1.00	0.69	2.11	0.37
Avoidance	-0.36	0.32	1.27	0.70
Anxiety	0.23	0.30	0.58	1.26
Compared to Partial Under Detection (=0.5)				
Intercept	-0.42	1.89	0.05	
Ever Experienced a Romantic Relationship (=0)	-1.08	1.33	0.65	0.34
Ever Experienced Domestic Violence (=0)	0.70	0.85	0.69	2.02
Currently in a Romantic Relationship (=0)	-1.64	0.74	4.72	0.20*
Avoidance	-0.36	0.32	1.27	0.70
Anxiety	0.23	0.30	0.58	0.45

Note. Nagelkerke $R^2 = .118$

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

Table 2.5

*Multinomial Logistic Regression Coefficients for Exposure to Interparental Conflict on**Detection Abilities in Videos Portraying Unhealthy Communication Patterns*

Predictor Variable	Detection of Unhealthy Communication Patterns			
	<i>B</i>	<i>SE B</i>	<i>Wald</i>	<i>Exp(B)</i>
Compared to Under Detection (=0)				
Intercept	-23.71***	3.41	48.28	
Ever Experienced a Romantic Relationship (=0)	19.63	4666.81	0.00	334404210.2
Ever Experienced Domestic Violence (=0)	17.18	0.00		28834418.63
Currently in a Romantic Relationship (=0)	-17.31	4666.81	0.00	3.05
Exposure	0.82	2.01	0.16	2.26
Threat	-0.92	2.19	0.18	0.40
Self-Blame	2.55	1.77	2.08	12.86
Compared to Partial Under Detection (=0.5)				
Intercept	-2.05	1.13	3.28	
Ever Experienced a Romantic Relationship (=0)	0.26	0.99	0.07	1.29
Ever Experienced Domestic Violence (=0)	-0.27	0.55	0.25	0.76
Currently in a Romantic Relationship (=0)	0.04	0.42	0.01	1.05
Exposure	0.22	0.65	0.11	1.24
Threat	-0.32	0.68	0.21	0.73
Self-Blame	1.25	0.59	4.55	3.49

Note. Nagelkerke $R^2 = .170$

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

Table 2.6

Multinomial Logistic Regression Coefficients for Exposure to Interparental Conflict on Detection Abilities in Videos Portraying Neutral Conflict Interactions

Predictor Variable	Detection of Unhealthy Communication Patterns			
	<i>B</i>	<i>SE B</i>	<i>Wald</i>	<i>Exp(B)</i>
Compared to Under Detection (=0)				
Intercept	5.32**	1.84	8.33	
Ever Experienced a Romantic Relationship (=0)	-0.19	1.04	0.03	0.83
Ever Experienced Domestic Violence (=0)	0.92	0.84	1.20	2.50
Currently in a Romantic Relationship (=0)	1.77	0.77	5.40	0.17
Exposure	-0.33	1.09	0.09	0.72
Threat	0.09	1.20	0.01	1.09
Self-Blame	-2.05	0.89	5.27	0.13*
Compared to Partial Under Detection (=0.5)				
Intercept	2.52	1.97	1.64	
Ever Experienced a Romantic Relationship (=0)	-0.86	1.34	0.42	0.42
Ever Experienced Domestic Violence (=0)	0.66	0.87	0.58	1.94
Currently in a Romantic Relationship (=0)	-1.92	0.79	5.90	0.15
Exposure	0.03	1.18	0.00	1.03
Threat	0.30	1.17	0.06	1.34
Self-Blame	-1.05	0.92	1.31	0.35

Note. Nagelkerke $R^2 = .182$

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

Table 2.7

Multinomial Logistic Regression Coefficients for Betrayal Trauma on Detection Abilities in Videos Portraying Unhealthy Communication Patterns

Predictor Variable	Detection of Unhealthy Communication Patterns			
	<i>B</i>	<i>SE B</i>	<i>Wald</i>	<i>Exp(B)</i>
Compared to Under Detection (=0)				
Intercept	-2.30	1.36	2.87	
Ever Experienced a Romantic Relationship (=0)	2.66	1.58	2.84	14.25
Ever Experienced Domestic Violence (=0)	-0.95	1.40	0.46	0.39
Currently in a Romantic Relationship (=0)	-0.42	1.26	0.11	0.66
Betrayal Trauma	-0.03	0.19	0.03	0.97
Compared to Partial Under Detection (=0.5)				
Intercept	-0.10	0.59	0.03	
Ever Experienced a Romantic Relationship (=0)	-0.16	1.21	0.02	0.85
Ever Experienced Domestic Violence (=0)	-0.59	0.58	1.04	0.55
Currently in a Romantic Relationship (=0)	0.07	0.42	0.03	1.07
Betrayal Trauma	-0.14	0.09	2.38	0.87

Note. Nagelkerke $R^2 = .061$

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

Table 2.8

Multinomial Logistic Regression Coefficients for Betrayal Trauma on Detection Abilities in Videos Portraying Neutral Conflict Interactions

Predictor Variable	Detection of Unhealthy Communication Patterns			
	<i>B</i>	<i>SE B</i>	<i>Wald</i>	<i>Exp(B)</i>
Compared to Under Detection (=0)				
Intercept	1.95*	0.89	4.80	
Ever Experienced a Romantic Relationship (=0)	18.84	1.18	257.02	152417642.4 ***
Ever Experienced Domestic Violence (=0)	0.77	0.81	0.90	2.16
Currently in a Romantic Relationship (=0)	-1.52	0.71	4.56	0.22*
Betrayal Trauma	0.02	0.10	0.04	1.02
Compared to Partial Under Detection (=0.5)				
Intercept	1.57	0.95	2.74	
Ever Experienced a Romantic Relationship (=0)	18.53	0.00		111739068.3
Ever Experienced Domestic Violence (=0)	0.44	0.88	0.25	1.56
Currently in a Romantic Relationship (=0)	-1.91	0.77	6.19	0.15
Betrayal Trauma	0.03	0.12	0.06	1.03

Note. Nagelkerke $R^2 = .092$

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

Table 2.9

Multinomial Logistic Regression Coefficients for Dissociation on Detection Abilities in Videos Portraying Unhealthy Communication Patterns

Predictor Variable	Detection of Unhealthy Communication Patterns			
	<i>B</i>	<i>SE B</i>	<i>Wald</i>	<i>Exp(B)</i>
Compared to Under Detection (=0)				
Intercept	-3.54**	1.32	7.18	
Ever Experienced a Romantic Relationship (=0)	3.00	1.44	4.35	19.99*
Ever Experienced Domestic Violence (=0)	-0.19	1.22	0.02	0.83
Currently in a Romantic Relationship (=0)	-0.87	1.19	0.54	0.42
Dissociation	0.02	0.01	3.84	1.02*
Compared to Partial Under Detection (=0.5)				
Intercept	-1.16*	0.59	3.85	
Ever Experienced a Romantic Relationship (=0)	0.33	0.98	0.11	1.39
Ever Experienced Domestic Violence (=0)	-0.02	0.54	0.00	0.98
Currently in a Romantic Relationship (=0)	-0.08	0.41	0.04	0.93
Dissociation	0.01	0.01	3.26	1.01

Note. Nagelkerke $R^2 = .109$

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

Table 2.10

Multinomial Logistic Regression Coefficients for Dissociation on Detection Abilities in Videos Portraying Neutral Conflict Interactions

Predictor Variable	Detection of Unhealthy Communication Patterns			
	<i>B</i>	<i>SE B</i>	<i>Wald</i>	<i>Exp(B)</i>
Compared to Under Detection (=0)				
Intercept	2.58	0.92	7.79**	
Ever Experienced a Romantic Relationship (=0)	-0.25	0.99	0.07	0.78
Ever Experienced Domestic Violence (=0)	0.34	0.78	0.19	1.40
Currently in a Romantic Relationship (=0)	-1.25	0.65	3.70	0.29
Dissociation	-0.01	0.01	2.41	0.99
Compared to Partial Under Detection (=0.5)				
Intercept	1.83	0.97	3.55	
Ever Experienced a Romantic Relationship (=0)	-0.83	1.32	0.39	0.44
Ever Experienced Domestic Violence (=0)	0.23	0.82	0.08	1.25
Currently in a Romantic Relationship (=0)	-1.64	0.69	5.57	0.20
Dissociation	-0.003	0.01	0.27	1.00

Note. Nagelkerke $R^2 = .103$

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

Table 2.11

Multinomial Logistic Regression Coefficients for Mindfulness on Detection Abilities in Videos Portraying Unhealthy Communication Patterns

Predictor Variable	Detection of Unhealthy Communication Patterns			
	<i>B</i>	<i>SE B</i>	<i>Wald</i>	<i>Exp(B)</i>
Compared to Under Detection (=0)				
Intercept	1.53	2.96	0.27	
Ever Experienced a Romantic Relationship (=0)	3.92	1.54	6.48	50.26*
Ever Experienced Domestic Violence (=0)	-0.72	1.28	0.31	0.49
Currently in a Romantic Relationship (=0)	-0.71	1.30	0.30	0.49
Mindfulness	-1.13	0.81	1.95	0.32
Compared to Partial Under Detection (=0.5)				
Intercept	0.57	1.10	0.26	
Ever Experienced a Romantic Relationship (=0)	0.62	0.98	0.40	1.86
Ever Experienced Domestic Violence (=0)	-0.21	0.53	0.16	0.81
Currently in a Romantic Relationship (=0)	0.02	0.42	0.00	1.02
Mindfulness	-0.33	0.27	1.52	0.72

Note. Nagelkerke $R^2 = .100$

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

Table 2.12

Multinomial Logistic Regression Coefficients for Mindfulness on Detection Abilities in Videos Portraying Neutral Conflict Interactions

Predictor Variable	Detection of Unhealthy Communication Patterns			
	<i>B</i>	<i>SE B</i>	<i>Wald</i>	<i>Exp(B)</i>
Compared to Under Detection (=0)				
Intercept	0.85	1.58	0.29	
Ever Experienced a Romantic Relationship (=0)	-.63	0.97	0.43	0.53
Ever Experienced Domestic Violence (=0)	0.65	0.78	0.71	1.92
Currently in a Romantic Relationship (=0)	-1.54	0.72	4.64	0.21*
Mindfulness	0.34	0.38	0.81	1.40
Compared to Partial Under Detection (=0.5)				
Intercept	1.52	1.73	0.77	
Ever Experienced a Romantic Relationship (=0)	-0.96	1.31	0.54	0.38
Ever Experienced Domestic Violence (=0)	0.40	0.83	0.23	1.49
Currently in a Romantic Relationship (=0)	-1.84	0.76	5.80	0.16*
Mindfulness	0.05	0.42	0.01	1.05

Note. Nagelkerke $R^2 = .105$

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

Table 2.13

Binary Logistic Regression Coefficients for Attachment Style on Detection Abilities in Videos Portraying Unhealthy Communication Patterns

Predictor Variable	Detection of Unhealthy Communication Patterns			
	<i>B</i>	<i>SE B</i>	<i>Wald</i>	<i>Exp(B)</i>
Constant	-0.37	1.22	0.09	0.69
Ever Experienced a Romantic Relationship	1.04	0.81	1.66	2.83
Avoidance	0.05	0.18	0.07	1.05
Anxiety	-0.03	0.18	0.02	0.98

Note. Nagelkerke $R^2 = .018$

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

Table 2.14

Binary Logistic Regression Coefficients for Attachment Style on Detection Abilities in Videos Portraying Neutral Conflict Interactions

Predictor Variable	Detection of Unhealthy Communication Patterns			
	<i>B</i>	<i>SE B</i>	<i>Wald</i>	<i>Exp(B)</i>
Constant	-1.89	1.01	3.47	0.15
Currently in a Romantic Relationship	0.24	0.39	0.40	1.28
Avoidance	0.44	0.19	5.40	1.55*
Anxiety	0.01	0.18	0.00	1.01

Note. Nagelkerke $R^2 = .059$

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

Table 2.15

Binary Logistic Regression Coefficients for Exposure to Interparental Conflict on Detection Abilities in Videos Portraying Unhealthy Communication Patterns

Predictor Variable	Detection of Unhealthy Communication Patterns			
	<i>B</i>	<i>SE B</i>	<i>Wald</i>	<i>Exp(B)</i>
Constant	1.48	1.25	1.42	4.41
Ever Experienced a Romantic Relationship	0.83	0.81	1.05	2.30
Exposure	-0.17	0.63	0.08	0.84
Threat	0.35	0.67	0.28	1.42
Self-Blame	-1.41	0.56	6.28	0.24*

Note. Nagelkerke $R^2 = .091$

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

Table 2.16

Binary Logistic Regression Coefficients for Exposure to Interparental Conflict on Detection Abilities in Videos Portraying Neutral Conflict Interactions

Predictor Variable	Detection of Unhealthy Communication Patterns			
	<i>B</i>	<i>SE B</i>	<i>Wald</i>	<i>Exp(B)</i>
Constant	-3.05	1.01	9.14	0.05**
Currently in a Romantic Relationship	-0.24	0.39	0.38	0.79
Exposure	0.33	0.65	0.25	1.39
Threat	0.21	0.67	0.10	1.23
Self-Blame	1.32	0.56	5.66	3.75*

Note. Nagelkerke $R^2 = .004$

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

Table 2.17

Binary Logistic Regression Coefficients for Betrayal Trauma on Detection Abilities in Videos Portraying Unhealthy Communication Patterns

Predictor Variable	Detection of Unhealthy Communication Patterns			
	<i>B</i>	<i>SE B</i>	<i>Wald</i>	<i>Exp(B)</i>
Constant	0.20	0.94	0.04	1.22
Ever Experienced a Romantic Relationship	0.40	0.94	0.18	1.50
Betrayal Trauma	0.08	0.07	1.25	1.09

Note. Nagelkerke $R^2 = .017$

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

Table 2.18

Binary Logistic Regression Coefficients for Betrayal Trauma on Detection Abilities in Videos Portraying Neutral Conflict Interactions

Predictor Variable	Detection of Unhealthy Communication Patterns			
	<i>B</i>	<i>SE B</i>	<i>Wald</i>	<i>Exp(B)</i>
Constant	-0.53	0.31	2.91	0.59
Currently in a Romantic Relationship	0.06	0.37	0.02	1.06
Betrayal Trauma	0.02	0.06	0.06	1.02

Note. Nagelkerke $R^2 = .001$

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

Table 2.19

*Binary Logistic Regression Coefficients for Dissociation on Detection Abilities in Videos
Portraying Unhealthy Communication Patterns*

Predictor Variable	Detection of Unhealthy Communication Patterns			
	<i>B</i>	<i>SE B</i>	<i>Wald</i>	<i>Exp(B)</i>
Constant	0.39	0.84	0.22	1.48
Ever Experienced a Romantic Relationship	0.81	0.82	0.99	2.25
Dissociation	-0.01	0.00	5.13	0.99*

Note. Nagelkerke $R^2 = .070$

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

Table 2.20

Binary Logistic Regression Coefficients for Dissociation on Detection Abilities in Videos

Portraying Neutral Conflict Interactions

Predictor Variable	Detection of Unhealthy Communication Patterns			
	<i>B</i>	<i>SE B</i>	<i>Wald</i>	<i>Exp(B)</i>
Constant	-0.73	0.35	4.27	0.48*
Currently in a Romantic Relationship	0.00	0.36	0.00	1.00
Dissociation	0.01	0.00	3.41	1.01

Note. Nagelkerke $R^2 = .036$

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

Table 2.21

Binary Logistic Regression Coefficients for Mindfulness on Detection Abilities in Videos

Portraying Unhealthy Communication Patterns

Predictor Variable	Detection of Unhealthy Communication Patterns			
	<i>B</i>	<i>SE B</i>	<i>Wald</i>	<i>Exp(B)</i>
Constant	-2.01	1.31	2.35	0.14
Ever Experienced a Romantic Relationship	1.21	0.81	2.25	3.36
Mindfulness	0.42	0.26	2.68	1.53

Note. Nagelkerke $R^2 = .049$

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

Table 2.22

Binary Logistic Regression Coefficients for Mindfulness on Detection Abilities in Videos

Portraying Neutral Conflict Interactions

Predictor Variable	Detection of Unhealthy Communication Patterns			
	<i>B</i>	<i>SE B</i>	<i>Wald</i>	<i>Exp(B)</i>
Constant	0.98	0.91	1.15	2.66
Currently in a Romantic Relationship	-0.12	0.37	0.11	0.88
Mindfulness	-0.35	0.24	2.10	0.71

Note. Nagelkerke $R^2 = .025$

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

STUDY 2 DISCUSSION

Results from this study indicate that there are individual differences in the ability to detect unhealthy communication patterns within romantic relationships. Self-blame related to interparental conflict and trait dissociation were found to predict variation in the ability to detect unhealthy communication patterns in romantic relationships. Specifically, both self-blame of interparental conflict and trait dissociation were related to greater levels of under detection of unhealthy communication patterns. Self-blame related to interparental conflict also predicted greater levels of over detection of unhealthy communication patterns at the trend level. The other predictors of attachment avoidance, attachment anxiety, betrayal trauma, and mindfulness were not significant predictors of detection abilities.

Early Childhood Experiences

Attachment

Contrary to the hypothesis, neither attachment anxiety nor attachment avoidance were significant predictors of either under- or over-detection. As attachment anxiety is related to a feeling of discomfort with emotional intimacy and a distancing from romantic partners (Bartholomew & Horowitz, 1991; Hazan & Shaver, 1987; Shaver & Mikulincer, 2009) it was predicted that avoidance would be related to under-detection of unhealthy communication patterns. Conversely, attachment anxiety was predicted to be associated with over-detection of unhealthy communication patterns due to the tendency to pay hyperattention to negative cues within their relationships (Bartholomew & Horowitz, 1991; Campbell et al., 2005; Hazan & Shaver, 1987; Shaver & Mikulincer, 2009).

However, the dynamics of adult attachment avoidance and anxiety specifically refer to the ways that individuals' function within their own relationships, not the ways in which they perceive others' relationships. It is possible that attachment did not predict variation in detection abilities because individuals were viewing the dynamics of relationships other than their own thus not activating their internal working models of attachment.

One way that this could be further explored is using attachment priming. Priming is a technique that uses directions or stimuli to target and activate specific mental representations, such as attachment, and examine the behavioral consequences of the priming (Maier et al., 2004). Through priming, researchers can evaluate the role that unconscious systems, such as the internal working model of attachment, influence behaviors (Maier et al., 2004). Attachment priming can involve a variety of methods such as exposing individuals to words or pictures related to attachment security or by asking individuals to recall or imaging instances where they were loved or supported by an attachment figure (Gillath et al., 2008). Both secure and insecure attachment priming has previously been found to influence the cognitive responses and attention to positive or negative stimuli (Bartz & Lyndon, 2004; Norman et al., 2015). Priming the attachment system prior to engaging in the video procedure may activate the attachment system and in turn allow for a better ability to detect the way that individuals may detect unhealthy communication patterns within their own romantic relationships. This area should be further investigated in future research.

Betrayal Trauma

Betrayal trauma was also not a significant predictor of detection abilities. This may be, in part, due to the relatively low endorsement of betrayal trauma in the given sample. To assess this limitation, this study should be replicated with a sample with higher endorsement of the

experience of betrayal trauma. This explanation seems particularly plausible given that betrayal trauma has previously been associated with difficulties in detection tasks related to violations in social contract (situations related to rules of social exchange) and precautionary situations (situations related to rules of safety) (DePrince, 2005).

Beyond methodological limitations, it is possible that betrayal trauma was not a significant predictor as the videos only portrayed unhealthy communication patterns vs more severe unhealthy relational dynamics such as physical violence. Though the measure of betrayal trauma asks about the experience of emotional and physiological abuse, most items focus on sexual or physical abuse or witnessing bodily harm of someone with whom they were close (Goldberg & Freyd, 2006). It is possible that betrayal trauma may trigger lack of detection of more severe unhealthy patterns within relationships but that the trauma was less associated with detection of more mild forms of unhealthy interactions.

Exposure to Interparental Conflict

Self-blame related to interparental conflict was found to be a significant predictor of both under- and over-detection of unhealthy communication patterns within romantic relationships however neither exposure to the conflict or perceived threat were significant predictors. Self-blame related to interparental conflict has previously been found to be related to heightened attention to negative emotions, such as anger, and avoidance of positive emotions in emotional interactions and coping through overinvolvement in conflict (Lucas-Thompson et al., 2017; Shelton & Harold, 2008). This heightened attention to negative emotions and conflict is in line with the finding that self-blame predicted greater over-detection of unhealthy communication patterns as individuals may be hyper-focused on any subtle indicators of conflict.

Alternatively, the desensitization framework asserts that exposure to interparental conflict during childhood influences the development of stress responsiveness in such a way that stress responses to conflict are mitigated (Aloia & Solomon, 2014). This framework is rooted in work which has found that experiencing conflict or violence can desensitize individuals to conflict such that they report the violence becomes normal (Aloia, 2013; Dunlap et al., 2009; Guterma & Cameron, 1997). This framework may explain the association between self-blame for interparental conflict and under-detection of romantic relationships. In this study, under-detection was defined as reporting that a conflict interaction portraying unhealthy communication patterns did not include any such patterns. It may be that individuals who reported high levels of conflict perceived the unhealthy communication pattern videos to be normal and more consistent with their childhood experiences and thus did not report the interaction as unhealthy. This is consistent with research that has found that perceptions of conflict within a romantic contributes to the overall outcomes of relationship satisfaction (Segrin et al., 2009).

Directed Attention

Dissociation

Trait dissociation also predicted under detection of unhealthy communication patterns but did not predict over detection within the neutral videos. Dissociation is a symptom of many trauma related disorders (APA, 2013), and therefore may be triggered when individuals view potentially upsetting or threatening situations, such as watching a couple engage in unhealthy communication patterns, making it difficult for individuals to accurately view the situation, leading to under detection. The functioning of dissociation as a symptom of the experience of trauma is consistent with the previous literature, which found that women with high levels of

trait dissociation were more likely to rate situations of rape scenarios as less dangerous compared to women with low levels of trait dissociation (Sandberg et al., 2001). In both situations, it is possible that the exposure to an adverse stimulus triggered dissociative symptoms, making it more likely for the individual to miss the unhealthy or unsafe patterns.

As dissociation may lead individuals to miss unhealthy communication patterns within their relationships, supporting positive coping skills, particularly for individuals who have experienced past trauma, may be a particularly important area of intervention. By reducing the experience of dissociation, the ability to detect unhealthy communication patterns may also be increased. Experiencing dissociation has not only been found to predict errors in detection and ratings of unsafe situation but also has been identified as a predictor of revictimization for individuals who have experienced prior interpersonal violence (Iverson et al., 2013). Thus, interventions targeting healthy coping skills and the reduction of dissociation symptoms may be able to help individuals improve their abilities to detect unhealthy patterns in romantic relationships and avoid outcomes such as revictimization. Though this hypothesis cannot be concluded based on the results of the current study, future research should investigate this line of inquiry.

Mindfulness

Mindfulness was not significantly predictive of detection abilities in either the videos portraying unhealthy communication patterns or the neutral videos. It is possible that, though mindfulness includes an ability to notice feelings in the present moment, watching video interactions of couples did not trigger the same reactions within a person as they might experience in their personal relationships. The ability to notice the present moment may be more important when detecting unhealthy communication patterns within one's own relationship

compared to broadly detecting unhealthy communication studies. Though this cannot be evaluated given the methodology of the current studies, this provides a potential area for future research to examine.

Additionally, only mindful attention was assessed in the given study. Mindfulness also includes topics beyond attention to the present moment such as non-judgment and acceptance (Brantley, 2005; Siegel et al., 2009) which may differentially predict detection abilities compared to simply mindful attention. It may be that accuracy in detection would be supported not through only the ability to stay grounded in the present moment while watching the videos, but also to be able to accept the reactions that they have to the interactions with acceptance and non-judgment. This is supported as mindfulness has been found to reduce defensiveness and improve empathy (Brown et al., 2008; Wachs & Cordova, 2007) but these factors of mindfulness may be better assessed with a measure that tests more than only mindful attention. This should be further investigated in future research.

Limitations

The findings related to variation in ability to detect unhealthy communication patterns must be understood within the context of the limitations of the current study. First, the sample is highly homogeneous being primarily female, in early adulthood, and Caucasian. This limitation related to gender and age are acceptable for the first study exploring present moment detection abilities, as the majority of violence within romantic relationships is committed against women and the ages of 18-24 are when intimate partner violence is first experienced by most women who experience such violence (Smith et al., 2017; Truman & Morgan, 2014). Thus, understanding detection abilities within this population may have important implications for

future intervention. Still, future studies should evaluate detection abilities utilizing more diverse samples.

Second, it is possible that some of the non-significant results were due to a lack of power. As previously noted, there was not adequate actual power to detect small effects given the sample size of this study. As the effect sizes in multiple, non-significant regression models indicated small effect sizes, it is possible that the lack of power led to Type 1 errors. Though this cannot be tested or concluded in the current study, future studies should utilize larger sample sizes capable of detecting small effect sizes. Additionally, some of the scales utilized in this study has Cronbach alphas $< .07$ which indicates some threats to internal validity of the measures.

Additionally, the current study relied on self-report and retrospective identification of childhood experiences. Such responses are susceptible to bias related to accuracy of remembering experiences and the social desirability bias and potential risk of disclosing adverse experiences. Though the anonymity of the data could help to mitigate the bias of willingness to disclose, the data may not fully represent the actual experiences of the participants. Relatedly, the design of this study was cross-sectional and therefore cannot report on the causal pathways that may lead to variation in detection abilities. Future studies should assess detection abilities longitudinally, collecting data of interpersonal relationships as they occur during childhood.

Lastly, the participants were highly accurate in their detection abilities in the videos. This may influence the ability to assess over or under detection as only limited amounts of either occurred. This may be due to the use of a highly educated sample related to romantic relationships. The sample was recruited from a survey pool within a Department of Human Development and Family Studies that contains curriculum related to healthy relationships within

various courses. As such, participants likely have had exposure to education about unhealthy communication patterns which could be a confounding variable. This study should be replicated within a higher risk population with less education related to unhealthy communication patterns.

Although there were no significant differences in detection abilities between the two unhealthy communication pattern videos, there were significant differences in detection between the two neutral videos. In Study 1, both the unhealthy communication pattern videos were validated at the level of showing moderate concern for the relationship and both neutral videos were validated at the level of no concern for the relationship. Order of the videos may have an influence on the reports of the videos. Video 4 (the neutral interaction video that was more frequently rated as having unhealthy communication patterns) was the first video showed. As the question following the videos asked participants to rate whether or not there were unhealthy communication patterns within the videos and the participants may have been more sensitive to picking up on subtle conflict dynamics that they would have reported as neutral if they had viewed an unhealthy communication pattern first. Future research should explore the potential influences of order of the videos on participant reports of the presence of unhealthy communication patterns.

Implications

Despite these limitations, the current study provides several important implications to a relatively new area of research. First, this study established that individuals demonstrated variation in their ability to detect unhealthy communication patterns within the videos validated in Study 1. Furthermore, significant differences related to self-blame of interparental conflict and dissociation were found to predict both over- and under-detection of unhealthy communication patterns. This suggests that there may be areas to target with interventions to improve detection

abilities such as processing the experience of being the subject of interparental conflict and supporting positive coping skills to reduce the experience of dissociation.

STUDY 3 LITERATURE REVIEW

After establishing that variation in detection skills occur and exploring variables that predict this variation in Study 2, it is important to also evaluate what can be done to improve detection skills in a real-world setting. Interventions may be available to improve detection ability through providing education about the definition and forms of unhealthy communication patterns may improve detection. As relationship education programs seek to produce change in current or future relationships through providing psychoeducation about positive communication tools and awareness of unhealthy patterns (Arnold & Beelmann, 2019; Halford & Snyder, 2012; Stanley et al., 2019; Markman & Rhoades, 2012; Wadsworth & Markman, 2012), it is possible that such programs would improve detection ability. Including a mindfulness component within a relationship education program may further improve the ability to identify unhealthy communication patterns through increasing present moment focus.

Though Study 2 found that trait mindfulness did not predict variation in the objective ability to detect unhealthy communication patterns within relationships, the inclusion of a mindfulness component may still improve the effectiveness of relationship education programs related to the ability to improve detection of communication patterns and actual communication skills. Key elements of mindfulness include the ability to be focus on the present moment and to accept a perspective of openness and acceptance (Bishop et al., 2004). Currently there is a lack of consensus in the literature about how or why relationship education programs work (Commerford & Hunter, 2016; Stanley et al., 2019; Wadsworth & Markman, 2012). In this study, it is hypothesized that improving this ability of individuals to be open and accepting of the present moment (i.e. more mindful) may in turn help participants to become more open or

accepting towards the information presented during relationship education programs, thus improving the overall effectiveness of the intervention.

Relationship Education

Relationship education (RE) can be broadly defined as programs aimed to bolster healthy and stable romantic relationships through providing education, skills, and principles grounded in empirical research (Markman & Rhoades, 2012). Most RE programs focus on improving communications skills and reducing unhealthy communication patterns, although the specific skills may vary between programs (Arnold & Beelmann, 2019; Halford & Snyder, 2012; Stanley et al., 2019; Wadsworth & Markman, 2012). Many RE programs also provide participants with information about what healthy relationships look like, signs of unhealthy relationship dynamics, and expectations within intimate relationships (Commerford & Hunter, 2016; Stanley et al., 2019; Wadsworth & Markman, 2012). Multiple meta-analytic studies have found that RE programs produce improvements related to communication skills and relationship quality or satisfaction (Blanchard et al., 2009; Commerford & Hunter, 2016; Halford & Bodenmann, 2013; Hawkins et al., 2008; Hawkins & Erickson, 2015; Markman & Rhoades, 2012). However, there is also a lack of consensus in the effectiveness of RE, especially related to understanding how and why RE programs work (Commerford & Hunter, 2016; Stanley et al., 2019; Wadsworth & Markman, 2012)

Within My Reach

Within My Reach (WMR; Pearson et al., 2008) is a RE program designed for individuals (i.e., not couples), and individuals may or may not be currently involved in a romantic relationship. WMR aims to help individuals to maintain healthy, stable relationships, to help individuals in less healthy relationships leave safely, and to help individuals choose future

romantic partners in an educated manner (Pearson et al., 2008; Rhoades & Stanley, 2011). The curriculum for WMR contains 15 units covering topics related to understanding healthy relationships and learning about positive communication and conflict management techniques (Pearson et al., 2008; Rhoades & Stanley, 2011; Stanley et al., 2019).

Anticipated Outcomes

Based on the focus areas of the curriculum, it can be concluded that WMR is designed with the aim that participants in the program will exhibit improvements in their confidence of detecting warning signs of unhealthy relationship patterns, improvements in their confidence in making decisions in their relationships, improvements in communication skills, and improvements in overall relationship satisfaction (Pearson et al., 2008; Rhoades & Stanley, 2011). Participants are expected to report improvements in their confidence in detecting warning signs of unhealthy relationship patterns due to the focus of two units on raising participants' awareness of these unhealthy communication patterns. These two units (*Healthy Relationships: What they Are and What They Aren't* and *Dangerous Patterns in Relationships*) provide participants with information about types of safety in relationships and education specifically about the danger signs of escalation, invalidation, withdrawal, and negative interpretations (Pearson et al., 2008). This is further supported by prior research that found participants of WMR have reported increased knowledge related to healthy relationship dynamics and increased confidence in their ability to have healthy romantic relationships (Antle et al., 2013; Cottle et al., 2014; Burr et al., 2016; Visvanathan et al., 2014).

Similarly, participants are expected to demonstrate improvements in their confidence to make decisions in romantic relationships as two units (*Sliding vs Deciding* and *Making Your Own Decisions*) focus on the importance of making intentional decisions in their relationships

(Pearson et al., 2008). Topics of discussion include partner selection, stages of relationships, exploring reasonable versus unreasonable expectations, and how to make decisions based on that information. Prior research has also demonstrated improvements in healthy decision making in participants who engaged in the WMR program (Burr et al., 2016; Cottle et al., 2014; Holt et al., 2016).

Participants are expected to show improvements related to their positive communication skills as two units (*Smart Communication* and *The Speaker Listener Technique*) provide information about healthy communication to use during conflict (Pearson et al., 2008). Strategies for healthy communication during conflict, such as Time Outs, XYZ Statements, or statements that focus on feelings related to actions in specific instances, and the Speaker Listener Technique, are taught to participants with opportunities provided for practice within the session. Prior participants of WMR have reported improvements related to their communication and conflict resolution skills (Antle et al., 2013; Cottle et al., 2014; Visvanathan et al., 2014).

In addition to anticipated outcomes tied to specific units, participation in WMR will likely improve relationship satisfaction for individuals currently in a romantic relationship as the WMR curriculum targets improving relationship functioning, particularly related to areas which are predictive of poor relationship satisfaction, participation in this program may serve to help improve relationship satisfaction. The occurrence of unhealthy communication patterns in romantic relationships have been found to be associated with relationship dissatisfaction and distress (Bradbury et al., 2000; Christensen & Shenk, 1991; Gottman, 1994; Gottman & Levenson, 2000; Markman et al., 1994). The ability to make clear and thoughtful decisions in relationships has also been found to be related to higher levels of relationship satisfaction and dedication to the relationship (Owen et al., 2013). Further, prior participants of the program who

were currently in a romantic relationship reported increases in their relationship quality, confidence in their relationship, and lower levels of conflict in their relationship after participating in the program (Visvanathan et al., 2014).

Despite the promising findings related to WMR, research on RE is limited by a lack of consensus about the effectiveness of RE (Cowan & Cowan, 2014). Though results of studies on WMR and RE in general have shown improvements in confidence and skills, variation in the effectiveness of these programs explained by difficulties and inconsistencies in participants implementing skills they have learned. To target this limitation, adding an additional component, such as mindfulness, may help to improve the ability of individuals to not only learn skills but also to use the skills.

Mindfulness

Mindfulness involves two key elements of (1) regulation of one's attention so that it is focused on the immediate experience or present moment and (2) adopting a perspective of curiosity, openness, and acceptance towards one's experience in the present moment (Bishop et al., 2004). State mindfulness refers to a type of mindfulness that is actively practiced in meditation, whereas trait mindfulness refers to the general disposition towards mindfulness in daily life (Kiken et al., 2015). Though separate constructs, practicing state mindfulness over time is related to increases in trait mindfulness (Kiken et al., 2015; Ostafin & Kassman, 2012). State mindfulness is also associated with reductions in psychological distress, guilt, and conflict between one's desires and goals and greater levels of happiness, and better communication during conflict discussions with a romantic partner (Barnes et al., 2007; Kiken et al., 2015; Ostafin & Kassman, 2012). The practice of state mindfulness over time in the context of an intervention has been found to help improve trait mindfulness over time (Kiken et al., 2015).

This transition likely occurs as the practice of state mindfulness regularly activates neural pathways and the repetitious use of these neural pathways can lead to changes in brain structure and functioning supporting the development of higher trait mindfulness (Garland & Howard, 2009; Kiken et al., 2015). Thus, interventions which include an element of mindfulness practice may improve trait mindfulness through the introduction of a regular mindfulness practice.

Mindfulness-based relationship enhancement (MBRE) has been found to improve relationship satisfaction, acceptance of one's partner, autonomy and relatedness within the relationship, closeness with one's partner, and to decrease relationship and psychological distress (Carson et al., 2004). However, MBRE is focused on strengthening functioning for relatively positive relationships and is not intended for distressed couples or individuals (Carson et al., 2006). Recommendations have been made to explore the inclusion of mindfulness in systemic therapies due to the findings that mindfulness is associated with relationship satisfaction, skilled responsiveness to relational stress, and better perspective taking (Gambrel & Keeling, 2010). Adding a mindfulness component to a relationship education program may help to target this gap as relationship education is provided to both higher risk populations (Antle et al., 2011; Einhorn et al., 2008; Sparks, 2008; Stanley et al., 2010) and individuals (Antle et al., 2013; Burr et al., 2016; Cottle et al., 2014; Visvanathan et al., 2014). Yet, to the extent of our knowledge, there are no published studies comparing a mindfulness-based RE program to a standard RE program and the lack of inclusion of techniques to support stress coping, such as mindfulness, has been noted as a limitation of the Prevention and Relationship Education Program (PREP) curriculum, of which WMR is based (Carson et al., 2006). One study found that a mindfulness-based parent education program increased levels of awareness and acceptance and connection to their partner

during the transition to parenthood (Gambrel & Piercy, 2015) supporting the idea that mindfulness components can be successfully added to education programs.

In addition to personal and relational outcomes, state mindfulness is associated with improvements in problem solving. Specifically, practicing mindfulness has been found to improve the ability to solve insight problems, or problems where relying on past experiences lead to an impasse in solving the problem (Ren et al., 2011; Ostafin & Kassman, 2012). State mindfulness has also been found to be related to improvements in “wise self-regulation”, meaning that those with higher state mindfulness are more likely to enjoy current desires without risking long-term goals (Frieze & Hofmann, 2016). Theoretically, mindfulness may also help individuals make decisions in a more thoughtful and aware way throughout the decision-making process (Karelaia & Reb, 2015).

As state mindfulness is related to increases in self-awareness, better communication during conflict, and improved problem solving and decision-making skills, it is possible that including an element of mindful meditation a RE program could increase its educational benefits as well as improving overall trait mindfulness. By inducing a state of increased awareness of the present moment, individuals may be able to relate to the material presented in a more personal and accepting way, which in turn may make it easier to incorporate the material into everyday life.

Study 3 Hypotheses

Study 3 aims to explore the benefits a mindfulness ingredient version of Within My Reach compared to the benefits of participating in the standard Within My Reach program. Specifically, we hypothesize that participants will report improvements in areas that have previously been found to be impacted by relationship education, specifically in their reported

awareness of romantic relationship unhealthy communication patterns (Hypothesis 1a), their confidence in their ability to make healthy decisions in romantic relationships (Hypothesis 1b), their positive communication skills (Hypothesis 1c), and their satisfaction with their current relationship (Hypothesis 1d). Additionally, we predict that individuals in the mindfulness condition will report significant improvements in their ability to detect unhealthy communication patterns (Hypothesis 2a), their ability to make healthy decisions in romantic relationships (Hypothesis 2b), their positive communication skills (Hypothesis 2c), their satisfaction with their current relationship (Hypothesis 2d) and level of mindfulness in romantic relationships (Hypothesis 2e) compared to the treatment as usual condition.

STUDY 3 METHODS

Participants

Participants were undergraduate students in a Spring 2019 course on prevention and intervention programs in the department of Human Development and Family Studies at a large western university. A university population was selected as a previous study found WMR to be successful in the context of a college course (Burr et al., 2016; Cottle et al., 2014). The course enrollment was 87 students; 54 students completed both the pre- and post-test surveys and provided consent for their data to be used for research. Participants ranged in age from 19-23 years-old ($M = 20.83$, $SD = 0.86$). Of this sample, 94.4% identified as female, 3.7% identified as male, and one participant identified as transgender. Most of the participants reported that they identified as heterosexual (94.4%). The majority identified as Caucasian/White (74.1%). 9.3% identified as multiracial, 7.4% identified as Latinx, 7.4% identified as Asian American/Pacific Islander, and 1.9% identified as African American/Black. Additionally, 64.8% of participants reported being in a current romantic relationship at the start of the program, and 63.0% reported a current romantic relationship at the end of the study, with 92.6% reporting having been in a romantic relationship either currently or previously. See Table 3.1 for participant demographics.

Procedure

Completion of the Within My Reach (WMR) program and pre/post surveys was a course requirement, as it provided students with the opportunity to evaluate a prevention program using the standards they learned in the course. Participants were given the option for their data to be used for research with no penalty if they refused, and the instructor had no knowledge of which students provided data for research. Students were randomly assigned into one of two conditions:

WMR (43 students assigned to group; 28 participants in sample) and WMR-Mindfulness (44 students assigned to group; 26 students in sample) at the start of the semester. Participants completed the WMR program over the course of 10 sessions, with some topics (such as co-parenting) and activities being reduced in time to accommodate the structure of the course. Participants who did not complete the WMR-Mindfulness condition were provided with materials about mindfulness at the completion of the program/course.

Each group was facilitated by doctoral students with or working on a master's degree in marriage and family therapy who were trained WMR facilitators. Weekly meetings between the facilitators and course instructor ensured that each course progressed at approximately the same rate. Participants were instructed to complete a pre-survey prior to the first session and a post-survey in the week following the last session. Participants provided a unique identifier so that their pre- and post-test data could be connected. Institutional review board approval was obtained for all procedures.

The mindfulness component included a guided meditation focused on one principle of mindfulness at the beginning of each session. Psychoeducation regarding that topic was also provided at the beginning of the session. Mindfulness topics were selected to correspond with the relationship education content for that day. For example, the mindfulness topic of self-compassion was introduced on the day that the relationship education topic was exploring one's personality and values as self-compassion could help to promote acceptance of who the individual is and how that may show up in relationships. Similarly, the mindfulness component of present-centered awareness was presented on the day when the relationship education topic was on decision making as awareness of the present moment could help individuals to connect with the ways that they are feeling, supporting active decision making.

At the end of each session, participants in the mindfulness condition were asked to journal in response to a prompt which connected the mindfulness principle to the relationship education topic for the week. For example, in the week where individuals learned about self-compassion, they were asked to journal about reasons why it can be difficult to extend self-compassion to themselves and what they could do in the upcoming week to practice self-compassion. In the week which focused on present-centered awareness, participants were asked to journal about what barriers may exist that keep themselves/others from being present within their relationships and what they could do to be more present-centered in their current relationships (romantic or not for those not in a current romantic relationship).

Measures

Detection and Decision Making

The Relationship Deciding Scale (RDS; Vennum & Fincham, 2011) is a 12-item measure with three subscales. Though self-report measures are susceptible to bias (Krumpal, 2013; Nederhof, 1985; Saunders, 1991), and Study 1 and Study 2 focused on the use of objective measures of detection of unhealthy communication patterns within romantic relationships, self-reports were utilized in this study to be consistent with prior research designs that did not have access to the novel procedure. Participants are asked to rate the degree to which they agree with a list of statements on a 7-point Likert scale from “strongly disagree” to “strongly agree”. The *Warning Signs* subscale asks participants three questions about the degree to which they feel comfortable detecting unhealthy patterns in romantic relationships (e.g. “I am quickly able to see warning signals in a romantic relationship”). The *Deciding* subscale is comprised of five items related to intentional decision making in romantic relationship (e.g. “It is important to me to discuss with my partner each major step we take in the relationship”) (Vennum & Fincham,

2011). In this study, the *Warning Signs* subscale was used to assess for self-reported ability to detect unhealthy patterns and the *Deciding* subscale was used to measure decision making in romantic relationships. The internal validity using Cronbach alpha for these subscales were .75 at Time 1 and .85 at Time 2 for the *Warning Signs* subscale and .76 at Time 1 and .66 at Time 2 for the *Deciding* subscale.

Skillful Communication

The Communication Skills Test-Short Form (CST-SF; Saiz & Jenkins, 1996) is an 11-item measure used to assess communication skills. The measure has six items that ask about negative communication patterns (e.g. “we have arguments that erupt over minor events”) and five items related to positive communication patterns (e.g. “when discussions threaten to boil over, we stop them and take a time out”). Participants were asked to rate the degree to which they agreed with each statement on a 7-point Likert scale ranging from “strongly disagree” to “strongly agree”. This measure has been utilized in other studies on PREP relationship education programs (e.g. Einhorn et al., 2008; Owen et al., 2012; Quirk et al., 2014). The internal validity using Cronbach alphas for this sample were .82 at Time 1 and .81 at Time 2.

Relationship Satisfaction

The brief version of the Dyadic Adjustment Scale (DAS-4; Sabourin et al., 2005) was used to assess relationship satisfaction. Participants who were currently in a romantic relationship were asked to rate 4 items (e.g. “In general, how often do you think that things between you and your partner are going well?”) on a 5-point Likert scale ranging from “not at all” to “a lot”. Compared to the original 32-item version, the DAS-4 has demonstrated less contamination from social desirability bias and similar effectiveness for predicting relationship dissolution (Sabourin et al., 2005). A shortened, 3-item version was used in this study, with one

item (“Do you confide in your mate”) excluded from the original scale. The items used pertained to thoughts related to satisfaction of the relationship compared to behaviors (confiding). Internal validity was evaluated for the remaining 3-item scale with Chronbach alpha = .74 at Time 1 and .78 at Time 2.

Mindful Partnering

The Mindful Partnering questionnaire (Seiter et al., 2019) was used to assess changes in mindful relational behavior. Participants were asked to rate 33 statement (e.g. “I often get so busy thinking about other things that I realize I am not really listening to my partner”) on a 5-point Likert scale from “never true” to “always true”. The internal validity using Cronbach alphas for this sample were .60 at Time 1 and .85 for Time 2.

Data Analysis

To examine the hypotheses, repeated measures analyses of variance (ANOVAs) were used to examine differences between time points (pre-and post-test), differences between groups (mindfulness vs. control), and differences between the groups over time related to confidence in detecting warning signs for unhealthy relationships, confidence in making healthy relationship decisions, use of positive communication skills, relationship satisfaction, and mindfulness in partnering interactions.

According to *post hoc* power analyses using the GPower software (Faul et al., 2007), revealed that with the given sample size and data analytic plan, there was adequate power (actual power > .80) to detect medium (power = 1.0) and large (power = 0.95) effect sizes but not to detect small effect sizes (power = 0.30). Some measures (Skillful Communication and Relationship Satisfaction) asked questions specifically pertaining to a current romantic relationship and therefore were only asked to those participants who reported currently being in a

romantic relationship ($N = 35$ at Time 1 for both, $N = 33$ at Time 2 for Skillful Communication, $N = 34$ at Time 2 for Relationship Satisfaction). For these questions, further *post hoc* power analyses revealed similar adequate power (actual power $> .80$) to detect large effect sizes (power = 0.99) but not to detect small effect sizes (power = .20) or medium (power = 0.79) effect sizes.

Descriptive Statistic Tables for Study 3

Table 3.1

Key Participant Demographics for Study 3

Demographic	<i>M</i>	<i>SD</i>	%
Age	20.72	0.83	
Gender			
Female			94.4
Male			3.7
Transgender			1.9
Sexual Orientation			
Heterosexual			94.4
Gay/Lesbian			1.9
Bisexual			1.9
Other Sexual Orientation			1.9
Race/Ethnicity			
Caucasian/White			74.1
Multi-racial			9.3
Latinx			7.4
African American/Black			7.4
Asian/Pacific Islander			1.9
In a Current Romantic Relationship at T1			64.8
In A Current Romantic Relationship at T2			63.0
Ever Been in a Romantic Relationship			92.6

Table 3.2

Descriptive Statistics for Key Variables in Study 3 – Time 1

Variable	N	<i>M</i>	<i>SD</i>	Range	α
Detection of Warning Signs (<i>RDS – Warning Signs</i>)	54	5.61	0.80	4.00-7.00	.75
Confidence in Decision Making (<i>RDS – Deciding</i>)	54	5.56	0.81	4.00-7.00	.76
Communication Skills (<i>CST-SF</i>)	35	4.67	0.59	3.18-5.82	.82
Relationship Satisfaction (<i>DAS-4</i>)	35	3.33	0.36	2.25-3.50	.74
Mindfulness in Romantic Relationship (<i>Mindful Partnering Scale</i>)	49	3.65	0.23	3.19-4.13	.60

Table 3.3

Descriptive Statistics for Key Variables in Study 3 – Time 2

Variable	N	M	SD	Range	α
Detection of Warning Signs (<i>RDS – Warning Signs</i>)	54	5.96	0.82	3.33-7.00	.85
Confidence in Decision Making (<i>RDS – Deciding</i>)	54	5.76	0.75	4.00-7.00	.66
Communication Skills (<i>CST-SF</i>)	33	5.00	0.96	3.45-6.45	.81
Relationship Satisfaction (<i>DAS-4</i>)	34	3.34	0.33	2.00-3.50	.78
Mindfulness in Romantic Relationship (<i>Mindful Partnering Scale</i>)	48	3.64	0.32	2.87-4.39	.85

STUDY 3 RESULTS

Within Group Differences

A series of repeated measure ANOVAs revealed that hypothesis 1a was supported, as there were significant pre- and post-test differences in reported awareness of warning signs of unhealthy romantic relationships, $F(1, 52) = 11.28, p = .001, \eta^2 = .18$, such that individuals reported increased awareness of warning signs of unhealthy romantic relationships at the post-test as compared to the pre-test. Hypotheses 1b, 1c, 1d were not supported, as there were no significant pre- and post-test differences in confidence to make healthy decisions in romantic relationships, positive communication skills, or relationship satisfaction at the $p < .05$ level. Although not significant, the results for the ability to make healthy decisions in romantic relationships, $F(1, 52) = 3.56, p = .07, \eta^2 = .06$ and positive communication skills, $F(1, 29) = 3.89, p = .06, \eta^2 = .12$, were at the trend level of significance. The lack of statistical significance may be a result of lack of power as the analysis involving healthy decision making only had power to detect medium and large effects and the analysis involving communication skills only had adequate power to detect large effects.

Between Group Differences

Hypothesis 2 was not supported, as there were no significant differences between the WMR plus mindfulness and standard WMR conditions in reported awareness of warning signs of unhealthy romantic relationships, confidence to make healthy decisions in romantic relationships, positive communication skills, relationship satisfaction, or the degree of mindfulness in interactions with a partner at the $p < .05$ level. Additionally, there were no significant Time x Group interaction effects at the $p < .05$ level. See Table 3.4 for results.

Data Analytic Table for Study 3

Table 3.4

Means, Standard Deviations, and Repeated Measures ANOVA For Within My Reach Outcomes

Variable	Mindfulness			Control			ANOVA			
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	Effect	<i>F</i>	<i>df</i>	η^2
Warning Signs										
Time 1	26	5.67	0.83	28	5.58	0.79	T	11.28***	52	.18
Time 2	26	5.83	1.02	28	6.07	0.56	G	0.12	52	.002
							T x G	2.92	52	.05
Decision Making										
Time 1	26	5.45	0.84	28	5.66	0.78	T	3.56^	52	.06
Time 2	26	5.60	0.89	28	5.92	0.55	G	2.15	52	.04
							T x G	0.35	52	.01
Communication Skills										
Time 1	15	4.57	0.60	16	4.80	0.64	T	3.89^	29	.12
Time 2	15	4.73	1.02	16	5.16	0.92	G	1.60	29	.05
							T x G	0.59	29	.02
Relationship Satisfaction										
Time 1	15	3.33	0.35	17	3.31	0.41	T	0.13	30	.004
Time 2	15	3.32	0.31	17	3.37	0.37	G	0.01	30	.000
							T x G	0.42	30	.01

Variable	Mindfulness			Control			ANOVA			
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	Effect	<i>F</i>	<i>df</i>	η^2
Mindful Partnering										
Time 1	22	3.66	0.23	25	3.68	0.22	T	0.59	45	.01
Time 2	22	3.54	0.36	25	3.73	0.27	G	2.47	45	.05
							T x G	3.31	45	.07

Note: Mindfulness = Within My Reach with Mindfulness Condition, Control = Within My Reach Treatment as Usual Condition; G = Group, T = Time

*** $p = .001$, $\eta^2 = .07$

STUDY 3 DISCUSSION

Contrary to the hypotheses and prior literature outlined in this paper, significant improvements between the pre- and post-tests were only found for reported awareness of warning signs of unhealthy relationships but not for reported confidence in the ability to make healthy decisions in relationships, communication skills, relationship satisfaction, or mindfulness in partnering interactions. Additionally, no significant differences were found between the experimental mindfulness condition and the treatment as usual control group.

Confidence in Detecting Warning Signs of Unhealthy Relationships

The finding of significant improvements related to awareness of warning signs of unhealthy relationships after completion of a relationship education program is consistent with prior literature which found that participants in the program reported increased knowledge about healthy relationships and increased confidence that they could have a healthy relationship (Antle et al., 2013; Cottle et al., 2014; Burr et al., 2016; Visvanathan et al., 2014). Improving awareness of unhealthy communication patterns is a key focus of multiple units in the Within My Reach (WMR) curriculum (Pearson et al., 2008), and these chapters were emphasized in the ten-week format that this program was offered, thus the significant changes appear to be fit with the expectations for the program.

However, this study utilized self-report data, asking participants questions asking about the degree of confidence individuals have in their ability to assess warning signs of an unhealthy relationship (Vennun & Fincham, 2011). Confidence in detecting unhealthy patterns may be different than actual, objective abilities related to detection of unhealthy communication patterns. Meta-analytic research on relationship education has called to attention the lack of consensus

related to outcomes of relationship education programs, particularly highlighting the lack of long-term follow-up and drop-off of effects over time (Cowan & Cowan, 2014). Perhaps one factor that could contribute to this lack of consensus and reduced effectiveness over time is that studies are typically assessing the confidence in an ability instead of actual ability. As individuals just completed an intervention program, it is particularly possible that participants may experience self-deception social desirability bias in which individuals report what they believe to be accurate but is inflated (or deflated) from reality (Paulhus, 1984; Nederhof, 1985). In this case, participants may feel an inflated confidence in their detection abilities having just participated in a curriculum which heavily focuses on ways to improve the ability of individuals to pursue healthy relationships. Future research should investigate the ways in which relationship education programs influence actual detection abilities, potentially through procedures such as that validated in Study 1.

Confidence in Decision Making and Positive Communication Skills

Improvements in confidence in decision making and use of positive communication skills were trending towards significant. The lack of significance is contrary to prior research findings that relationship education programs are effective at increasing confidence in decision making and communication skills (Antle et al., 2013; Burr et al., 2016; Cottle et al., 2014; Holt et al., 2016; Visvanathan et al., 2014). It is possible that this trend level of significance could be, in part, due to a lack of statistical power. Small effect sizes are common to relationship education research (Hawkins et al., 2008; Hawkins & Fackrell, 2010). The *post hoc* power analyses revealed that the current study did not have adequate power to be able to detect small effect sizes. Therefore, it is plausible that the trend levels of significance are due to a lack of power in this study. This is particularly pertinent for the communication skills, as fewer participants

completed responses for this variable. Further, it is consistent with the results of prior studies which have reported small to medium effects for both variables (Burr et al., 2016; Holt et al., 2016; Visvanathan et al., 2014).

The lack of other significant results may be explained by the high level of education related to healthy relationship dynamics of the study sample. Across variables, participants reported mean levels of average or higher across all study variables suggesting that across the sample, individuals were reporting relatively high endorsement of the skills being assessed prior to the study thus leaving only limited room for improvement. This could be because the program was offered within an upper division course in a Human Development and Family Studies department. This department offers other courses related to romantic relationships which include some of the content that is offered in this program. As both groups would have been previously exposed to the same curriculum, it is possible that this education provided in this program did not provide new information or benefits to this sample. The insignificant findings related to improvement in confidence in making decisions and skillful communication are contrary to prior findings WMR implemented within a college course (Burr et al., 2016; Cottle et al., 2014). This suggests that further research is needed related to what types of college courses are most appropriate for the inclusion of relationship education.

Relationship Satisfaction

No significant differences were found in relationship satisfaction before and after the program. It is possible that this occurred as only one partner was participating the relationship education program, and they were participating in it as a part of a course requirement. As such, they may have been less motivated to apply the information learned into their own romantic relationships compared to individuals that had purposely elected to partake in the program to try

to help improve their relationship functioning. If the skills and techniques learned in the program were not actually applied in the current relationship, then changes in relationship satisfaction would not be expected. Though individuals in romantic relationships can attend this program, it was specifically designed for individuals, not couples, and much of the curriculum focuses on topics that are pre-relational such as partner selection and how to have healthy relationships more broadly (Pearson et al., 2008). Therefore, though research has previously found that WMR is effective at improving satisfaction with a romantic relationship (Visvanathan et al., 2014) it may be better suited at improving confidence in the ability to have a health relationship which was not assessed in the current study.

Additionally, the *post hoc* power analyses revealed that the current study did not have adequate power to be able to detect small or medium effect sizes in this analysis as only 35 participants were in a current relationship and completed the measure. As this program focuses on individual-level intervention (Pearson et al., 2008; Rhoades & Stanley, 2011) it is possible that any effects on relationship education would have a small effect size. Therefore, it is plausible that the trend levels of significance are due to a lack of power in this study. This is consistent with prior research which found small effect sizes related to relationship satisfaction as an outcome for WMR (Visvanathan et al., 2014). Though this cannot be evaluated in the current study, future studies should evaluate the degree to which the skills and information taught within a relationship education program are implemented within current romantic relationships.

Mindfulness

No significant differences related to the degree of mindfulness present in romantic relationships were found in the current study. It is possible that the mindfulness condition did not

produce greater changes as the participants may not have adopted the mindfulness practice outside of the intervention program thus limiting the possible positive effects of increased mindfulness. The portion of the program focused on teaching individuals about mindfulness included psychoeducation about mindfulness and a guided mindfulness practice each week. However, the program did not include teaching participants about ways in which they could engage in mindfulness practice between sessions. This was attempted through the journaling activities at the end of each session, but it may be that more concrete instruction was needed.

Additionally, though mindfulness-based relationship enhancement (MBRE) has been found to improve relationship satisfaction and decrease relational stress, among other positive relational outcomes, this program includes 8 weekly 150-minute group sessions and a full day retreat (Carson et al., 2004). It is possible that the dosage of mindfulness training in this program, which included once per week guided mindfulness practice, psychoeducation, and journaling activities, was not enough to change the way in which individuals were mindful throughout the week, thus leading to the lack of significant differences between the groups. Future studies should include more training about how to engage in regular mindfulness practice, such as homework assignments that encourage the practice of mindfulness, to increase the dosage of state mindfulness, thus hopefully translating to greater improvements in trait mindfulness at the end of the program.

Limitations

Power

As previously mentioned, *post hoc* power analyses revealed that the sample size for this study was not adequate to detect small effect sizes, and, for the measures only administered to the percentage of the sample currently in a romantic relationship. As most of the non-significant

results demonstrated effects smaller than medium ($\eta^2 < .06$) and all were smaller than large effects ($\eta^2 < .14$), it is possible that the lack of significant findings were due to a Type II error (or false negatives) due to lack of power. Although this possibility is not able to be evaluated based on the current data, a repeated study utilizing a larger sample size, particularly related to questions for individuals currently in a romantic relationship, would be able to provide further information related to the possibility of sample size and power limitations influencing the results. This potential explanation for these findings is supported, as while both the pre- and post-test differences related to confidence in making healthy relationship decisions and communication skills did not have significant findings, the p values were trending towards significance, further suggesting limitations related to power in this study.

Characteristics of Sample

In addition to the limitations of sample size and statistical power, characteristics of the sample in this study may also explain the lack of significant differences between groups and between pre- and post-tests. Though WMR has previously been found to be effective in undergraduate student samples (Burr et al., 2016) and relationship education in emerging adults more broadly (Simpson et al., 2018), the sample in this population were students enrolled in an upper division Human Development and Family Studies (HDFS) undergraduate class. Based on the curriculum progression for this major, it is likely that many students had already taken coursework about marriage and family relationships, which would include much of the information presented in the WMR curriculum. In contrast, the sample reported in the study by Burr and colleagues (2016) was implemented into a course on marriage, suggesting that these students may not have been exposed to the content of the intervention program to the same extent as students in this sample.

Additionally, the program in which the students were enrolled has a focus on mindfulness, suggesting that students may have previously been exposed to basic mindfulness principles and practices prior to participation. This is supported by the relatively high means for each group at the pre-test, suggesting that students may already possess the knowledge and skills, at least in part, that the intervention would aim to improve. As all students in the course would have had access to this prior knowledge before the random assignment into the experimental and control groups, this may also help to explain the lack of significant differences between groups. This suggests that relationship education may be better suited as a targeted versus universal intervention. This is somewhat in contrast to prior data supporting relationship education as a universal intervention, but these meta-analytic results were modest and produced mixed results (Blanchard et al., 2009; Halford et al., 2008). These findings highlight the need for future research exploring the relative effectiveness of relationship education as a targeted or universal intervention.

Missing Data

Another significant limitation to this study was the amount of missing data. From an overall course enrollment of 87, only 54 students completed the pre- and post-surveys and consented for their data to be used in research, meaning that only 62.07% of overall participants' data was able to be used. Missing data, particularly if the missing data is not random, may bias the data and therefore the outcomes of a study (Kang, 2013). As much of the missing data included participants simply not completing the surveys or providing the unique identifier, it is difficult to determine whether the missing data was random or if there were characteristics of the students who did not complete the data which might bias the results. It is possible that the students who did not complete the surveys were of higher risk compared to the students who did

complete the data and therefore may have demonstrated more change. However, it is not possible to test this explanation within the current study.

Implications

Despite these significant limitations to the current study, there are important implications in the given study. The first is that despite the limitations, significant pre- and post-test differences were found related to reported confidence in ability to detect unhealthy patterns in romantic relationships. This suggests that relationship education may be particularly effective for educating individuals and increasing awareness of unhealthy communication patterns in romantic relationships. However, this result should be interpreted with caution as it assesses only the confidence that individuals have in their ability to detect unhealthy patterns and not their actual ability to detect. Future studies should further explore this dynamic by utilizing the real time video detection procedure developed in Study 1 to examine whether relationship education programs are effective at producing change in observed detection abilities in addition to self-reported abilities.

Additionally, the possibility that the lack of significant results was due to an overeducated sample suggests that relationship education programs are most effective when administered to populations which higher risk. Relationship education programs are designed using a prevention science model, which focuses on intervening on risk factors that are associated with future negative outcomes and promoting protective factors that are associated with potential future positive outcomes (Coie et al., 1993; Markman & Rhoades, 2012; Markman et al., 2009). Given that the current sample likely already received much of the risk reduction and protective factors of relationship education would provide in prior courses, this suggests that relationship education may be more beneficial as a targeted intervention to populations with

more risk factors and fewer opportunities to gain protective factors. As such, the hypotheses of this study should be tested in a higher risk population to explore whether the addition of mindfulness to a relationship education curriculum may be more effective as an additional protective factor in individuals who have fewer protective factors at the start of the intervention.

CONCLUSION

Previous research has documented that verbal and non-verbal unhealthy communication patterns predict relationship distress (Bradbury et al., 2000; Christensen & Shenk, 1991; Gottman, 1994; Gottman & Levenson, 2000; Markman et al., 1994). Two sets of unhealthy communication patterns are commonly used: the “four horsemen of the apocalypse” (contempt, criticism, defensiveness, and stonewalling) (Gottman, 1994; Gottman et al., 1998; Gottman & Gottman, 2015; Gottman & Levenson, 2000) and the “danger signs” (escalation, invalidation, withdrawal, and negative interpretation on one’s partner) (Markman et al., 1994; Stanley & Markman, 1997). Despite the negative implications of unhealthy communication patterns on the functioning of the romantic relationships, limited research has been conducted related to the ability to detect that these patterns are occurring within relationships. As conflict patterns has been found to escalate and worsen in severity over time (Winstock et al., 2008) the ability to detect these patterns early within a relationship may be critical for healthy relationship development, and the lack of investigation into this area is a substantial gap in the literature.

Study 1 provided the validation of the first procedure used to assess in-the-moment detection abilities of unhealthy communication patterns. The final set of 15 videos, 11 of which portrayed couples engaging in unhealthy communication patterns and four of which portray neutral conflict interactions, is a novel tool that can assess the ability to detect unhealthy communication. Specifically, the accuracy in detection abilities as well as the tendencies to over detect or under detect can be evaluated using this procedure. Through the validation of this procedure, objective detection abilities are now able to be assessed, moving beyond the previous reliance upon participant self-report. As prior measures of detection abilities have relied upon

self-report, they are also potentially susceptible to social desirability bias in which individuals either unconsciously (self-deception) or consciously (other-deception or impression management) rate responses to be more favorable about themselves than would be accurate (Palhus, 1984; Nederhof, 1985). Though there are many ways to control for and reduce social desirability bias and still use self-report measures, these methods are capable of entirely controlling for this potential bias in response (Krumpal, 2013; Saunders, 1991; Nederhof, 1985). The validation of this objective measure, in which individuals are not aware of the anticipated outcome or correct response, allows for a more objective assessment of detection abilities.

Study 2 was the first study to use the procedure developed and validated in Study 1 to explore predictors of variation in the ability of individuals to detect unhealthy communication patterns. The results revealed that the degree to which individuals blamed themselves for conflict between their parents predicted both over-detection and under-detection. Consistent with prior findings that self-blame related to interparental conflict is associated with increased attention to negative stimuli and coping via hyper-engagement in conflict (Lucas-Thompson et al., 2017; Shelton & Harold, 2008), individuals may be over-attuned to minor negative stimuli in conflict interactions leading to the identification of unhealthy patterns in neutral interactions. Conversely, but in line with the desensitization framework and prior literature that shows experiencing chronic violence can lead to the view that these events are normal (Aloia, 2013; Dunlap et al., 2009; Guterman & Cameron, 1997), individuals may perceive the conflict present in the unhealthy communication patterns as normal and therefore not report that it is unhealthy. This dynamic suggests that the ability to detect unhealthy communication patterns requires both the ability to see that an interaction is happening (as was missed in the cases of under-detection) and to interpret the interaction is unhealthy (as was missed in the case of over-detection).

Trait dissociation was also found to predict under-detection. This is consistent with prior findings that the experience of dissociative symptoms was associated in lower ratings of the danger in rape situations and of actual revictimization in individuals who had experienced interpersonal violence (Sandberg et al., 2001; Iverson et al., 2013). Together, the findings from this study and past studies related to dissociation suggest that interventions which support positive coping and reduction of dissociative symptoms may help to improve the ability of individuals to avoid unhealthy relational patterns. This should be further assessed in future research.

Study 3, utilized a relationship education program (Within My Reach) to attempt to improve the confidence that individuals had related to being able to detect the early warning signs of unhealthy patterns within their relationships. A mindfulness condition was also used to try to improve the outcomes of relationship education. Despite methodological problems related to the low levels of risk and high levels of relationship education of participants and power, relationship education was still found to predict improvements in confidence in the ability to detect early warning signs of romantic relationships. However, given the potential biases that may exist in over confidence after completing an intervention program, potentially leading to self-deception social desirability bias (Palhus, 1984; Nederhof, 1985), it is important to consider these implications with caution and not conclude that actual detection abilities were improved. This may give insight into the lack of consensus related to the effectiveness of relationship education programs as effects tend to drop-off over time (Cowan & Cowan, 2014) as the degree of confidence an individual feels may be stronger directly after receiving information than after a period of time has passed. This asserts the need for future studies to assess actual detection

abilities in studies on relationship education and whether there are objective differences in detection at post-test and at longer term follow-ups.

Though the mindfulness condition did not show significantly better improvements, it is possible that this was due to the way in which the mindfulness curriculum was implemented (i.e., not giving direct examples for how to practice mindfulness daily) and the low level of risk present in the sample. Mindfulness-based relationship enhancement (MBRE) has been found to improve relationship satisfaction, closeness to one's partner, and to decrease relational and psychological distress (Carson et al., 2004) however this program has a higher dosage compared to the relationship education program in this study. Additionally, the theoretical framework for how state mindfulness may increase trait mindfulness suggests that this process occurs in response to changes in brain structure and function as the result of increased usage of cognitive pathways in the practice of state mindfulness (Garland & Howard, 2009). An eight-week mindfulness intervention was found to be effective at improving trait mindfulness, however the entire focus of this intervention was on mindfulness and participants were emailed a link between sessions instructing them to partake in a 10-minute guided meditation (Kiken et al., 2015). Together, the theoretical basis and dosage of mindfulness curriculum in prior interventions suggests that a 10-session program that had a primary focus on relationship education may not be effective at producing changes in trait mindfulness.

Future Directions

Combined, these studies provide important implications for future research. First, the validation of the procedure to assess in-the-moment detection abilities fills the critical gap in the literature of having no established ways in which to measure detection beyond self-report. Further, the differences in individual detection abilities suggest that interventions which help

improve positive coping skills for those who have experienced adversity during childhood may help improve the ability of individuals to detect unhealthy communication patterns within their romantic relationships. Future research should assess the degree to which improved detection abilities are an outcome of programs designed to improve healthy coping skills.

Relationship education may be an effective form of intervention to support detection abilities as suggested by the finding that participating in the program improved confidence in the ability to detect early warning signs, even for a population that was relatively low risk. Future studies should replicate the mindfulness-based relationship education program, focusing the mindfulness curriculum more on how to practice mindfulness regularly and with a higher risk population. One population could be individuals who have experienced childhood adversity and experienced negative coping strategies such as dissociation. Further, the outcomes of relationship education should be addressed using the video protocol to explore whether relationship education programs influence detection abilities as well as confidence in detection abilities.

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