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## **An initial validation of behavioral models of dissociation**

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AN INITIAL VALIDATION OF BEHAVIORAL MODELS OF DISSOCIATION

A Dissertation by

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Submitted to the Department of Psychology  
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Wichita State University  
in partial fulfillment of  
the requirements for the degree of  
Doctor of Philosophy

May 2020

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## AN INITIAL VALIDATION OF BEHAVIORAL MODELS OF DISSOCIATION

The following faculty members have examined the final copy of this dissertation for form and content, and recommend that it be accepted in partial fulfillment of the requirement for the degree of Doctor of Philosophy.

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## DEDICATION

In memory of William D. Norwood, Ph.D,  
“Dub” and in honor of Emily Sandoz, PhD  
who created a place for my ‘self.’

Language is the blood of the soul into which thoughts  
run and out of which they grow.  
~ Oliver Wendell Holmes

## ACKNOWLEDGEMENTS

I would like to thank the mentors, colleagues, and friends who supported me through my graduate and professional development. I would like to thank my Dissertation Chair, Dr. Rhonda Lewis, and my committee for their valuable contributions. I would like to thank Dr. Emily Sandoz for her exceptional role in both the completion of my dissertation and in the creation of a research lab that has become a distant academic home for me. I would like to thank my daughter and family for the sacrifices they made over the years so that I could pursue my academic goals.

## ABSTRACT

The current study examined the relationship of rule-governed verbal behavior and anxiety sensitivity to dissociative symptoms. Dissociative symptoms are experienced by nonclinical and clinical populations and remain poorly understood. In clinical populations, dissociative symptoms are associated with poorer prognosis and treatment outcomes. Current treatments designed to address dissociative symptoms in the clinical context tend to rely on the reduction of fear and avoidance of these symptoms. The current study utilized a cross-sectional design of non-clinical participants obtained from online study advertisements. The present study is an applied validation of a proposed contextual behavioral science models for dissociative symptom etiology and maintenance. Hierarchical regression analyses supported hypotheses that schema consistency and Schema Flexibility are, together, stronger predictors of dissociation frequency than anxiety sensitivity, panic symptoms, and trauma status independently. Research and clinical implications of the findings are discussed, along with the design.

## TABLE OF CONTENTS

Chapter	Page
1. INTRODUCTION.....	1
1.1 Purpose of the Study.....	2
2. LITERATURE REVIEW.....	4
2.1 Dissociation.....	4
2.1.1 Defining Dissociation.....	4
2.1.2 Clinical Relevance of Dissociation.....	5
2.1.3 Dissociation in Non-clinical Samples.....	6
2.1.4 Stress and Fear as a Common Precipitant to Dissociation.....	6
2.2 Dissociation Models with Clinical Utility.....	7
2.3 Early Behavioral Models of Dissociation .....	7
2.3.1 Dissociation as Respondent and Operant Conditioned Behavior...8	
2.4 Biopsychosocial Models of Fear Acquisition.....	9
2.4.1 Fear Acquisition and Maintenance.....	9
2.4.2 Propensity for Fear Reactivity.....	10
2.4.3 Role of ‘Beliefs’ in Fear Development and Maintenance.....	11
2.4.4 Schemas and Perception Under Threat.....	11
2.4.5 Cognitive Restructuring and Behavioral Experiments.....	12
2.4.6 Cognitive Behavioral Interventions for Dissociation and Anxiety-related Disorders.....	12
2.4.7 Proposed Mechanisms in Evidence-based Treatments.....	13
2.5 Modern Behavior Analytic Models.....	13
2.5.1 Relational Frame Theory.....	13

TABLE OF CONTENTS (continued)

Chapter	Page
2.5.2	The Dominance of Derived Relational Responding.....14
2.5.3	Deictic Relating and its Properties.....14
2.6.4	Schema Consistency and Flexibility .....15
2.7	Purpose of the Current Study.....16
2.8	Study Hypotheses.....17
3.	METHOD.....19
3.1	Participants.....19
3.2	Measures and Materials.....21
3.2.1	Demographic Questionnaire.....21
3.2.2	Anxiety Sensitivity Index - 3.....21
3.2.3	Dissociative Experiences Scale – II.....22
3.2.4	Young Schema Questionnaire – 3 Adapted.....25
3.2.5	Schema Consistency and Flexibility.....25
3.2.6	Panic Disorder Self-report.....26
3.2.7	PTSD Checklist – Specific.....27
3.3	Procedure.....27
4.	RESULTS.....30
4.1	Data Analysis.....30
5.	DISCUSSION.....43

TABLE OF CONTENTS (continued)

Chapter	Page
5.1 Relationship between Schema Endorsement and Dissociation.....	43
5.2 Predicting Dissociation from Self-relevant Verbal Behavior.....	44
5.3 Predicting Dissociation from Heightened Reactivity and Self-relevant Verbal Behavior.....	45
5.4 Meaning of Study Findings Taken Together.....	46
5.5 Advantages of Contextual Behavioral Conceptualizations.....	46
5.6 Study Limitations.....	48
5.7 Future Directions and Implications.....	49
5.5 Summary and Conclusions.....	51
REFERENCES.....	52
APPENDICES.....	76
A. Internet Recruitment Ad.....	77
B. Consent Form.....	78
C. Demographic Questionnaire.....	83
D. Anxiety Sensitivity Index - 3 .....	86
E. Dissociative Experiences Scale – II.....	88
F. Young Schema Questionnaire – 3 Adapted.....	92
G. Panic Disorder Self-report.....	98

TABLE OF CONTENTS (continued)

Chapter	Page
H. Posttraumatic Symptoms Checklist - Specific .....	101

## LIST OF TABLES

Table	Page
1. Glossary of Abbreviations.....	104
2. List of Measures.....	106
3. Demographics.....	20
4. Psychometric Properties of Scales.....	31
5. Correlations between Main Study Variables.....	32
6. Linear Regression Predicting Dissociation from Report of Self-relevant Behavior.....	34
7. Hierarchical Regression Predicting Dissociative Experiences from Schema Consistency and Flexibility.....	35
8. Predicting Dissociative Experiences from Anxiety Sensitivity, Schema Consistency, and Flexibility.....	38
9. Predicting Dissociative Experiences from Panic Symptoms, Schema Consistency, and Flexibility.....	40
10. Predicting Dissociative Experiences from Trauma Influence, Schema Consistency, and Flexibility.....	42

## LIST OF FIGURES

Figure	Page
1. Dissociative Experiences from Schema Consistency and Flexibility.....	36

## CHAPTER 1

### INTRODUCTION

Dissociative symptoms include a wide variety of symptoms characterized by altered attention (Cardeña, 1994). These alterations vary from heightened awareness (i.e., absorption; Butler, 2006) to reduced attention (e.g., poor memory, lost time; Guralnik et al., 2007).

Qualitative changes to attention can also occur. For example, the world may feel 'unreal' or like an altered reality in the case of derealization (Ozdemir et al., 2015). Or, in the case of depersonalization, the body or 'self' may feel altered (Guralnik et al., 2007).

Dissociative symptoms occur as a part of a wide array of severely impairing clinical disorders, including personality disorders (Kihlstrom et al., 1994), eating disorders (Vanderlinden et al., 1993), posttraumatic stress disorder (Zucker et al., 2006), and anxiety disorders (Ball et al., 1997). Across the range of clinical disorders, dissociative symptoms are generally associated with higher symptom severity and poorer prognosis (Foa & Hearst-Ikeda, 1996; Lyssenko et al., 2018; Marshall et al., 2000; Weiner & McKay, 2012). Dissociative symptoms, by nature, may impair the client's ability to fully engage in treatment and reduce treatment effectiveness (Foa and Hearst-Ikeda, 1996).

For example, dissociative symptoms are typically treated with exposure-based methods when they occur within the context of anxiety and related disorders (Antony et al., 2006; Cathey & Zettle, 2016; Lickel et al., 2008; Watt & Stewart, 2008; Weiner & McKay, 2013). Despite support for exposure-based methods (Weiner & McKay, 2013), dissociative symptoms prove difficult to evoke for the purposes of exposure. Additionally, a resurgence of symptoms is typical even after effective exposure-based treatment (Boschen, Neumann, & Waters, 2009; Hermans et al., 2005; Smith, 2019).

Despite their role in clinical impairment, dissociative symptoms are experienced by 76% or more of the nonclinical population (Aderibigbe et al., 2001). It is relatively unusual for a cluster of symptoms so associated with clinical impairment to also occur so frequently in nonclinical populations. This variation in expression may, in part, explain the relative lack of cohesive research findings describing what dissociation is.

Recent behavioral conceptualizations have proposed that dissociative symptoms may be, in part, driven by verbal behavior about the self, others, or world (McEnteggart et al., 2017). From a behavioral standpoint, a tendency to rigidly hold to strong negative (i.e., believing that one is a failure), or positive, beliefs (i.e., believing one is exceptionally talented) is likely to increase the likelihood of dysfunctional behavior and psychological symptoms (McHugh et al., 2012). Validation of behavior analytic models of dissociative symptoms may aid clinicians in treating these symptoms with the precision allowed by functional analysis of clinical behavior (Callaghan & Darrow, 2015; Madden et al., 2016; Wilson & Blackledge, 2000). Functional analysis is particularly well-suited for influencing behaviors that occur in a wide variety of contexts (e.g., aggression) and which defy simple across-the-board conceptualizations (Kohlenberg et al., 1993; O'Dwyer, 2000; Wilson & Blackledge, 2000).

### **Purpose of the Study**

The present study investigates the relationship between flexible and adaptive verbal behavior, tendency to reactivity, and clinical symptom presentations as predictors of dissociation. Behavioral models of dissociation (McEnteggart et al., 2017) suggest that an inability to relate flexibly and adaptively to beliefs about the self and others may be predictive of dissociative symptoms. These models of dissociation will be examined in relation to functional analytic accounts of the etiology and maintenance of anxiety (Forsyth, 2000) and related disorders

(posttraumatic stress disorder; Mulick et al., 2011) where dissociation frequently occurs.

Interpretation of relationships between observed or self-reported behaviors using the principles of behavior analysis has long been used as a method to account for observations of behavior that are not otherwise easily manipulated (Kohlenberg et al., 1993; Moore, 2013; Wilson & Blackledge, 2000).

We will examine the contribution of verbal behavior, tendency towards fearful reactivity (Anxiety Sensitivity; Boswell et al., 2013), panic symptoms, and trauma-related symptoms to self-reported dissociative experiences. *Anxiety Sensitivity* is widely accepted as an underlying factor in anxiety and related disorders (Boswell, Farchione, Sauer-Zavala, et al., 2013) in the context of which dissociation is commonly reported (Weiner & McKay, 2013; Zucker et al., 2006). Anxiety Sensitivity is believed to be a transdiagnostic factor underlying panic disorder (McNally, 2002) and posttraumatic stress disorder (Olatunji & Wolitzky-Taylor, 2009) which are both associated with high rates of dissociation and impairment. Currently, most treatments for dissociation rely on conceptualizations of dissociative symptoms as they relate to avoidance of anxiety and fear (Foa et al., 1989; Weiner & McKay, 2013). Examination of the role of verbal behavior, and its properties, in relation to other variables believed to elicit and maintain dissociative symptoms may aid in understanding this cluster of symptoms (i.e., dissociation) that have otherwise remained difficult to define and treat.

## CHAPTER 2

### LITERATURE REVIEW

#### **Dissociation**

**Defining Dissociation.** The term, dissociation, describes a wide variety of phenomena across clinical and non-clinical contexts (Brown, 2006; Holmes et al., 2005; Ozdemir et al., 2015). *Dissociation* describes alterations in attention and awareness, in terms of quality, magnitude, or both (Montemayor & Haladjian, 2015). Reviews of published research demonstrate a lack of consensus in the use of the term (Holmes et al., 2005). Holmes et al. (2005) examined 3,037 publications between 1872 and 2004 and found little consistency in the use of “dissociation” and “dissociative” within the scientific community.

To address the lack of clarity in this construct, researchers have tended to organize specific dissociative symptoms into clusters by their qualitative descriptions or attempts to statistically ‘lump’ or ‘split’ dissociative symptoms themselves, or dissociation from other clinical phenomena (Briere et al., 2005). Commonly identified clustered dissociative symptom presentations, include: derealization/depersonalization, absorption, and amnesia (Armour et al., 2014; Giesbrecht et al., 2007; Ray & Faith, 1995; Soffer-Dudek, 2014; Zucker et al., 2006). *Derealization* and *depersonalization* refer to a variety of symptoms that are often described along with the experience of one’s world as ‘unreal’ or one’s self as ‘unreal’ (Jáuregui Renaud, 2015). *Absorption* refers to a cluster of symptoms that reflect ‘hyper-focus,’ ‘losing one’s self,’ or engrossment in an experience (Herbert, 2013; Murray et al., 2007; Watson, 2003). While the *amnesia* cluster tends to reflect symptoms reflective of ‘forgetting’ or poor memory for events (van der Kolk & Fisler, 1996).

Difficulty determining stable and replicable relationships among symptoms of dissociation has led to suggestions that dissociative symptoms may, collectively, represent one multifaceted construct (Bryant, 2007; Feeny, & Danielson, 2004). The use of a single term to describe experiences as disparate as lapses in awareness, alterations of awareness, and hyper-focus, however, seems to have led to difficulties in understanding (Holmes et al., 2005) and treating (Weiner & McKay, 2013) these symptoms.

**Clinical relevance of dissociation.** The lack of agreement in defining dissociation is particularly problematic considering its association with higher impairment in a variety of clinical populations (Hunter et al., 2004; Spitzer et al., 2006). Dissociative symptoms are challenging to treat (Steele & van der Hart, 2009) effectively. The experience of dissociation is often associated with poor treatment prognosis (Cassano et al., 1989; Kleindienst et al., 2011). The tendency of dissociation to predict poorer treatment outcomes has often been suggested as related to their attentional nature (Bae et al., 2016; Weiner & McKay, 2013). That is, the inability to fully attend to and process therapeutic interventions is assumed to reduce the effectiveness of these interventions.

Most of the clinical disorders in which dissociation is frequently reported (e.g., anxiety disorders, cf. posttraumatic disorder, eating disorders) cannot be diagnosed without criteria related to fear-based activation (APA, 2013; Boswell et al., 2013; Spiegel et al., 2013). Dissociation also occurs across these diagnostic categories more often in periods of high activation (Chou et al., 2014; Schiller et al., 2008; Weiner & McKay, 2013). It is perhaps no wonder, then, that most well-validated treatments for treatment of dissociation rely heavily on reduction of fear-based responses towards either dissociative symptoms themselves (Weiner &

McKay, 2013) or other stimuli that evoke both fear-based reactions and dissociative responses (Brown et al., 2019).

For example, both panic disorder and posttraumatic stress disorder are characterized by periods of high activation (Foa et al., 1989; McNally, 2002; Soffer-Dudek, 2014; Weiner & McKay, 2013) and often include dissociative symptoms in their presentations (APA, 2013; Hageraars et al., 2010; Soffer-Dudek, 2014). These clinical phenomena (i.e., panic and posttraumatic reactions) diverge on the type of high activation necessary for diagnosis. Posttraumatic disorder may be diagnosed with high reactivity that is not fear-based (e.g., anger, irritability; APA, 2013) or, in the case of complex posttraumatic reactions, a lack of activation may be apparent yet dissociation is still frequently reported (Baars et al., 2011; Ford & Courtois, 2014; van Dijke et al., 2015). The tendency of these two disorders to evidence dissociation both within and outside of the context of fear-based reactions further represents an opportunity to observe and interpret expression of dissociative symptoms based on their likely functions.

**Dissociation in non-clinical samples.** Dissociation is also reported commonly in non-clinical populations. Hunter et al. (2004) have reported that at least 76% of people without psychological diagnoses report experiencing dissociative symptoms in any given year. Additionally, though within non-clinical populations dissociative are reported most frequently in response to psychological (Aderibigbe et al., 2001) or biological stressors (e.g., substance use; seizures, Brown & Trimble, 2000; brain injury; Niogi et al., 2008).

**Stress and Fear as a Common Precipitant to Dissociation.** One example of a psychological experience that typically accompanies dissociation in clinical populations and nonclinical populations is panic attacks (Kessler et al., 2006). Though panic attacks occur more frequently in clinical disorders (e.g., panic disorder; Schmidt et al., 2006; e.g., posttraumatic

stress disorder; Cohen et al., 2000), 4–12% nonclinical samples report experiencing panic attacks each year (Kessler et al., 2006). Within nonclinical populations panic attacks most often (46.6–77.3%) occur in situations associated with high stress or activation (e.g., public speaking, interpersonal conflict, periods of high stress, and exams; Norton et al., 1986), and often involve experiences of dissociation (Schmidt et al., 1997). Panic attacks may then be one common factor that predicts dissociation regardless of diagnosis or lack thereof.

There is also evidence suggestive that nonclinical populations can experience dissociative symptoms in the absence of fear and panic (Cathey & Zettle, 2016). Additionally, nonclinical populations may tend to seek out dissociation (Jansen, 2000). These differences suggest that there may be a variety of functional relationships that increase experience of dissociative symptoms.

### **Dissociation Models with Clinical Utility**

Though there were basic models of dissociation prior to behavioral models (Bob, 2003), these have largely failed to accumulate significant evidence that speak to their mechanisms of action or treatment utility, and generally have not proposed methods of intervention that fall within the purview of psychotherapeutic intervention. As the focus with the current study is development and validation of models with treatment utility we will focus on accounts of dissociation and related clinical concerns that suggest avenues for non-medical intervention.

### **Early Behavioral Models of Dissociation**

Most widely accepted conceptualizations of dissociative symptoms have built in behavioral accounts of fear acquisition and maintenance (Brewin & Holmes, 2003; Foa, 2011; Weiner & McKay, 2013). Early behavioral conceptualizations of dissociation account for dissociative symptoms as part of a class of unconditioned responses to threat (Nijenhuis et al.,

2010) emitted by both humans (Morgan et al., 2001) and animals (Ferdowsian & Merskin, 2012) in the presence of extreme threat. The tendency of both humans and animals to respond with ‘fight, flight, or freeze’ reactions to extreme threat is believed to be an evolutionary adaptation (Halvorsen, 2015). That is, animals who tended to respond automatically to extreme threat in ways that either led to defense (‘fight’) or escape (‘flight’) were increasingly likely to survive and transmit these tendencies to offspring (Halvorsen, 2015).

**Dissociation as respondent and operant conditioned behavior.** The ‘freeze’ response, in particular, has long been equated to dissociation in humans (Schauer & Elbert, 2010). A ‘freeze’ response includes lowered or altered awareness, lower mobility, and higher pain tolerance to help the animal reduce the impact of a threat (Schauer & Elbert, 2010) in situations where escape or defense were unlikely to be successful. Likewise, dissociative symptoms, collectively, may initially emerge as an unconditioned response to threat (Nijenhuis et al., 2010; Steele & van der Hart, 2009). This unconditioned response (dissociation) may then strengthen through negative reinforcement contingencies (Dymond & Roche, 2009). That is, dissociation may represent one of many responses that provide a reduction in anxiety or other aversive experiences. Through negative reinforcement, the brief reduction of aversive experiences will increase the likelihood of that response occurring again. Further, through both generalization of learning to stimuli accompanying dissociation or an accompanying fear response would be expected to increase the number of stimuli able to evoke dissociation over time. These behavioral models underlie most major cognitive-behavioral treatments for dissociation (Foa et al., 1989; Granato et al., 2015; Weiner & McKay, 2013). By contrast, explicitly cognitive models like that of Rachman (1977) propose that the acquisition and maintenance of fear-based responses cannot be explained in terms of learning principles alone.

## **Biopsychosocial Models of Fear Acquisition**

**Fear acquisition and maintenance.** Rachman's models (1977) of fear acquisition and maintenance proposed revisions to the behavioral conditioning theory of fear acquisition to account for anomalous clinical and research findings not easily explained by early operant and classical behavioral principles alone. Rachman's research and clinical experience indicated that many individuals with anxiety disorders cannot recall a specific original learning experience that explains their persistent fear. Additionally, Rachman noted that conditioning persistent fear responses in lab settings proves more difficult than would be predicted by learning principles alone (Hallam & Rachman, 1976). With these observations in mind, Rachman proposed three pathways to the acquisition of fear: conditioning, vicarious exposure, and the transmission of threat through instruction. That is, Rachman suggested that many individuals who demonstrate persistent fear responses may have learned through observing others experience threat or simply being told, implicitly or explicitly, of threat.

Rachman went on to point out further aspects of fear conditioning not consistent with traditional respondent and classical conditioning accounts of fear learning. For example, some specific types of stimuli are more readily associated with fear responses (e.g., snakes vs. faces) without specific learning histories to account for why. Other researchers (Seligman, 1971) had previously noted apparent differences in susceptibility for some types of stimuli to become paired with a fear response as likely an evolutionary adaptation.

Finally, Rachman noted that though most people experience events sufficient to condition a persistent fear response, most do not develop an anxiety disorder. Rachman (1977) later suggested that natural variability in gene expression impacting reactivity to threat might explain

why some people more easily develop anxiety disorders and related symptoms (e.g., dissociation).

**Propensity for fear reactivity.** *Anxiety sensitivity* (AS) is described as an increased reactivity to stimuli (Boswell et al., 2013) that functions as a specific vulnerability to the development of anxiety disorders (Naragon-Gainey, 2010). AS was initially proposed (e.g., Boswell, Farchione, Sauer-zavala, et al., 2013) as a dispositional reactivity, a variation in what was described by Rachman (1977) and Seligman (1971). Today, this understanding has been extended and clarified. AS is now considered an overall risk factor for the development of emotional disorders across diagnostic categories (Boswell et al., 2013). Boswell and colleagues (2013) have also proposed AS is a mechanism of change for exposure-based interventions. Specifically, they suggest that targeting the reduction of AS, or reactivity, may be more effective than targeting reductions in fear or anxiety toward specific cues (e.g., spiders or germs).

Most assessments of AS, however, do not involve measurement of pure physiological reactivity itself (e.g., skin conductance) but survey measures that ask an individual to report how much they would react to a particular physiological symptom or symptom-relevant thought. Thus, AS, as it is typically measured, entails a perceived tendency to interpret experience of one's physiological or cognitive experiences as signaling a feared outcome (McNally, 2002; Zvolensky & Forsyth, 2002). For example, among clients with panic disorder, the experience of heart palpitations, sweating, shortness of breath, and chest pain are often experienced as an unfolding heart attack (Drenckhan et al., 2015); while dissociative symptoms are often interpreted as signs of an impending psychological break (Ottaviani & Beck, 1987). Later literature on AS has explicitly discussed how this construct is likely composed of both a propensity for higher

physiological reactivity and interpretations of what the reactivity signals about oneself (Deacon & Abramowitz, 2006; Schmidt et al., 1997; Taylor et al., 2007; Zvolensky & Forsyth, 2002).

**Role of ‘beliefs’ in fear development and maintenance.** Building on foundations laid by Rachman (1977), cognitive-behavioral models (Bandura, 1999; Beck & Haigh, 2014; Ellis, 2008) tend to integrate middle-level cognitive constructs. These models extend Rachman’s attempts to explain variation in the human response to threat, and propensity to develop persistent fear reactions, by attempting to detect belief structures that may mediate or moderate reactions to the outside world (Briere, 2002; Chrestman et al., 2016; Foa et al., 1989; González-Prendes & Resko, 2012). These biopsychosocial theories attempt to account for further variation in propensity to respond more readily to threat (Guyer et al., 2015) by integrating findings and methods drawn from biological, cognitive, and evolutionary psychology frameworks.

**Schemas and perception under threat.** For example, most cognitive theories suggest that particular beliefs can serve to alter our perception of the world in just the way that biological limits (e.g., span of visual field) limit how much to information we can perceive at once (Marois & Ivanoff, 2005). This is also applied to the conceptualization of treatment, where a reported belief is typically taken to mean that an underlying structure or *schema* is present and can acted upon just as we might detect and remove a brain tumor affecting visual perception.

**Cognitive restructuring and behavioral experiments.** Cognitive theorists have, not surprisingly, tended to propose ways of detecting, and often, replacing the maladaptive belief systems with more effective beliefs (e.g., Bennett-Levy, 2003). For example, cognitive interventions may involve having clients test the validity of their beliefs or perform behavioral experiments meant to non-verbally teach clients to recognize their biases in perception of threat

(Carter & Barlow, 2004; Marshall, 1988). Cognitive-behavioral theorists treating fear-based responses have likewise attempted to influence relevant belief systems while also integrating intervention components based on learning principles (e.g., exposure and response prevention; Nemeroff et al., 2006).

### **Cognitive behavioral interventions for dissociation and related anxiety disorders.**

Analysis of the effectiveness of cognitive-behavioral interventions for anxiety and related disorders tends to suggest that those elements based on learning principles are the active treatment ingredient (i.e., exposure therapy; Salkovskis et al., 2007). Those interventions that have attempted to address persistent fear reactions and dissociative symptoms in the same manner, however, have struggled to validate their mechanisms of action (Foa et al., 2006).

A particularly good example of this is Prolonged Exposure (PE; Brown et al., 2019). PE is a well-validated treatment for posttraumatic stress disorder (Powers & Deacon, 2013). Foa's (2011 & Foa et al., 2006) theories directly attempted to address dissociative aspects of posttraumatic stress disorder and the clinical difficulties that arise in addressing conditioned responses to associated with severe trauma. Foa (2011) and Brown et al. (2019) have suggested that the cognitive processing ability of the brain is overloaded during trauma. Thus, PE (Brown et al., 2019; Foa, 2011) was initially developed around the assumption that having an individual recount a traumatic memory repeatedly would lower anxious activation and lowered activation would aid in normal encoding of traumatic memories. It is assumed in PE that reduced responding would lower the cognitive load of processing the memory and allow more aspects the memory to come forward and be integrated, thus reducing posttraumatic flashbacks, emotional and behavioral dysregulation, and dissociative symptoms (e.g., poor memory, derealization, depersonalization, numbing). Though PE has been well-validated as an effective treatment for

reducing traumatic reactions, including dissociative symptoms, data have not supported re-integration of poorly processed trauma memories as the mechanism of action (Baker et al., 2010; Cooper et al., 2017; Eftekhari et al., 2006; Foa, 2011).

**Proposed mechanisms in evidence-based treatments.** In dismantling studies of exposure-based treatments, exposure-based components are often suggested to be more active than cognitive restructuring (e.g., Hope et al., 1995; Pompoli et al., 2018; Whiteside et al., 2015); however, this is not always the case (Markowitz et al., 2015; Marks et al., 1998). In fact, a variety of other mechanisms have demonstrated some efficacy in treating panic (Kabat-Zinn et al., 1992), posttraumatic stress disorder (Au et al., 2017; Cooper et al., 2017), and dissociative symptoms (Fonagy, 2015; Fonagy & Target, 1995; Kennerley, 1996). This mixed evidence would suggest that more integrative explanatory theories may be useful.

### **Modern Behavior Analytic Models**

**Relational Frame Theory.** RFT provides an account of the properties of how humans learn language through operant principles. A now substantial body of research indicates that, in the process of learning language, humans learn to respond to stimuli in terms of their arbitrarily reinforced relationships (i.e., relationships reinforced via social convention). That is, through operant reinforcement humans learn to engage respond to stimuli in terms of other stimuli. This is known as *derived relational responding* (DRR; Hughes & Barnes-Holmes, 2015; McHugh et al., 2004; O'Connor et al., 2017; Roche et al., 2002). For example, if a parent smiles at or rewards a child for saying “cat” in the presence of a cat, and the child will begin to equate this word with a cat by responding to the word “cat,” in some ways, like the animal, cat. Once established, those responses evoked by actual felines may be evoked by the word “cat” itself,

despite the fact that the word itself bears no formal similarity to a cat. Over time, relating to stimuli based on derived relationships becomes a generalized operant behavior. A now substantial body of research (Barnes-Holmes, Barnes-Holmes, McHugh, et al., 2004; Ruiz Jiménez, 2012) indicates that humans tend learn a number of patterns of responding to stimuli in terms of each other.

**The dominance of derived relational responding.** Patterns of relating that have been demonstrated empirically include 1) coordination (Sidman, 1994), 2) opposition (Barnes-Holmes, Barnes-Holmes, Smeets, et al., 2004), 3) comparison (Barnes-Holmes, Barnes-Holmes, Smeets, et al., 2004), and 4) hierarchy (Gil et al., 2012). Each of these patterns of relating allow learning through direct contingencies (i.e., operant reinforcement and punishment and classical conditioning) to extend to other stimuli through their relationships with each other. Further, the responses evoked by one stimulus (i.e., its functions) may be transferred to other stimuli based on the ways in which the individual relates them. This property of symbolic relating is referred to as *transformation of stimulus functions*.

**Deictic relating and its properties.** The applied implications of the properties of symbolic relating are far-reaching (Blackledge, 2003), in particular with self-referential relating. Self-referential relating, or *deictic* relating (Barnes-Holmes et al., 2013; Barnes-Holmes, Barnes-Holmes, McHugh, et al., 2004; Moran & McHugh, 2020), has been indicated as particularly important in driving both adaptive and maladaptive behavior (Barnes-Holmes, Barnes-Holmes, McHugh, et al., 2004; Blackledge, 2003; Vilaradaga et al., 2007). Deictic relating is particularly important because it reflects the individuals relating through their own perspective (i.e., time, space, role/identity, and interpersonal orientations) as well as narratives about the ‘self.’ Stimuli that become heavily related to a person’s perception of themselves may be present in many

contexts (i.e., with the ‘self’) and transform the functions of many other stimuli the person contacts.

In the case of trauma, recent functional-analytic accounts propose that trauma histories weaken an individual’s consistent and distinct sense of ‘self’ (McEnteggart et al., 2016). McEnteggart et al. further propose that reduced integration of the ‘self’ results in deficits in ‘context-integration.’ Essentially, the individual’s psychological boundaries that create a stable sense of time, place, and identity can become highly influenced by contextual factors and distress. McEnteggart et al. detail how this can account for dissociation and even the increased rate of ‘voice hearing’ or hallucinatory experiences. Essentially, an individual whose context is highly influenced by aversive perspectives of the self, world, or others may have trouble orienting reliably to their own perspective. Thus, in the case of dissociation, this functional account suggests that dissociation may be accounted for by a sense of self that is poorly integrated and less flexible to contextual influence.

**Schema consistency and flexibility.** In this way, schemas can be reconceptualized as verbal behavior in terms of not only their content (i.e., what beliefs one endorses about the self, others, and the world), but also their sensitivity to context in how they impact behavior. For example, a poorly integrated ‘self’ is likely to be one that is highly derived rather than appropriately responsive to context. That is, schemas may dominate the individual’s perspective in many daily experiences to the exclusion of direct contingencies. In other words, an individual reporting high Schema Consistency would allow beliefs to drive overt behavior, even when direct consequences may not support that behavior. In this way, high levels of Schema Consistency could be associated with dissociative experiences, disrupting attention to contingencies that are not meaningfully informing moment to moment choices.

On the other hand an individual's ability to behave in ways that counter their derived relations could lessen the effect of ineffective self-relating. That is, an individual reporting high schema flexibility would be able to shift attention to appropriate direct contingencies even when they conflict with beliefs about self, other, and the world. In this way, high levels of schema flexibility could buffer against dissociative experiences, fostering improved attention to contingencies that are meaningfully informing moment to moment choices.

### **Purpose of the Current Study**

Previous research has fallen short of explaining how dissociation may be both a normative occurrence in nonclinical populations and predictive of severe impairment in clinical populations. Functional accounts of anxiety disorders (Dymond & Roche, 2009; Hayes & Hofmann, 2018; Palm Reed et al., 2018) and stress-related disorders (Mulick et al., 2011) point to the importance of operant behavioral principles as an important contributor to the etiology and maintenance of anxiety and related disorders (e.g., depression; Ferster, 1973). Likewise, current treatments tend to focus on the role of normative learning processes, teaching new responses primarily through operant and respondent conditioning (Kanter et al., 2008; O'Dwyer, 2000; Salcioglu, 2003). Behavioral analyses have expanded in recent years, however, to incorporate DRR processes proposed to underlie cognitive and behavioral inflexibilities that cannot be accounted for through direct learning histories (Blackledge, 2003). For example, dissociative symptoms may be driven by particular patterns of relating about the 'self' (McEntegart et al., 2017; Moran & McHugh, 2019). Specifically, the endorsement of schemas, and the consistency and flexibility with which they are held, may foster or hamper dissociative experiences by decreasing or increasing attention and behavioral responsiveness to direct contingencies. This

approach addresses the same issues Rachman (1977) sought to explain via schemata, but focuses on the extent to which they are associated with overt behavior.

**Study hypotheses.** The current study seeks to investigate the relative contributions of several factors in predicting dissociation in a nonclinical sample. Specifically, the current study seeks to determine whether self-relevant verbal behavior makes a contribution to predicting dissociation above and beyond heightened reactivity. Specifically, self-relevant verbal behavior will be explored by examining endorsement of maladaptive self-relevant schemas, Schema Consistency, and Schema Flexibility. The investigators hypothesize that consistent with recent functional analytic accounts of dissociation (McEntegart et al., 2017; Moran & McHugh, 2019) verbal behavior will predict variance in dissociation symptoms over and above self-reported heightened reactivity. Specifically, Anxiety Sensitivity, panic symptoms, and experience of trauma as well as symptoms of posttraumatic stress disorder will be measured to bridge measurement of heightened reactivity symptoms across nonclinical and clinical populations. Anxiety sensitivity (Boswell, Farchione, Sauer-zavala, et al., 2013), panic disorder (Barlow et al., 1989), and posttraumatic stress disorder (Nemeroff et al., 2006) are all typically treated with exposure-based methods and are related to a more frequent experiences of dissociation (Belli et al., 2012; Zucker et al., 2006). Should self-relevant verbal behavior predict dissociation above and beyond heightened reactivity this suggests new treatment strategies for dissociation symptoms.

More specifically, the following hypotheses will be evaluated:

1. That the overall level of endorsement of maladaptive self-relevant schemas will be positively correlated with dissociation.

2. That self-reported self-relevant verbal behavior (Schema Consistency and Schema Flexibility) make a contribution above and beyond simple endorsement of maladaptive self-relevant schemas in predicting dissociation.
3. That self-reported self-relevant verbal behavior (Schema Consistency and/or Schema Flexibility) will make a contribution above and beyond Anxiety Sensitivity in predicting dissociation.
4. That self-reported self-relevant verbal behavior (Schema Consistency and/or Schema Flexibility) will make a contribution above and beyond panic symptoms in predicting dissociation.
5. That self-reported self-relevant verbal behavior (Schema Consistency and/or Schema Flexibility) will make a contribution above and beyond experience of trauma and presence/absence of posttraumatic symptom levels suggestive of posttraumatic stress disorder.

## CHAPTER 3

### METHOD

#### Participants

A community sample of ( $N = 327$ ) participants was recruited from advertisements on Facebook (see Appendix H). All participants completed measures by online survey. The current study was approved by the Institutional Review Board (IRB) at Wichita State University (WSU). Of the total participants, 21.7% ( $n = 71$ ) completed sufficient measures.

Participants who completed the study were predominantly female (74.6%,  $n = 53$ ) and White (80.3%,  $n = 57$ ). Ethnic minority participants were a small proportion of the sample and identified as Other (7.0%,  $n = 5$ ), Asian/Pacific Islander (5.6%,  $n = 4$ ), Hispanic (2.8%,  $n = 2$ ), African-American/Black (2.8%,  $n = 2$ ), and Indian (1.4%,  $n = 1$ ). The majority of participants were single (54.9%,  $n = 39$ ). Participants' ages ranged from 19 to 74 ( $M = 42.48$ ,  $SD = 13.96$ ). Only two participants reported a previous epilepsy diagnosis (2.8%). Participants were on average more highly educated than the public, with 38.0% ( $n = 27$ ) reporting master's degree, 19.7% ( $n = 14$ ) an undergraduate degree, 18.3% ( $n = 13$ ) a doctoral degree, and 23.9% ( $n = 17$ ) indicating less than a bachelor's degree. Of the participants, 33.8% ( $n = 21$ ) indicated a previous diagnosis of posttraumatic stress disorder, 63.4% ( $n = 45$ ) reported experiencing a traumatic event that continues to 'bother' them, and 9.8% ( $n = 7$ ) indicated a previous diagnosis of panic disorder. See Table 3 for a summary of all relevant demographic data for the larger sample and sample who completing all required measures. Note that where percentages for a given category do not add up to one hundred percent, the remaining sample respondents did not answer the item.

Table 3.

*Demographics*

Variable	Study Sample
	<i>n</i> = 71
	<i>n</i> (%)
Gender	
Female	53 (75)
Male	17 (24)
Ethnicity	
Caucasian/White	57 (80)
Other	5 (7)
Asian/Pacific Islander	4 (6)
African-American/Black	2 (3)
Hispanic	2 (3)
Indian	1 (1)
Marital Status	
Single	39 (55)
Highest educational level	
< Bachelor's Degree	17 (24)
Bachelor's Degree	14 (20)
Master's Degree	27 (38)
Doctoral Degree	13 (18)
Panic Diagnosis Ever	7 (10)
Trauma Still Problematic	45 (63)
PTSD Diagnosis Ever	21(30)
Epilepsy Diagnosis	2 (3)

Note: Where categories do not add up to the entire sample the remaining number of participants did not respond to the item.

## Measures and Materials

The survey included (a) a demographic questionnaire that assessed age, gender, racial/ethnic status and self-report of epilepsy, panic disorder, or posttraumatic stress disorder diagnosis, (b) the Anxiety Sensitivity Index – 3; ASI-3, (c) the Dissociative Experiences Scale – II; DES-II, (d) the Young Schema Questionnaire – 3; YSQ – 3 and adapted scales (Schema Consistency; YSQ-SC, Schema Flexibility; YSQ-SF), (e) the Panic Disorder Self-report (PDSR; Newman et al., 2006), and (f) the Posttraumatic Symptom Checklist - Specific (PCL-S; Blanchard et al., 1996).

**Demographic Questionnaire.** The demographic questionnaire (see Appendix C) was also used by Cathey and Zettle (2016) and asks general questions about the age, gender, racial/ethnic status, and educational level of participants. The demographic measure also asked for self-reported previous diagnosis of epilepsy, panic disorder, and posttraumatic stress disorder.

**Anxiety Sensitivity Inventory-3 (ASI-3).** The ASI-3 (see Appendix D) is a widely used and well-validated (Taylor et al., 2007) of heightened reactivity to stimuli (Boswell et al., 2013) that functions as a specific vulnerability to the development of anxiety disorders (Naragon-Gainey, 2010). The inventory includes 18 items that assess discomfort with various symptoms according to a 5-point Likert-scale 0 (*Not at All*) to 4 (*Very Much*). The instrument yields three subscales comprising six items each assessing physical, cognitive, and social concerns as well as a total score (Taylor et al., 2007). See appendix for items included in each of the three subscales. Total scores on the ASI-3 range from 0 to 72. In non-clinical samples total scores ( $M = 12.8$ ,  $SD = 10.6$ ) are typically a standard deviation or more lower than scores in clinical populations.

Taylor et al. report pre-treatment mean scores for panic disorder ( $M = 32.6$ ,  $SD = 14.3$ ), obsessive-compulsive disorder ( $M = 23.3$ ,  $SD = 16.8$ ), social anxiety disorder ( $M = 31.4$ ,  $SD = 11.9$ ), and generalized anxiety disorder ( $M = 27.5$ ,  $SD = 16.5$ ). In a series of two studies, Osman et al. (2010) found moderate to high subscale intercorrelations ( $r = .53$ -.62) for the ASI-3 in nonclinical student samples. Levels of internal reliability for the total scale score ( $\alpha = .89$ ) were satisfactory. Data regarding the test-retest reliability of the ASI-3 are not yet available (Dockery, 2014; Taylor et al., 2007).

Evaluations of the convergent and discriminant validity of the ASI-3 have been primarily conducted with clinical samples. In two studies evaluating a heterogeneous group of inpatients, Kemper et al. (2012) reported positive correlations between the physical concerns subscale and measures of body vigilance; the cognitive concerns subscale and measures of depression symptoms, anxiety, subjective complaints, and fear of negative evaluation; and the social concerns subscale and measures of fear of negative evaluation and social inhibition. The ASI-3's discriminant validity was supported by negative correlations between the social concerns subscale and measures of dominant and intrusive social behavior in this same sample. In the current sample, ASI total scores ranged from 0 to 56. Mean scores in the current sample ( $M = 20.1$ ,  $SD = 14.7$ ) suggest an appropriate level of variation and mean score for a sample of the public. Internal consistency in the current sample ( $\alpha = .93$ ) was comparable to previous samples.

**Dissociative Experiences Scale-II (DES-II).** The DES-II (see Appendix E) is a well-validated measure of dissociation in both clinical and nonclinical populations (Van Ijzendoorn & Schuengel, 1996). The inventory includes 28 items that assess experiences of dissociation reported in both clinical and non-clinical populations over their lifetime. Items are rated on an 11-point Likert-like scale from experiencing a symptom 0 to 100% of the time. The instrument

was originally proposed to yield three subscales (Amnesia, Absorption, and Derealization/Depersonalization; Bernstein & Putnam, 1986) as well as a total score (Bernstein et al., 1993). Later research has only supported one factor (Fischer & Elnitsky, 1990; Marmar et al., 1994) indicated by total score. Total scores on the DES-II range from 0 to 100. Higher scores on the DES-II are reflective of reporting more frequent dissociation; however, this does not itself indicate the presence of psychopathology (Mazzotti & Cirrincione, 2001; Van Ijzendoorn & Schuengel, 1996).

The DES and subsequent versions of the DES (DES-II) have been used in over 100 different studies with many participants ( $N = 5,916$  as of Van Ijzendoorn & Schuengel, 1996). Van Ijzendoorn & Schuengel (1996) reviewed previous studies and the findings of these to a meta-analytic analysis examining norms for various populations, as well as the instrument(s) reliability, convergent, and divergent validity. The DES-II is a newer version (Carlson & Putnam, 1995) of a previously the original Dissociative Experiences Scale (DES; Bernstein & Putnam, 1986) to which has demonstrated a strong relationship to the DES. The DES and DES-II differ only in terms of rating scale type (e.g., tick mark vs Likert; Van Ijzendoorn & Schuengel, 1996). Pooled means for parametric data across 7 studies indicate that a nonclinical, 'normal' samples tend to score ( $M = 11.57, SD = 10.63$ ). Individuals with diagnosed psychiatric illness vary as follows, anxiety disorders pooled ( $M = 10.32, SD = 9.99$ ), eating disorders ( $M = 14.82, SD = 11.49$ ), personality disorders ( $M = 19.61, SD = 16.24$ ), posttraumatic stress disorder ( $M = 32.01, SD = 19.18$ ). Notably, the distribution of mean scores across normal participants and those diagnosed with 'nondissociative' disorders are fairly similar and evidence large standard deviations across clinical and nonclinical samples (Van Ijzendoorn & Schuengel, 1996). Research has further examined the predictive power of DES in diagnosing DSM-IV and DSM-III

disorders has indicated that posttraumatic stress disorder and primary dissociative disorders (e.g., dissociative identity disorder) are best indicated by DES score (Van Ijzendoorn & Schuengel, 1996).

The DES-II has demonstrated good convergent validity with the earlier version of the DES (Ellason et al., 1994). The DES-II has demonstrated excellent convergent validity with other measures of dissociative experiences including: the Perceptual Alteration Scale (PAS; Sanders, 1986), the Questionnaire of Experiences of Dissociation (QED; Riley, 1988), the dissociation scale of the Trauma Symptom Checklist (TSC-40-DIS; Gleaves & Eberenz, 1995) and the Structured Clinical Interview for DSM-III-TR Dissociative Disorders (SCID-D; Steinberg et al., 1994). The discriminant validity of the DES is somewhat less clear. The DES does not appear to be related to socially desirable responding (De Silva & Ward, 1993), as measured by the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960); however, the DES is highly correlated with a number of measures of general distress and clinical symptomology. Meta-analytic examinations of divergent validity (Van Ijzendoorn & Schuengel, 1996), indicate higher than would be anticipated associations between the DES and the Beck Depression Inventory (BDI; Beck et al., 1996) and a variety of scales (i.e., phobic-anxiety, anger-hostility, and depression) of the Minnesota Multiphasic Personality Inventory-2 (MMPI-2). Data for the test-retest reliability also support the measures stability (Van Ijzendoorn & Schuengel, 1996). The internal consistency of the DES across 16 studies (Van Ijzendoorn & Schuengel, 1996) was ( $\alpha = .93$ ). In the current sample, the average total score on the DES-II was  $M = 14.8$ ,  $SD = 13.6$ . The internal consistency of the DES-II in the current sample was adequate ( $\alpha = .95$ ).

**Young Schema Questionnaire - 3 (YSQ-3 Adapted).** The YSQ-3 (see Appendix F) is a 90-item well-validated measure of schemas about the self, other, and world (Phillips et al., 2019). Items are rated from 1 (*Completely untrue of me*) to 6 (*Describes me perfectly*). The YSQ-3 can be scored to obtain a total score and 18 subscale scores. Total scores on the YSQ-3 range from 90 to 540. The YSQ-3 has been used widely in to assess maladaptive schemas related to the self, other, and world (Phillips et al., 2019). Internal consistency of the total score and each scale score is excellent for the total score ( $\alpha = .97$ ) and ranges from ( $\alpha = .59$ ) to ( $\alpha = .90$ ) for the subscales (Lee et al., 2015). The test-retest reliability of the YSQ-3 is adequate across a two-year period (Lee et al., 2015). The convergent and discriminant validity of the YSQ-S is sufficient (Lee et al., 2015) and indicates anticipated convergence between the total score and the subscales to measures of psychological symptoms and attachment styles. Factor analysis indicates two overall factors, vulnerable self and inflated self. In the current sample, the mean score was  $M = 227.99$ ,  $SD = 60.9$ . The internal consistency of the YSQ-3 in the current sample was excellent ( $\alpha = .96$ ).

For each Young Schema Questionnaire – 3 Adapted item the participant was asked, “How much does this belief drive your behavior in relevant areas of your life?” Responses to this were rated on an equivalent Likert-like scale rated from 1 (*This belief does not drive behavior in relevant areas of my life at all.*) to 6 (*This belief always drives behavior in relevant areas of my life.*). This subscale of the YSQ-3 Adapted was meant to provide one piece of information important to assessing the function of self-referent verbal behavior or *Schema Consistency* (YSQ-SC; Appendix F). Within functional contextualistic traditions there is a strong tradition of attempting to assess function of particular beliefs as well as behavior in response to those beliefs (see e.g., Sandoz et al., 2017; Varra et al., 2008). Total scores were

obtained by summing YSQ-SC items. Total scores for the YSQ-SC subscale may vary from 90 to 540. Higher scores reflect greater consistency of schema application across ‘relevant’ life contexts (YSQ-SC). In the current sample, the mean score was  $M = 228.1$ ,  $SD = 75.8$ . The internal consistency of the YSQ-SC scale in the current sample was excellent ( $\alpha = .98$ ).

For each Young Schema Questionnaire – 3 Adapted item the participant was asked, “How much do you behave in ways that are counter to this belief in relevant areas of your life?” These items were meant to assess self-reported flexibility in following self-relevant beliefs *Schema Flexibility* (YSQ-SF; Appendix F). Responses to this were rated on an equivalent Likert-like scale rated from 1 (*I never act in ways that are counter to this belief in relevant areas of my life.*) to 6 (*I always act in ways that are counter to this belief in my life.*) Total scores for the YSQ-SF subscale of the YSQ-3 Adapted were obtained by summing for a total score of 90 to 540. Higher scores reflect a greater ability to act in a manner inconsistent with one’s schemas (YSQ-SF) or a ‘flexible’ response repertoire. In the current sample, the mean score was  $M = 239.5$ ,  $SD = 100.9$ . The internal consistency of the YSQ-3 Schema Flexibility (YSQ-SF) scale in the current sample was excellent ( $\alpha = .99$ ).

**Panic Disorder Self-Report (PDSR).** The PDSR (see Appendix G) is a well-validated self-report of experiences with panic attacks. It also examines other diagnostic criteria for panic disorder, with higher scores indicating a greater likelihood of this diagnosis (Newman et al., 2006). A cutoff score of  $\geq 9$  on the PDSR has demonstrated sensitivity of 89% and specificity of 100% for determining caseness of panic disorder. In the current sample, the mean score was  $M = 7.0$ ,  $SD = 7.66$ . Internal consistency of the PDSR in the current sample was excellent at  $\alpha = .77$ .

**PTSD Checklist- Specific (PCL-S).** The PCL-S (see Appendix H) is a 17-item self-report measure of PTSD symptoms (e.g., “repeated disturbing dreams of the stressful experience?”) experienced over the last month related to an identified traumatic incident (Blanchard et al., 1996; Weathers et al., 1993). If the participant indicates no previous experience of a traumatic event in response to the first item, the questionnaire may be ended at that point. A score of 30 or greater indicates likely PTSD in civilian populations (Blanchard et al., 1996; Conybeare et al., 2012; Weathers et al., 1993). The sensitivity of the PCL-S for identifying PTSD in a civilian population is .78 with a specificity of .86 (Blanchard et al., 1996).

The PCL has demonstrated satisfactory levels of both temporal ( $r = .96$  over 2-3 days; Weathers et al., 1993) as well as internal consistency in veteran samples ( $\alpha = .94-.97$ ; Blanchard et al., 1996; Weathers et al., 1993). In the current sample, the mean score for individuals who reported a traumatic event and continued on through the PCL-S was ( $n = 43$ ,  $M = 43.4$ ,  $SD = 16.15$ ). A categorical variable representing *trauma influence* (TI) was created from PCL – S scores by using endorsement of ‘still problematic trauma’ and accepted cutoffs for clinically significant posttraumatic symptom endorsement. All participants were coded according to: 1) presence or absence of problematic trauma, 2) presence or absence of pre-clinical trauma reaction, and 3) presence or absence of likely posttraumatic stress disorder. Internal consistency of the PCL-S in the current sample was excellent at  $\alpha = .95$ .

## **Procedure**

Participants were recruited on social media (i.e., Facebook) with posts and targeted ads (see Appendix A) to reach all English-speaking individuals in the United States above 18 years-of-age. Participants who clicked on the ad were able to view the study consent form (see

Appendix B). The consent form included information about how to contact study investigators and how to seek therapeutic services from evidence-based treatment directories. Participants who consented to participate were then administered the Demographic Questionnaire, Anxiety Sensitivity Index-3, Dissociative Experiences Scale - II, Young Schema Questionnaire - 3 and Adapted subscales, Panic Disorder Self-report, and PTSD Checklist - Specific. Participants who completed the survey were then able to leave their email address to enter a raffle for 1 of 20 twenty-dollar Amazon gift certificates that were issued by email address. Email addresses collected to award Amazon certificates were separated from participant data at download and stored separately from study data.

### **Data Analysis Plan**

To investigate H<sup>1</sup>, that the overall level of endorsement of maladaptive schemas would demonstrate a relationship to dissociation, correlations between measures of maladaptive schemas (YSQ-3, YSQ-SF, YSQ-SC) and dissociation (DES-II) were examined.

To investigate H<sup>2</sup>, that reported self-relevant verbal behavior would make a contribution above and beyond maladaptive schema endorsement (YSQ-3) in predicting dissociation (DES-II), multi-stage hierarchical regression analysis was used. The investigators planned to enter endorsement of maladaptive schemas (YSQ-3) into stage one of the hierarchical regression analysis and self-reported verbal behavior (YSQ-SC and YSQ-SF) into the second stage of the hierarchical regression. The investigators planned to use post-hoc analysis to examine any relevant interaction effects.

To investigate H<sup>3</sup>, that reported self-relevant verbal behavior (YSQ-SC, YSQ-SC) would make a contribution to predicting dissociation, above and beyond Anxiety Sensitivity (ASI-3), the investigators planned to use multi-stage hierarchical regression analysis. The investigators

planned to enter Anxiety Sensitivity (ASI-3) into the first stage of the hierarchical regression followed by entry of self-reported verbal behavior in the second stage of analysis (YSQ-SC, YSQ-SF). The investigators then planned to use post-hoc analysis examined to examine any relevant interaction effects.

To investigate H<sup>4</sup>, that reported self-relevant verbal behavior (YSQ-SC, YSQ-SF) would make a contribution to predicting dissociation (DES-II) above and beyond panic symptoms (PDSR) the investigators planned to use multi-stage hierarchical regression analysis. The investigators planned to enter panic symptoms (PDSR) into the first block of hierarchical regression. In the second block of the regression, the investigators planned to enter self-reported verbal behavior (YSQ-SC, YSQ-SF). The investigators then planned to use post-hoc analysis to examine any relevant interaction effects.

To investigate H<sup>5</sup>, that self-relevant verbal behavior (YSQ-SC, YSQ-SF) would make a contribution to predicting dissociation (DES-II) above and beyond experience of trauma or trauma symptoms (TI) the investigators planned to use multi-stage hierarchical regression analysis. The investigators planned to enter self-relevant verbal behavior (YSC-SC, YSQ-SF) into the first stage of analysis (YSQ-SC, YSQ-SF) followed by Trauma Influence (TI) in the second stage of analysis. The investigators planned to use post-hoc analysis to examine any interaction effects.

## RESULTS

### Data Analysis

Prior to completing data analysis, data were cleaned and examined for violations of statistical assumptions relevant to hierarchical regression analysis. Due to the initial user experience of the YSQ-3 Adapted, including the initial formatting of the adapted YSQ-3 scales (YSQ-SC, YSQ-SF) many initial participants were not able to view the YSQ-SC and YSQ-SF columns. That is, it became apparent that on mobile devices these columns of the response matrix were not readily visible. Many participants ( $n = 256$ ) had simply skipped responding to them. The investigators made adjustments to the protocol to reformat these questions into a single linear series which led to better rates of completion for the entire battery. Due to the initial user experience and subsequent wait for Internal Review Board (IRB) approval of new formatting ( $n = 256$ ) participants were not included in further analysis due to incomplete data.

The final sample size of participants who had completed all dependent and independent measures was  $n = 71$ . Though this sample size is somewhat lower than the investigators has intended, it falls within acceptable limits for regression analyses with up to three predictors. That is, Stevens (1996, p. 72) states that a reliable regression equation can be obtained with 15 subjects per predictor variable.

Data analysis then proceeded with the following steps. First, descriptive statistics for each variable (i.e., range, distribution, means, and standard deviations) were evaluated. Data were examined for missing items and outliers. Independent and dependent variables were examined for the presence of statistical outliers ( $\pm 2.5 SD$  from mean). Skewness and kurtosis of independent and dependent variables were examined for values greater or less than  $\pm 1.0$ .

Relationships between independent and dependent variables were examined to evaluate fit to statistical assumptions. Scale and item ranges, means, and standard deviations (see Table 4) were compared to known norms relevant to the populations examined. Examination of descriptive data and correlations between on independent and dependent variables indicated some that data were distributed normally.

Table 4.

*Psychometric Properties of Scales*

Scale	<i>n</i>	<i>M</i>	<i>SD</i>	Range	Cronbach's $\alpha$
YSQ-3	71	228.0	60.9	110.0 - 431.0	.96
YSQ-SC	71	228.1	75.8	106.0 – 420.0	.98
YSQ-SF	71	239.4	108.9	109.0 - 494.0	.96
ASI-3	62	20.1	14.7	0.0 - 56.0	.93
PDSR	66	7.0	7.7	0.0 – 23.0	.77
PCL-S	43	43.4	16.1	21.0 - 75.0	.95
DES-II	70	14.8	13.6	0.0 - 59.3	.95

Associations among study variables (see Table 5) were consistent with hypotheses and previous research. Dissociation frequency was positively and statistically significantly correlated with YSQ-SC;  $r = .34 p < .001$ , ASI-3;  $r = .61 p < .001$ , PDSR;  $r = .46 p < .001$ , and TI;  $r = .71 p < .001$ . Of note, though the correlation between PCL-S and DES-II was sufficient to violate assumptions of multi-collinearity, the categorical variable, Trauma Influence (TI), was used in hierarchical regression analyses. Examinations of the various independent and dependent variables indicated that the YSQ-3 scores were highly correlated with a number of other

independent variables, violating assumptions the assumption of non-multicollinearity. Data analysis was adjusted for rest of the models to account for this by removing the YSQ-3 score as a predictor. YSQ-3 scores were correlated with Schema Consistency ( $r = .74, p < .001$ ), PCL-S scores ( $r = .71, p < .001$ ), and ASI-3 scores ( $r = .71, p < .001$ ) at levels suggesting multicollinearity. Despite the high correlation between YSQ-3 scores and YSQ-SC scores, YSQ-SC did not appear to violate the assumption of non-multicollinearity with other variables of interest.

Table 5.

*Correlations between Main Study Variables*

Variable	<i>n</i>	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7
1. DES-II	70	14.8	13.6	--						
2. YSQ-3	71	227.9	60.8	.59**	--					
3. YSQ-SC	71	228.1	75.8	.34**	.74**	--				
4. YSQ-SF	71	239.4	108.9	.11	.31**	.20	--			
5. ASI-3	62	20.2	14.7	.61**	.71**	.48**	.03	--		
6. PDSR	66	7.0	7.7	.46**	.54**	.29**	.12	.47**	--	
7. PCL-S	43	43.4	16.2	.70**	.71**	.52**	.34*	.65**	.67**	--

Note: <sup>1</sup>Trauma Influence is a categorical variable, here only the mean and standard deviation of those individuals reporting trauma with symptoms (PCL-S Score) is represented. \* $p < .05$ , \*\* $p < .01$ , two tailed.

**Relationship between schema endorsement and dissociation.** Our first hypothesis was that maladaptive schema endorsement would be positively and significantly correlated with

dissociation. Examination of correlations between YSQ-3 scores and DES-II scores indicated a significant positive relationship ( $r = .59$ ,  $p < .001$ ) as hypothesized. This indicates that as the total level of schema endorsement rises along with frequency of dissociation consistent with hypotheses.

**Predicting dissociation frequency from self-relevant verbal behavior.** Our second hypothesis was that reported self-relevant verbal behavior would make a contribution to predicting dissociation over endorsement of maladaptive schemas alone. As previously indicated, the correlation between YSQ-3 scores and a number of other independent variables led to exclusion of YSQ-3 scores from further hierarchical regression analysis. Without clear theoretical grounds for assuming that either YSQ-SC or YSQ-SF would make a stronger contribution to predicting frequency of DES-II, an initial linear regression analysis was conducted with both variables as predictors of frequency of DES-II. This combined model,  $F(2, 67) = 4.52$ ,  $p < .05$ , indicated that YSQ-SC and YSQ-SF, together, predicted a large and statistically significant portion of the variance (11.2%) in DES-II scores. See Table 6 for model statistics. Collinearity statistics (i.e., Tolerance and VIF) between the remaining independent variables fell within appropriate limits (Pallant, 2007). Evaluation of Beta weights and indicated that YSQ-SC was a stronger, and statistically significant, contributor to predicting dissociation ( $\beta = .06$ ,  $p < .01$ ).

Table 6.

*Linear Regression Predicting Dissociation by Schema Consistency and Schema Flexibility*

Variable	B	95% CI for B		SE B	$\beta$	$R^2$	$\Delta R^2$
		LL	UL				
Block 1						.19*	.19*
Constant	-.18	-11.30	10.95	5.57			
YSQ-SC	.06*	.02	.10	.02	.33*		
YSQ-SF	.01	-.02	.04	.02	.05		

Note. CI = confidence interval; LL = lower limit; UL = upper limit. \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

Post-hoc analysis included in block three a combined variable of YSQ-SC multiplied by YSQ-SF to evaluate interaction effects. As seen in Table 7, YSQ-SC contributed significantly to predicting the variance in the DES-II,  $F(1, 68) = 9.00, p < .01, R^2 = 11.7\%$ . In the second block, YSQ-SF was not an independent predictor of DES-II score,  $F(1, 67) = 0.15, p > .05$ . In the third block, the interaction between YSQ-SC and YSQ-SF was the strongest predictor,  $F(1, 66) = 7.17, p < .01, R^2 = 20.5\%$  of the variance in DES-II scores. This interaction suggested that flexibility moderated the relationship between YSQ-SC and frequency of dissociation such that it was positive for individuals high in YSQ-SF and negative for individuals low in YSQ-SF (See Figure 1).

These findings support the hypothesis that YSQ-SC and YSQ-SF would contribute to the prediction of dissociation frequency. YSQ-SC appears most important until it is entered first and the contribution of YSQ-SF becomes clear as well, as the added influence of the interaction of these two variables. Based on the results of this analysis the experimental variables, the

interaction of YSQ-SC with YSQ-SF was added to each of the following analyses. That is, the influence of the interaction accounted for nearly an additional 10% of the variance in DES-II scores.

Table 7.

*Predicting Dissociative Experiences from Schema Consistency and Flexibility*

Variable	B	95% CI for B		SE B	$\beta$	R <sup>2</sup>	$\Delta R^2$
		LL	UL				
Block 1						0.117**	0.117
Constant	0.801	-9.017	10.62	4.92			
YSQ-SC	0.061	0.021	0.102	0.02	0.342		
Block 2						0.119	0.002
Constant	-0.175	-11.297	10.948	5.572			
YSQ-SC	0.06	0.018	0.102	0.021	0.333		
YSQ-SF	0.006	-0.024	0.035	0.015	0.045		
Block 3						0.205**	0.086
Constant	22.91	2.665	43.155	10.14			
YSQ-SC	-0.058	-0.155	0.039	0.049	-0.325		
YSQ-SF	-0.1	-0.183	-0.016	0.042	-0.797		
YSQ-SC $\times$ YSQ-SF							
YSQ-SF	0.001	0.000	0.001	0.000	1.203		

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

Note. CI = confidence interval; LL = lower limit; UL = upper limit

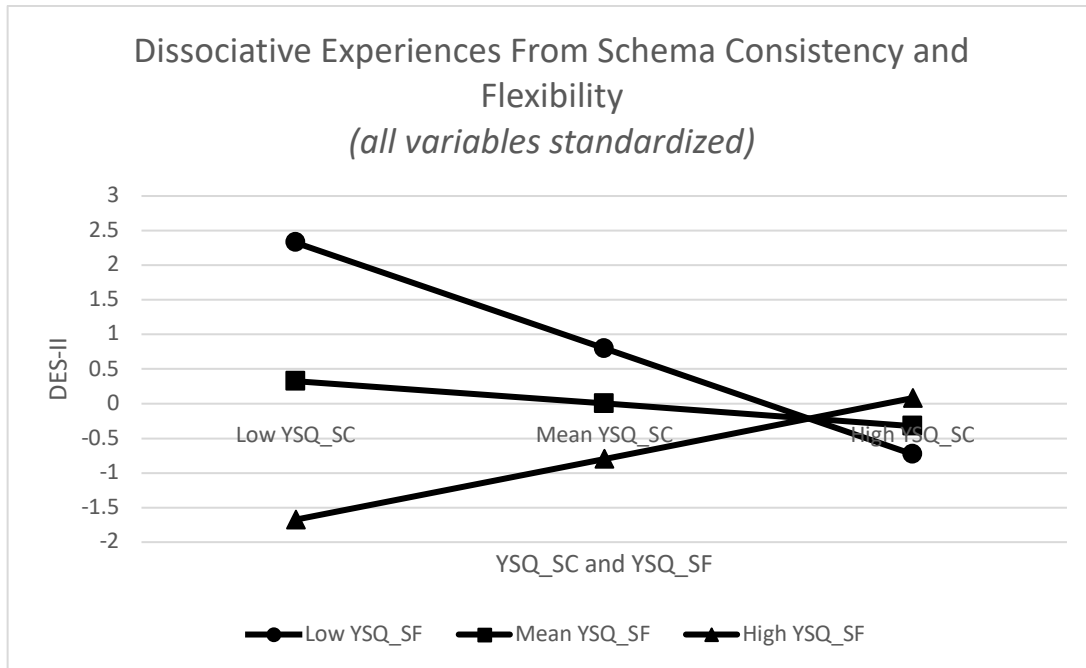


Figure 1.

**Predicting dissociation from anxiety sensitivity and self-relevant verbal behavior.**

Our third hypothesis was that self-relevant verbal behavior would predict more variance in dissociation than anxiety sensitivity. That is, that YSQ-SC and YSQ-SF would predict more variance in DES-II scores than the ASI-3. A three-stage hierarchical multiple regression was performed to evaluate predictors of DES-II score. In block one, the predictor variable ASI-3 was entered. In block two, YSQ-SC and YSQ-SF were entered. In block three, the interaction term for YSQ-SC by YSQ-SF were entered.

As seen in Table 8, Anxiety Sensitivity (ASI-3) contributed significantly to predicting the variance in the dissociation frequency,  $F(1, 60) = 35.70, p < .001, R^2 = 37.3\%$ . Schema Consistency (YSQ-SC) and Schema Flexibility (YSQ-SF) did not appear to contribute to the model above and beyond Anxiety Sensitivity individually,  $F(2, 58) = .44, p > .05$ . They contribute significantly to predicting dissociation as an interaction in block three,  $F(1, 57) =$

4.07,  $p < .05$ ,  $R^2 = 42.4\%$ . The interaction followed the same pattern as in previous analyses without ASI. That is, the relationship between Schema Consistency and dissociative experiences was positive for individuals high in Schema Flexibility and negative for individuals low in Schema Flexibility. This finding was consistent with hypotheses in that Schema Consistency (YSQ-SC) and Schema Flexibility (YSQ-SF) would contribute to predicting dissociation frequency beyond anxiety sensitivity.

Table 8.

*Predicting Dissociative Experiences from Anxiety Sensitivity, Schema Consistency, and Flexibility*

Variable	B	95% CI for B		SE B	$\beta$	$R^2$	$\Delta R^2$
		LL	UL				
Block 1						0.373***	0.373
Constant	3.443	-1.263	8.149	2.353			
ASI-3	0.565***	0.376	0.754	0.095	0.611***		
Block 2						0.382***	0.009
Constant	-0.319	-10.356	9.717	5.014			
ASI-3	0.543***	0.325	0.762	0.109	0.588***		
YSQ-SC	0.008	-0.036	0.051	0.022	0.042		
YSQ-SF	0.01	-0.016	0.037	0.013	0.082		
Block 3						0.041***	0.424
Constant	15.908	-2.941	34.757	9.413			
ASI-3	0.503***	0.286	0.72	0.108	0.544***		
YSQ-SC	-0.072	-0.161	0.018	0.045	-0.399		
YSQ-SF	-0.064	-0.142	0.014	0.039	-0.512		
YSQ-SC $\times$ YSQ-SF	0.000*	0.000	0.001	0.000	0.845***		

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

Note. CI = confidence interval; LL = lower limit; UL = upper limit

**Predicting dissociation frequency from panic symptoms and self-relevant verbal behavior.** Our fourth hypothesis was that self-relevant verbal behavior would contribute more to prediction of dissociation than panic symptoms. That is, that YSQ-SC and YSQ-SF would

contribute above and beyond PDSR scores in predicting DES-II scores. A three-block hierarchical regression was performed to evaluate predictors of DES-II. In block one, the predictor variable of PDSR Total was entered. In block two, YSQ-SC and YSQ-SF were entered. In block three, the interaction between YSQ-SC and YSQ-SF was added.

As seen in Table 9, PDSR scores contributed significantly to predicting the variance in the dissociation (DES-II score),  $F(1, 63) = 16.84, p < .001, R^2 = 45.9\%$ . YSQ-SC and YSQ-SF did not appear to contribute to the model individually above and beyond PDSR,  $F(2, 61) = 1.99, p > .05$ ; however, they contributed to predicting dissociation frequency above panic symptoms as an interaction in block three,  $F(1, 60) = 4.36, p < .05, R^2 = 55.6\%$ . The interaction followed the same pattern as in previous analyses. This finding was consistent with hypotheses in that YSQ-SC and YSQ-SF would contribute to predicting dissociation frequency beyond panic symptoms.

Table 9.

*Predicting Dissociative Experiences from Panic Symptoms, Schema Consistency, and Flexibility*

Variable	B	95% CI for B		SE B	$\beta$	$R^2$	$\Delta R^2$
		LL	UL				
Block 1						0.211***	0.211
Constant	9.09	4.975	13.204	2.059			
PDSR	.817***	0.419	1.215	0.199	0.459***		
Block 2						0.259***	0.048
Constant	0.115	-10.593	10.823	5.355			
PDSR	.698**	0.287	1.108	0.205	0.392**		
YSQ-SC	0.04	-0.002	0.082	0.021	0.225		
YSQ-SF	0.002	-0.026	0.031	0.014	0.019		
Block 3						0.309***	0.05
Constant	18.046	-2.042	38.135	10.043			
PDSR	.613**	0.206	1.021	0.204	0.345**		
YSQ-SC	-0.049	-0.144	0.046	0.048	-0.274		
YSQ-SF	-0.079	-0.162	0.004	0.041	-0.633		
YSQ-SC $\times$ YSQ-SF	.000*	.000	0.001	.000	0.936*		

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

Note. CI = confidence interval; LL = lower limit; UL = upper limit

**Predicting dissociation frequency from trauma influence and self-relevant verbal behavior.** Our fifth hypothesis was that self-relevant verbal behavior would contribute to predicting dissociation above the presence or absence of problematic trauma and level of

posttraumatic symptoms. That is, that the YSQ-SC and YSQ-SF would contribute above and beyond TI in predicting DES-II scores. A three-stage hierarchical regression was performed to evaluate predictors of DES-II scores. In block one, the categorical predictor variable of TI was entered. In block two, YSQ-SC and YSQ-SF were entered. In block three, the interaction between YSQ-SC and YSQ-SF was entered.

As seen in Table 10, TI contributed significantly to predicting the variance in the DES-II,  $F(1, 67) = 16.5, p < .001, R^2 = 44.5\%$ . YSQ-SC and YSQ-SF were not significant contributors to the model above and beyond TI individually,  $F(2, 65) = 3.60, p > .05$ ; however, they predicted an additional 11.9% variance at a marginally statistically significant level as an interaction in block three,  $F(1, 64) = 3.74, p = .058, R^2 = 56.4\%$ . The interaction followed the same pattern as in previous analyses. This finding provides some support for the hypotheses that YSQ-SC and YSQ-SF would contribute to predicting dissociation frequency beyond panic symptoms.

Table 10.

*Predicting Dissociative Experiences from Trauma Influence, Schema Consistency, and Flexibility*

Variable	B	95% CI for B		SE B	$\beta$	R <sup>2</sup>	$\Delta R^2$
		LL	UL				
Block 1						0.198***	0.198
Constant	9.06	4.972	13.149	2.048			
TI	12.046***	6.134	17.958	2.962	0.445***		
Block 2						0.278***	0.08
Constant	-2.466	-12.764	7.832	5.157			
TI	10.936***	5.168	16.705	2.888	0.404***		
YSQ-SC	.051*	0.012	0.09	0.019	0.282*		
YSQ-SF	0.002	-0.025	0.029	0.013	0.016		
Block 3						0.318***	0.04
Constant	14.046	-5.771	33.864	9.92			
TI	9.512**	3.671	15.353	2.924	0.351**		
YSQ-SC	-0.031	-0.124	0.062	0.046	-0.173		
YSQ-SF	-0.071	-0.152	0.009	0.04	-0.571		
YSQ-SC $\times$							
YSQ-SF	0	0	0.001	0	0.845		

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

Note. CI = confidence interval; LL = lower limit; UL = upper limit

## DISCUSSION

The primary purpose of this study was to examine the impact of self-referent verbal behavior relating in predicting dissociation. Despite significant research, dissociation has remained a poorly defined phenomena that affects both clinical and nonclinical populations (Aderibigbe et al., 2001; Kleindienst et al., 2011; Lynn et al., 2016; Ray & Faith, 1995). In clinical populations, experience of dissociative symptoms is typically associated with higher rates of impairment and poorer treatment outcomes (Baars et al., 2011; Hunter et al., 2004; Kleindienst et al., 2011). Current major treatments targeting dissociative symptoms tend to treat dissociation as a fear-based symptom and attempt to reduce fear in response to the symptoms themselves or stimuli that evoke both fear and dissociative symptoms (Brown et al., 2019; Cathey & Zettle, 2016; Granato et al., 2015; Weiner & McKay, 2013). These treatments tend to treat dissociation as a respondent unconditioned behavior or avoidance maintained by negative reinforcement. Recent developments in behavior analysis (Dymond et al., 2003; Hayes et al., 2005; Montoya-Rodríguez et al., 2017; O'Connor et al., 2017) suggest that including the properties of derived relational responding (DRR) into a contextual behavioral analysis may be fruitful (Wilson & Blackledge, 2000).

Additionally, McEntegart et al. (2017) have suggested the importance of flexible and adaptive self-referent verbal behavior in relation to dissociation and awareness. The current study sought to provide an initial validation of these behavioral models of dissociation. The investigators examined relationships between reported self-relevant behavior in relation to 'schemas.' In the current study, hypotheses were largely supported and thus provide initial support for behavioral models of dissociation and its treatment. A review of findings as they support, or refute, each of the studies hypotheses follows.

**Relationship between schema endorsement and dissociation.** Our first hypothesis was supported by examination of correlations between maladaptive schema endorsement and dissociation symptoms. This finding is consistent with research and case conceptualizations based on the cognitive-behavioral view of ‘maladaptive’ schemas (Hedley et al., 2001; Phillips et al., 2019; Pinto-Gouveia et al., 2006; Thiel et al., 2014). Behavioral models of dissociation (McEnteggart et al., 2017), however, suggest that maladaptive schemas are likely problematic due to the way in which they are related to by individuals and not by their mere presence. The findings of the study, at-large, are consistent with this conceptualization of schemas as verbal behavior that may be related to in more or less adaptive and thus influence dissociation.

Further, the findings of the study at large provide some initial validation for conceptualizations of dissociation as a normative variation of attention (Briere, Weathers, & Runtz, 2005). The present study suggests that dissociation as it varies across a sample including likely clinical and nonclinical symptom levels, as well as suggested clinical diagnoses, suggests that dissociation may not itself represent pathology. Conceptualizations of dissociative symptoms as variations in attention and orientation (e.g., McEnteggart et al. 2017) are consistent with this finding.

**Predicting dissociation from self-relevant verbal behavior.** Our second hypothesis, that reported self-related verbal behavior would contribute to predication of dissociation above and beyond simple endorsement of ‘maladaptive’ schemas, could not be fully investigated due to the high correlation between Schema Consistency and overall maladaptive schema endorsement. Despite this, the strong relationship of these two variables to each other is consistent with research on the properties of ‘coherence’ across relational networks (McLoughin & Stewart, 2017) and rule-governed self-relevant relating (Harte et al., 2020). Specifically, according to the

dynamics of verbal behavior strongly held beliefs about the self are likely to spread to other contexts as they will tend to over-ride contact with direct contingencies. This finding is also consistent with an information processing cognitive-behavioral conceptualization of schemas (Rachman, 1977).

The most significant support for functional analytic models of dissociation from investigation of this hypotheses comes from the strong contribution of the interaction between Schema Consistency and Schema Flexibility in predicting dissociation. Traditional cognitive-behavioral models suggest that the mere presence of maladaptive 'schema' should limit information processing such that 'schema' inconsistent information may not be processed (Foa & Kozak, 1986). Interventions from a cognitive-behavioral perspective then target 'cognitive restructuring' or 'behavioral experiments' to disprove the 'schema.' The finding that an interaction effect between Schema Consistency and Schema Flexibility contributes above and beyond schema consistency alone is supportive of functional analytic conceptualizations of behavior and is largely inconsistent with traditional cognitive behavioral models. That is, traditional cognitive-behavioral models incorporate neither the ability to act inconsistently with schema to a high degree nor flexibility in behavior in contexts relevant to self-relevant schema.

#### **Predicting dissociation from heightened reactivity and self-relevant verbal behavior.**

The current study additionally provided support for functional analytic conceptualizations of dissociation as a class of behavior influenced by the properties of verbal behavior. The finding that the interaction between self-relevant verbal behavior patterns (Schema Consistency and Schema Flexibility) contributes to predicting dissociation above and beyond all included variables representing heightened reactivity (i.e., Anxiety Sensitivity, panic symptoms, and Trauma Influence) is neither predicted by traditional cognitive-behavioral conceptualizations

(McKay & Weiner, 2013) nor consistent with treating dissociation as a negatively reinforced avoidance of anxiety (Blackledge, 2003). The finding that an interaction between self-reported variations in relating to ‘schemas’ contributes to predicting dissociation over heightened reactivity (i.e., Anxiety Sensitivity, panic symptoms, and Trauma Influence) suggests that interventions that do not take into account the properties of derived relational responding may be based on an incomplete analysis of relevant contingencies. Current methods for treating dissociation within panic symptoms (Cathey & Zettle, 2016; McKay & Weiner, 2013) and trauma including dissociation (Foa & Kozak, 1986) largely do not attempt to address self-relating patterns directly. Based on these findings, the inclusion of techniques specifically designed to promote a consistent adaptive self-awareness (consistent with the properties of derived relational responding; DRR) may add to the effectiveness of exposure-based interventions.

**Meaning of findings taken together.** Taken together, the findings of the current study suggest that across a sample that reasonably includes nonclinical and clinical individuals and different suggested diagnoses dissociation may be better predicted by self-relevant verbal behavior patterns than by the presence or absence of heightened reactivity. This is particularly significant given that the most consistent finding in relation to dissociation is the lack of consistent findings. Attempts to classify dissociative symptoms by factor analysis (Briere et al., 2005; Spitzer et al., 2006) have yielded little consistent information about dissociation. Further attempts to reliably elicit dissociative symptoms in nonclinical (Cathey & Zettle, 2016) clinical samples (Weiner & McKay, 2013) suggest that these symptoms may be somewhat difficult to evoke with high specificity and sensitivity to specific dissociative symptoms. This limits treatment development as exposure-based procedures rely on the ability of a particular stimuli or

its underlying characteristics to evoke symptoms. It may be that the incorporation of cognitive interventions that address beliefs about the self are effective when they shape self-relating.

Further, these findings support the importance of self-referent behavior patterns in terms similar to our evolving literature on other emotion regulation strategies (Farmer & Kashdan, 2014; Kashdan, 2007; Palm Reed et al., 2018). That is, our findings are consistent with research indicating that neither particular beliefs (i.e., schemas) nor other emotion regulation strategies (i.e., flexibility regarding one's beliefs) are clearly maladaptive (Farmer & Kashdan, 2014; Kashdan, 2007; Palm Reed et al., 2018). In each model, the interaction between the dominance of particular self-related beliefs and flexibility of self-related beliefs was more important than either variables contribution to dissociation alone.

**Advantages of contextual behavioral conceptualizations.** To date, most clinical research examining the efficacy or effectiveness of treatments designed to treat disorders with a dissociative component has examined reduction of symptoms at the level of average reduction of symptoms across many clients (i.e., clinically significant change in Randomized Controlled Trials). Each of these types of research has its uses; however, each lack the specificity and utility needed to effectively treat the 'average' client. Contextual behavioral analysis of contingencies controlling behavior is potentially of significant clinical utility as it allows clinicians to flexibly apply a relatively small number of behavioral principles to clients with any clinical presentation and contextual influences (Forsyth, 2000; Kohlenberg et al., 1993; Wilson & Blackledge, 2000; Vilardaga et al., 2009). That is, in the case of dissociation and anxiety, clinicians can focus on applying behavioral principles rather than identifying treatment packages demonstrated effective only at the level of population with particular topographical features (i.e., presentation more consistent with 'anxiety disorder' or 'dissociative disorder').

**Study Limitations.** Limitations to the current study are notable and may limit the generalizability of findings. As a cross-sectional study design, the relationships between variables investigated in the current study may only suggest causative relationships by observation of recognized statistical standards for rejecting null hypotheses. Though this type of research is convenient for detecting hypothesized research it is not equivalent to the predictive utility of single subject multiple-baseline designs or experimental manipulation of independent variables resulting directly in change to dependent variables.

The current study also utilized Internet advertisements through social media (i.e., Facebook) to recruit a sample of participants. This method of data collection can at times result in unusual samples and/or increases in invalid response patterns. Further, though a large number of individuals attempted to participate in the study early user experience issues with the survey on mobile devices led to a smaller sample than the investigators intended. Adjustments were made to the survey's presentation to make items easier to view in mobile format, increasing later completion rates. These difficulties make clear the importance of allowing time for user experience testing in Internet-based research as differences in browser or viewing modality may significantly alter the presentation of study-related materials. Despite these issues with data collection, the overall sample size fell within acceptable limits for hierarchical regression analysis using three predictor variables. The current studies' findings may also be limited in generalizability due to several unique characteristics of the sample. That is, the current sample appeared to be somewhat higher than other nonclinical only samples on the DES-II (Van Ijzendoorn & Schuengel, 1996). This may in part be related to the higher level of individuals who met PCL-S cutoffs suggesting posttraumatic stress disorder diagnoses.

**Future Directions and Implications.** Should further research support the importance of self-referent relating as compared, or in addition to, negative reinforcement and respondent conditioning in the maintenance of dissociative symptoms this suggests that clinicians may have easier pathways to effectively treating dissociation than exposure-based strategies. That is, whereas dissociative symptoms have remained difficult to reliably elicit and treat with typical exposure-based methods clinicians can more easily track and influence a client's patterns of relating to themselves by listening to and shaping in-session verbal behavior (Wilson & DuFrene, 2009).

Currently, only 10-30% of clinicians indicate use of exposure therapy in their practice (Borntreger et al., 2013; Whiteside et al., 2016; Wolitzky-Taylor et al., 2015). This is believed to be, in part, because many clinicians lack adequate clinician training to utilize exposure therapy (Ringle et al., 2015; Stumpf et al., 2009) and maintain negative perceptions of exposure (Deacon et al., 2013; Meyer et al., 2014). Thus, addressing dissociative symptoms through methods that do not require extensive specialized training (Gunter & Whittal, 2010) might promote wider effective treatment of these symptoms.

Additionally, nearly a third or more of individuals treated 'successfully' with exposure-based methods experiences full or partial relapse within (Foa et al., 2013; Gunther et al., 1998). Future research should investigate the impact of rule-governed behavior and its properties more fully in developing treatments for these disorders. Treatments like Acceptance and Commitment Therapy (Hayes et al., 1999) that target creating flexible and contextually sensitive verbal behavior have been particularly effective at treatment of anxiety disorders (Forsyth, 2000). In a multiple baseline design, (Twohig et al., 2006) compared verbal behavior focused interventions against exposure-based interventions. This study, is unfortunately one of the few of its kind, but

demonstrated that at the individual level verbal behavior interventions can be as effective as exposure-based interventions in treating anxiety (Twohig et al., 2006).

Further research should utilize more complete functional analyses of both direct and indirect (i.e., derived relational responding) contingencies in guiding design of research and clinical interventions. Though significant gains have been made by the inclusion of constructs and methodologies extended from biological measurement our science has begun to reach a tipping point with well-recognized replication issues (Amrhein et al., 2019; Earp & Trafimow, 2015; Loken & Gelman, 2017). These issues may, in part, be due to the tendency of researchers and clinicians to utilize methods that are inconsistent theoretically, methodologically, and clinically with each other (Ciarrochi et al., 2015; Hughes et al., 2012; Vilaradaga et al., 2007, 2014; Zarrabi, 2015).

Recently researchers (Berkout et al., 2019; Greenway et al., 2010) have also begun to propose and utilize methods of measuring verbal behavior ‘in flight.’ These methods, drawn from work in other fields (Berkout et al., 2019; Greenway et al., 2010) now allow for more practical quantitative analysis of self-referent behavior patterns. Researchers in contextual behavioral science have continuously proposed the importance of studying the ‘act-in-context’ in both clinical and research settings. The potential promises of mobile technologies (Ciarrochi et al., 2015; Vilaradaga et al., 2014) and quantitative analysis of natural language as a measure of verbal behavior and interaction with context are nearly limitless. Recent work in measurement of verbal behavior by these methods (Berkout et al., 2019; Greenway et al., 2010; Moran & McHugh, 2020) suggests that it may soon be more practical to study the interaction of verbal behavior with other aspects of context more easily. (Vilaradaga et al., 2014) and others (Hayes et al., 2013; Hughes et al., 2012; Vilaradaga et al., 2014) have proposed methods that allow bridging

of ideographic and nomothetic (population level) analysis. Bridging these methods in studies may do much to unify and clarify the findings of disparate theoretical orientations (Wilson & Blackledge, 2000; Hayes et al., 2013; Hughes et al., 2012; Vildardaga et al., 2014).

**Summary and Conclusions.** Within our science a number of approaches predominate in trying to understand psychological phenomena. Nearly all these approaches have been used to examine dissociation; however, by and large, the extant findings have offered little to the average clinician faced with a client experiencing dissociation. At the heart of most evidence-based treatments for dissociation is functional analysis. Functional analysis involves the determination of ‘function’ of a behavior within the context it presents itself and avoids assumptions beyond relationships of behavior to behavior and behavior to context. Importantly, taking a functional analytic or behavioral account of contingencies driving behavior does not oppose other levels of analysis (Wilson & Blackledge, 2000; Vahey et al., 2017; Vildardaga et al., 2014) and may, as it has in the current study, bring together disparate findings by relying on principles beneath constructs. It is the investigators hope that prioritizing the selection of coherent theoretical, methodological, and statistical methods in research may assist in bringing clarity to phenomena, like dissociation, that have otherwise proven difficult to define and influence.

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## APPENDICES

## APPENDIX A

### Internet Recruitment Ad

Seeking participants for a research study on unusual perceptual experiences (The Feelings Survey III): We are seeking participants who are aged 18 and older and fluent in English to take part in a study examining what drives less common perceptual experiences (e.g., feeling ‘spacey’ or dizzy).

If you are interested in participating, please click on the survey link that follows: ([https://wchitastate.co1.qualtrics.com/jfe/form/SV\\_6x90ZTzvSAZO7Nr](https://wchitastate.co1.qualtrics.com/jfe/form/SV_6x90ZTzvSAZO7Nr)). Individuals taking part in the survey will have the option of being entered in a drawing for 1 of 20 Amazon gift certificates, valued at \$20.

Questions can be directed to Angela Cathey at [ajburgess@shockers.wichita.edu](mailto:ajburgess@shockers.wichita.edu)

## APPENDIX B

### The Feelings Survey III

#### Consent Form

**Purpose:** You are invited to complete a survey designed to understand experiences that people often have when they are anxious, though all people have these experiences sometimes. The investigators hope to learn more about how individuals from differing various psychological characteristics experience anxiety and some less common perceptual experiences. We believe that this further understanding may be useful in developing more effective ways of helping individuals manage anxiety.

This study is being conducted by Rhonda Lewis, PhD, professor in the Department of Psychology at Wichita State University, and Angela Cathey, MA, graduate student at Wichita State University. Participation in this study is entirely voluntary and you may refuse to participate or decide to stop your participation at any time.

**Participant Selection:** If you choose to participate, you will be one of approximately 100 adults to participate in this study. To participate in this study you must be: (1) over 18 years-of-age and (2) a fluent English speaker.

**Explanation of Procedures:** If you decide to participate, your time commitment will involve completion of an online survey consisting of several questionnaires. This survey will take approximately 20-30 minutes to complete. The questionnaires you will be asked to complete will

## APPENDIX B (continued)

include questions about your demographic background (i.e., age, ethnicity, etc.), your typical and current experiences of anxiety and where they might occur, as well as any previous experiences with related reactions, such as feeling “spaced out” or “spacey”. Some of the questions you will be asked may be personal and sensitive in nature. For example, you will be asked whether you have ever been diagnosed with epilepsy or certain anxiety disorders and your experience with various anxiety-related symptoms.

**Discomfort/Risks:** You may experience some minimal discomfort with the sensitive nature of some of the questions you may be asked within this survey. For example, you will be asked whether you have experiences often associated with symptoms of different types of anxiety. Should you choose to withdraw from the study you will not be subject to any consequence or loss of opportunity you otherwise had without participating in the study. If at any point you feel too distressed to continue the survey, you may simply discontinue your participation. Should you experience any distress as a result of completing the survey you can visit the following directory to find a clinician who can help: <http://www.abct.org/Help/?m=mFindHelp&fa=dFindHelp>

**Benefits:** At the end of the survey you will also be asked to provide your email address if you would like to be entered into a raffle for 1 or 20 twenty dollar Amazon gift certificates. If you are provided your email address and are randomly chosen as one of the winners a gift certificate will be delivered via email. Certificates will be awarded to winners before Jan 31<sup>st</sup> 2020.

## APPENDIX B (continued)

Otherwise there are no benefits that you can reasonably expect from your participation in this study. However, your participation, may ultimately help the investigators better understand how we experience anxiety and related symptoms.

**Confidentiality:** All information obtained from you during this survey will remain confidential. If you participate in this study, your email address will be unlinked from your responses as soon as data is downloaded. Email addresses will be stored separately from your responses and destroyed after gift certificates are sent. Additionally, you are not required to enter your email address if you do not want to enter the raffle for Amazon gift certificates. Documentation for this research project will be maintained and safeguarded by Dr. Rhonda Lewis for a minimum of three years after completion of the study, after which time, the data may be destroyed. Every effort will be made to keep your study-related information confidential. However, in order to make sure that the study is done properly and safely, there may be circumstances where this information must be released. By consenting to participate in this study, you are giving the research team permission to share information about you with the following groups:

- 1) Office for Human Research Protections or other federal, state, or international regulatory agencies;
- 2) The Wichita State University Institutional Review Board.

## APPENDIX B (continued)

The researchers may publish the results of this study. If they do, they will only discuss group results. Your name will not be used in any publication or presentation about the study.

We will work to make sure that no one sees your survey responses without approval. However, because we are using the Internet, there is a chance that someone could access your online responses without permission. In some cases, this information could be used to identify you. Your data will be protected with a code to reduce the risk that other people can view the responses.

**Refusal/Withdrawal:** Participation in this study is entirely voluntary. Your decision whether or not to participate will not affect your future relations with Wichita State University or the Department of Psychology. If you agree to participate in this study, you are free to withdraw from the study at any time without penalty.

**Contact:** If you have any questions about this research, you can contact Rhonda Lewis, PhD of the Department of Psychology (Primary Researcher): Office JB 437C; Phone: 316-978-3695; email: Rhonda.lewis@wichita.edu, Angela Cathey, MA of the Department of Psychology (secondary researcher): Phone: 316-573-6039; email: ajburgess@shockers.wichita.edu.

If you have questions pertaining to your rights as a research subject, or about research-related injury, you can contact the Office of Research and Technology Transfer at Wichita State University, 1845 Fairmount Street, Wichita, KS 67260-0007, telephone (316) 978-3285.

APPENDIX B (continued)

You are under no obligation to participate in this study. By selecting “Yes” below, you are indicating that:

- You have read (or someone has read to you) the information provided above,
- You are aware that this is a research study,
- You have had the opportunity to ask questions and have had them answered to your satisfaction, and
- You have voluntarily decided to participate.

Yes or No

APPENDIX C

Demographic Questionnaire

1. What is your age in years? \_\_\_\_\_
2. What is your gender?:      Female      Male      Other
3. What is your relationship status? Single    Married
4. Have you had a previous diagnosis of epilepsy (i.e., seizure disorder) at any time during your life?      Yes      No
5. What is your ethnicity: (Please select one option)
  - a. African-American/Black
  - b. Asian/Pacific Islander
  - c. Caucasian/White
  - d. Indian
  - e. Hispanic
  - f. Middle Eastern
  - g. Native American
  - h. Other (please specify) \_\_\_\_\_

APPENDIX C (continued)

6. What is the highest level of schooling you have completed? (Please select one choice.)

- a. GED or equivalent
- b. High school graduate
- c. One year of college
- d. Two years of college
- e. Three years of college
- f. Four or more years of college (w/o a Bachelor's degree)
- g. Bachelor's degree
- h. Master's degree
- i. Doctoral degree

7. Have you ever been diagnosed with Panic Disorder?

Yes    No

8. Have you ever been diagnosed with Posttraumatic Stress Disorder (PTSD)?

Yes    No

9. Have you ever had exposure therapy for treatment of anxiety, PTSD, panic, or OCD?

Exposure therapy involves your therapist bringing you into contact with what you fear either physically coming closer to feared objects, imagining situations or objects, or through doing exercises that cause the same kinds of sensations/feelings/thoughts as what you fear?

Yes

No

APPENDIX C (continued)

10. If so, did you feel you were 'better' after this treatment? That is, you were either less afraid than you were before or able to do more things than you were before treatment?

Yes

No

11. If it has been six months or more since you had this treatment, do you feel like you have 'relapsed'? That is, have you started to become less able to do the things you were able to after treatment or are you again more afraid of the things you were before treatment?

Yes

No

Not applicable

## APPENDIX D

### Anxiety Sensitivity Inventory (ASI-3)

Please circle the number that best corresponds to how much you agree with each item. If any items concern something that you have never experienced (e.g., fainting in public), then answer on the basis of how you think you might feel *if you had* such an experience. Otherwise, answer all items on the basis of your own experience. Be careful to circle only one number for each item and please answer all items using the following scale:

- 0 = Very Little
- 1 = A Little
- 2 = Some
- 3 = Much
- 4 = Very Much

	Very little	A little	Some	Much	Very much
1. It is important for me not to appear nervous.	0	1	2	3	4
2. When I cannot keep my mind on task, I worry that I might be going crazy.	0	1	2	3	4
3. It scares me when my heart beats rapidly.	0	1	2	3	4
4. When my stomach is upset, I worry that I might be seriously ill.	0	1	2	3	4
5. It scares me when I am unable to keep my mind on task.	0	1	2	3	4
6. When I tremble in the presence of others, I fear what people might think of me.	0	1	2	3	4
7. When my chest feels tight, I get scared that I won't be able to breathe properly.	0	1	2	3	4
8. When I feel pain in my chest, I worry that I'm going to have a heart attack.	0	1	2	3	4
9. I worry other people will notice my anxiety.	0	1	2	3	4
10. When I feel "spacey" or spaced out I worry that I may be mentally ill.	0	1	2	3	4

APPENDIX D (continued)

11. It scares me when I blush in front of other people.	0	1	2	3	4
12. When I notice my heart skipping a beat, I worry that there is something seriously wrong with me.	0	1	2	3	4
13. When I begin to sweat in a social situation, I fear people will think negatively of me.	0	1	2	3	4
14. When my thoughts seem to speed up, I worry that I might be going crazy.	0	1	2	3	4
15. When my throat feels tight, I worry that I could choke to death.	0	1	2	3	4
16. When I have trouble thinking clearly, I worry that there is something wrong with me.	0	1	2	3	4
17. I think it would be horrible for me to faint in a public place.	0	1	2	3	4
18. When my mind goes blank, I worry there is something terribly wrong with me.	0	1	2	3	4

Scoring: Physical concerns = sum of items 3, 4, 7, 8, 12, 15. Cognitive concerns = sum of items 2, 5, 10, 14, 16, 18. Social concerns = sum of items 1, 6, 9, 11, 13, 17.

## APPENDIX E

### Dissociative Experiences Scale - II

This questionnaire asks about experiences that you may have in your daily life. We are interested in how often you have these experiences. Below answer how often these experiences happen to you when you ARE NOT under the influence of alcohol or drugs. To answer the question degree each experience described in the question applies to you, and indicate a number to show what percentage of the time you have that experience. (0% Never, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, 100% Always)

1. Some people have the experience of driving or riding in a car or bus or subway and suddenly realizing that they don't remember what has happened during part or all of the trip. Indicate the percentage of the time that this happens to you.
2. Some people find that sometimes they are listening to someone talk and they suddenly realize that they did not hear part or all of what was said. Indicate the percentage of the time that this happens to you.
3. Some people have the experience of finding themselves in a place and have no idea how they got there. Indicate the percentage of the time that this happens to you.
4. Some people have the experience of finding themselves dressed in clothes that they don't remember putting on. Indicate the percentage of the time that this happens to you.
5. Some people have the experience of finding new things among their belongings that they do not remember buying. Indicate the percentage of the time that this happens to you.
6. Some people sometimes find that they are approached by people that they do not know, who call them by another name or insist that they have met them before. Indicate the percentage of the time that this happens to you.

APPENDIX E (continued)

7. Some people sometimes have the experience of feeling as though they are standing next to themselves or watching themselves do something and they actually see themselves as if they were looking at another person. Indicate the percentage of the time that this happens to you.
8. Some people are told that they sometimes do not recognize friends or family members. Indicate the percentage of the time that this happens to you.
9. Some people find that they have no memory for some important events in their lives (for example, a wedding or a graduation). Indicate the percentage of the time that this happens to you.
10. Some people have the experience of being accused of lying when they do not think that they have lied. Indicate the percentage of the time that this happens to you.
11. Some people have the experience of looking in a mirror and not recognizing themselves. Indicate the percentage of the time that this happens to you.
12. Some people have the experience of feeling that other people, objects, and the world around them are not real. Indicate the percentage of the time that this happens to you.
13. Some people have the experience of feeling that their body does not seem to belong to them. Indicate the percentage of the time that this happens to you.
14. Some people have the experience of sometimes remembering a past event so vividly that they feel as if they were reliving that event. Indicate the percentage of the time that this happens to you.

APPENDIX E (continued)

15. Some people have the experience of not being sure whether things that they remember happening really did happen or whether they just dreamed them. Indicate the percentage of the time that this happens to you.
16. Some people have the experience of being in a familiar place but finding it strange and unfamiliar. Indicate the percentage of the time that this happens to you.
17. Some people find that when they are watching television or a movie they become so absorbed in the story that they are unaware of other events happening around them. Indicate the percentage of the time that this happens to you.
18. Some people find that they become so involved in a fantasy or daydream that it feels as though it were really happening to them. Indicate the percentage of the time that this happens to you.
19. Some people find that they are sometimes able to ignore pain. Indicate the percentage of the time that this happens to you.
20. Sometimes people find that they sometimes sit staring off into space, thinking of nothing, and are not aware of the passage of time. Indicate the percentage of the time that this happens to you.
21. Some people sometimes find that when they are alone they talk out loud to themselves. Indicate the percentage of the time that this happens to you.
22. Some people find that in one situation they may act so differently compared with another situation that they feel almost as if they were two different people. Indicate the percentage of the time that this happens to you.

APPENDIX E (continued)

23. Some people sometimes find that in certain situations they are able to do things with amazing ease and spontaneity that would usually be difficult for them (for example, sports, work, social situations, etc.). Indicate the percentage of the time that this happens to you.
24. Some people sometimes find that they cannot remember whether they have done something or have just thought about doing that thing (for example, not knowing whether they have mailed a letter or have just thought about mailing it.) Indicate the percentage of the time that this happens to you.
25. Some people find evidence that they have done things that they do not remember doing. Indicate the percentage of the time that this happens to you.
26. Some people sometimes find writings, drawings, or notes among their belongings that they must have done but cannot remember doing. Indicate the percentage of the time that this happens to you.
27. Some people sometimes find that they hear a voice inside their head that tell them to do things or comment on things that they are doing. Indicate the percentage of the time that this happens to you.
28. Some people sometimes feel as if they were looking at the world through a fog, so that people and objects appear far away or unclear. Indicate the percentage of the time that this happens to you.
29. Sometimes people do not read questions and just fill in bubbles. Please indicate how much you have done this in the current survey. (Valid Response Check Item)

## APPENDIX F

### YSQ-3 ADAPTED

Listed below are statements that people might use to describe themselves. Please read each statement, then rate it based on how accurately it describes you. When you are not sure, base your answers on what you emotionally feel, not what you think to be true. A few items ask about your relationship partners. If any of these people have died, please answer these items based on your relationships when they were alive. If you do not currently have a partner, but have in the past, please answer the item based on your most recent significant romantic partner. Choose the highest rating that best describes you.

Each item is rated on three Likert scales:

For the Young Schema Questionnaire:

- 1) YSQ-3 “How often is this true for you?”

Answer choices 1 (Completely untrue of me) to 6 (Describes me perfectly); 2)

For Schema Relevance (YSQ-SR) subscale:

- 2) “Now considering the belief in item \_\_: How much does this belief drive your behavior in relevant areas of your life?”

Answer choices 1 (This belief does not drive my behavior in relevant areas of my life) to 6 (This belief always drives my behavior in relevant areas of my life).

For Schema Flexibility (YSQ-SF) subscale:

- 3) “Now considering the belief in item \_\_: How often do you behave in ways that are counter to this belief in relevant areas of your life?”

Answer choices 1 (I never act in ways that are counter to this belief in relevant areas of

APPENDIX F (continued)

my life) to 6 (I always act in ways that are counter to this belief in relevant areas of my life)

1. I haven't had someone to nurture me, share him/herself with me, or deeply care about everything that happens to me.
2. I find myself clinging to people I'm close to because I'm afraid they'll leave me.
3. I feel that people will take advantage of me.
4. I don't fit in.
5. No man/woman I desire could love me once he or she saw my defects or flaws.
6. Almost nothing I do at work (or school) as other people can do.
7. I do not feel capable of getting by on my own in everyday life.
8. I can't seem to escape the feeling that something bad is about to happen.
9. I have not been able to separate myself from my parent(s) the way the other people my age seem to.
10. I think that if I do what I want, I'm only asking for trouble.
11. I'm the one who usually ends up taking care of the people I'm close to.
12. I am too self conscious to show positive feelings to others (e.g., affectioning, showing I care).
13. I must be the best at most of what I do; I can't accept second best.
14. I have a lot of trouble accepting "no" for an answer when I want something from other people.
15. I can't seem to discipline myself to complete most routine or boring tasks.
16. Having money and knowing important people make me feel worthwhile.
17. Even when things seem to be going well, I felt that it is only temporary.

APPENDIX F (continued)

18. If I make a mistake, I deserve to be punished.
19. I don't have people to give me warmth, holding, and affection.
20. I need other people so much that I worry about losing them.
21. I feel that I cannot let my guard down in the presence of other people, or else they will intentionally hurt me.
22. I'm fundamentally different from other people.
23. No one I desire would want to stay close to me if he or she knew the real me.
24. I'm incompetent when it comes to achievement.
25. I think of myself as a dependent person when it comes to everyday functioning.
26. I feel that a disaster (natural, criminal, financial, or medical) could strike at any moment.
27. My parent(s) and I tend to be over-involved in each other's lives and problems.
28. I feel as if I have no choice but to give in to other people's wishes, or else they may retaliate, get angry, or reject me in some way.
29. I am a good person because I think of others more than myself.
30. I find it embarrassing to express my feelings to others.
31. I try to do my best; I can't settle for "good enough."
32. I'm special and shouldn't have to accept many of the restrictions or limitations placed on other people.
33. If I can't reach a goal, I become easily frustrated and give up.
34. Accomplishments are most valuable to me if other people notice them.
35. If something good happens, I worry that something bad is likely to follow.
36. If I don't try my hardest, I should expect to lose out.

APPENDIX F (continued)

37. I haven't felt that I am special to someone.
38. I worry that people I feel close to will leave me or abandon me.
39. It is only a matter of time before someone betrays me.
40. I don't belong; I'm a loner.
41. I'm unworthy of love, attention, and respect of others.
42. Most other people are more capable than I am in areas of work and achievement.
43. I lack common sense.
44. I worry about being physically attacked by people.
45. It is very difficult for my parent(s) and me to keep intimate details from each other without feeling betrayed or guilty.
46. In relationships, I usually let the other person have the upper hand.
47. I'm so busy doing things for the people that I care about that I have little time for myself.
48. I find it hard to be free-spirited and spontaneous around other people.
49. I must meet all my responsibilities.
50. I hate to be constrained or kept from doing what I want.
51. I have a very difficult time sacrificing immediate gratification or pleasure to achieve a long-range goal.
52. Unless I get a lot of attention from others, I feel less important.
53. You can't be too careful; something will almost always go wrong.
54. If I don't do the job right, I should suffer the consequences.
55. I have not had someone who really listens to me, understands me, or is tuned into my true needs and feelings.

APPENDIX F (continued)

56. When someone I care for seems to be pulling away or withdrawing from me I feel desperate.
57. I am quite suspicious of other people's motives.
58. I feel alienated or cut off from other people.
59. I feel that I'm not lovable.
60. I'm not as talented as most people are at their work.
61. My judgment cannot be counted on in everyday situations.
62. I worry that I'll lose all my money and become destitute or very poor.
63. I often feel as if my parent(s) are living through me - that I don't have a life of my own.
64. I've always let others make choices for me, so I really don't know what I want for myself.
65. I've always been the one who listens to everyone else's problems.
66. I control myself so much that people think that I am unemotional or unfeeling.
67. I feel that there is constant pressure for me to achieve and get things done.
68. I feel that I shouldn't have to follow the normal rules or conventions that other people do.
69. I can't force myself to do things I don't enjoy, even when I know it's for my own good.
70. If I make remarks at a meeting, or am introduced in a social situation, it's important to me to get recognition and admiration.
71. No matter how hard I work, I worry that I could be wiped out financially and lose almost everything.
72. It doesn't matter why I make a mistake. When I do something wrong, I should pay the consequences.
73. I haven't had a strong or wise person to give me sound advice or direction when I'm not sure what to do.

APPENDIX F (continued)

74. Sometimes I am so worried about people leaving me that I drive them away.
75. I'm usually on the lookout for people's ulterior or hidden motives.
76. I always feel on the outside of groups.
77. I am too unacceptable in very basic ways to reveal myself to other people or let them get to know me well.
78. I'm not as intelligent as most people when it comes to work (or school).
79. I don't feel confident about my ability to solve everyday problems that come up.
80. I worry that I'm developing a serious illness, even though nothing serious has been diagnosed by a doctor.
81. I often feel I do not have a separate identity from my parent(s) or partner.
82. I have a lot of trouble demanding that my rights be respected and that my feelings be taken into account.
83. Other people see me as doing too much for other and not enough for myself.
84. People see me as uptight emotionally.
85. I can't let myself off the hook easily or make excuses for my mistakes.
86. I feel that what I have to offer is of greater value than the contributions of others.
87. I have rarely been able to stick to my resolutions.
88. Lots of praise and compliments make me feel like a worthwhile person.
89. I worry that a wrong decision could lead to disaster.
90. I'm a bad person who deserves to be punished.
91. I have filled in many answers on this survey without reading the question. (Valid Response Style Check Item)

APPENDIX G

Panic Disorder Self-Report (PDSR)

Panic attacks are discrete episodes of intense fear, apprehension, or terror that are accompanied by a number of physical symptoms. Panic attacks can either occur for no apparent reason (spontaneously) or upon entering into or being in situations which have become associated with them (long lines, closed spaces, driving over bridges, etc.) Do not consider fear to be a panic attack if it lasts several hours or most of the day.

1) During the last six months, have you had a panic attack or a sudden rush of intense fear or anxiety?

(Select one option.)

NO

YES

When was the most recent time this occurred?

Date: \_\_\_\_\_

**If NO (you have not experienced a panic attack), please leave the remainder of the form blank.**

**If YES, please continue.**

2) Was at least one panic attack unexpected, as if it came out of the blue? NO YES

3) Did it happen more than once? NO YES

4) **If YES** to 3, approximately how many panic attacks have you had in your lifetime? \_\_\_\_\_

**If NO to 1, 2, and 3, please leave the remainder of this form blank, otherwise continue.**

5) Have you ever worried a lot (for at least one month) about having another panic attack?

NO YES

APPENDIX G (continued)

6) Have you ever worried a lot (at least one month) that having the attacks meant you were losing control, going crazy, having a heart attack, seriously ill, etc.? NO YES

7) Did you ever change your behavior or do something different (for at least one month) because of the attacks? NO YES

**If YES to 5, 6, OR 7 please answer the following questions:**

**Think back to your most severe panic attack. Did you experience any of the following symptoms?:**

- |  |    |     |
|--|----|-----|
| 8) Shortness of breath or smothering sensations?         | NO | YES |
| 9) Feeling dizzy, unsteady, lightheaded, or faint?       | NO | YES |
| 10) Palpitations, pounding heart, or rapid heart rate?   | NO | YES |
| 11) Trembling or shaking?                                | NO | YES |
| 12) Sweating?  | NO | YES |
| 13) Feelings of choking?                                 | NO | YES |
| 14) Nausea or abdominal distress?                        | NO | YES |
| 15) Numbness or tingling sensations?                     | NO | YES |
| 16) Flushes (hot flashes) or chills                      | NO | YES |
| 17) Chest pain or discomfort?                            | NO | YES |
| 18) Fear of dying?                                       | NO | YES |
| 19) Fear of going crazy or doing something uncontrolled? | NO | YES |

20) How much do these symptoms interfere with your daily functioning? (Circle one)

0	1	2	3	4
Not at All	Mildly	Moderately	Severely	Very severely/ Disabling

APPENDIX G (continued)

21) How distressing do you find these symptoms? (Circle one)

0	1	2	3	4
No Distress	Mild Distress	Moderate Distress	Severe Distress	Very Severe

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22) When you have bad panic attacks, does it often take **less than ten minutes** from the point at which the attack begins, to the point at which it reaches a peak or becomes most intense?

NO YES

23) Just before you began having panic attacks, were you taking any drugs or excessive amounts (more than 4 cups daily) of stimulants (e.g., coffee, tea, or cola with caffeine)?

NO YES

a) If YES, what was it that you were taking? \_\_\_\_\_

b) How much of it were you taking (in cups, etc.)? \_\_\_\_\_

24) Have you ever been diagnosed with a medical problem(hyperthyroidism, a seizure or cardiac condition, etc.) that could have caused your panic symptoms?

NO YES

## APPENDIX H

### PTSD Checklist-Specific (PCL-S)

Sometimes people experience events in their life which make them afraid for their lives or the lives of others. Many types of events may make someone feel this way but some examples of events that commonly cause these types of feelings include: experiencing a severe physical assault or injury, being in combat, experiencing a sexual assault, seeing someone seriously injured or killed.

**Have you experienced any event like this that continues to occasionally bother you?**

Yes    No

**If you responded “No,” skip to the end of this questionnaire.**

---

Below is a list of problems or complaints that individuals who have experienced severe events, like those mentioned in the previous question, sometimes experience in response to those events.

**Please read each one carefully and indicate how much you have been bothered by that problem IN THE LAST MONTH.**

1. Repeated, disturbing memories, thoughts, or images of the stressful experience?

Not at All      A Little Bit      Moderately      Quite a Bit      Extremely

2. Repeated disturbing dreams of the stressful experience?

Not at All      A Little Bit      Moderately      Quite a Bit      Extremely

3. Suddenly acting or feeling as if the stressful experience were happening again (as if you were reliving it)?

Not at All      A Little Bit      Moderately      Quite a Bit      Extremely

4. Feeling very upset when something reminded you of the stressful experience?

Not at All      A Little Bit      Moderately      Quite a Bit      Extremely

APPENDIX H (continued)

5. Having a physical reaction (e.g., heart pounding, problem breathing, or sweating) when something reminded you of the stressful experience?

Not at All      A Little Bit      Moderately      Quite a Bit      Extremely

6. Avoid thinking about or talking about the stressful experience or avoid having feelings related to it?

Not at All      A Little Bit      Moderately      Quite a Bit      Extremely

7. Avoid activities or situations because they remind you of the stressful experience?

Not at All      A Little Bit      Moderately      Quite a Bit      Extremely

8. Trouble remembering important parts of the stressful experience?

Not at All      A Little Bit      Moderately      Quite a Bit      Extremely

9. Loss of interest in things that you used to enjoy?

Not at All      A Little Bit      Moderately      Quite a Bit      Extremely

10. Feeling distant or cut off from other people?

Not at All      A Little Bit      Moderately      Quite a Bit      Extremely

11. Feeling emotionally numb or being unable to have loving feelings for those close to you?

Not at All      A Little Bit      Moderately      Quite a Bit      Extremely

12. Feelings as if your future will somehow be cut short?

Not at All      A Little Bit      Moderately      Quite a Bit      Extremely

13. Trouble falling asleep or staying asleep?

Not at All      A Little Bit      Moderately      Quite a Bit      Extremely

APPENDIX H (continued)

14. Feeling irritable or having angry outbursts?

Not at All      A Little Bit      Moderately      Quite a Bit      Extremely

15. Having difficulty concentrating?

Not at All      A Little Bit      Moderately      Quite a Bit      Extremely

16. Being “super alert” or watchful/on guard?

Not at All      A Little Bit      Moderately      Quite a Bit      Extremely

17. Feeling jumpy or easily startled?

Not at All      A Little Bit      Moderately      Quite a Bit      Extremely

Table 1

*Glossary of Abbreviations*

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ACT	Acceptance and Commitment Therapy
AS	Anxiety Sensitivity
ASI-3	Anxiety Sensitivity Index – 3
APA	American Psychological Association
BDI	Beck Depression Inventory
CBT	Cognitive Behavioral Therapy
CR	Conditioned Response
CS	Conditioned Stimulus
CT	Cognitive Therapy
DES	Dissociative Experiences Scale
DES-II	Dissociative Experiences Scale - II
DRR	Derived Relational Responding
DSM-III	Diagnostic and Statistical Manual for Mental Disorders – III
DSM-III-TR	Diagnostic and Statistical Manual for Mental Disorders – III-Text Revision
DSM-IV	Diagnostic and Statistical Manual for Mental Disorders - IV
DSM-IV	Diagnostic and Statistical Manual for Mental Disorders - IV
ERP	Exposure and Response Prevention
MMPI-2	Minnesota Multiphasic Personality Inventory-2
OCD	Obsessive-Compulsive Disorder
PAS	Perceptual Awareness Scale
PCL-S	Posttraumatic Stress Disorder Checklist-Specific

Table 1 (continued)

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PD	Panic Disorder
PDSR	Panic Disorder Self-report
PE	Prolonged Exposure
PTSD	Posttraumatic Stress Disorder
QED	Questionnaire of Experiences of Dissociation
RFT	Relational Frame Theory
SCID-D	Structured Clinical Interview for DSM-III-TR Dissociative Disorders
TI	Trauma Influence
TSC-40-DIS	Trauma Symptom Checklist-40 Dissociative Subscale
UCR	Unconditioned Response
UCS	Unconditioned Stimulus
YSQ-3	Young Schema Questionnaire -3
YSQ-SF	Young Schema Questionnaire – Schema Flexibility
YSQ-SC	Young Schema Questionnaire – Schema Consistency

Table 2

*List of Measures*

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**Predictor Variables**

ASI-3	Anxiety Sensitivity Index - 3
YSQ-3	Young Schema Questionnaire -3
YSQ-SF	Young Schema Questionnaire – Schema Flexibility
YSQ-SR	Young Schema Questionnaire – Schema Consistency
TI	Trauma Influence
PDSR	Panic Disorder Self-report

**Outcome Variables**

Dissociative Experiences Scale -II (DES-II)

**Other Measures**

Demographic Questionnaire