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ACCEPTABILITY, ANTICIPATED ADHERENCE, AND WILLINGNESS TO BEGIN
INTEROCEPTIVE EXPOSURE:
EXAMINATION OF THE INFLUENCE OF A VALUES RATIONALE

A Dissertation
submitted in partial fulfillment of requirements
for the degree of Doctor of Philosophy
in Clinical Psychology
The University of Mississippi

Gina Q. Boullion

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ABSTRACT

Interoceptive exposure (IE) is a treatment entailing induction of feared physiological sensations that has emerged as the most efficacious component of cognitive behavioral treatments for panic disorder. However, small-to-moderate effect sizes, wide variability in response rates, and dropout rates indicate that panic disorder treatments may benefit from modifications to improve upon retention, response rates, and symptom reduction. Patient motivation and lack of engagement have been identified as factors to intervene upon. One specific direction that has gained increasing empirical interest is the inclusion of values identification; however, research has not yet examined the influence of values on motivation to engage in IE. The current study was conducted to examine the effect of emphasizing values in the treatment rationale on treatment selection, willingness to begin treatment utilizing IE, anticipated adherence to an IE treatment, credibility and expectancy, and acceptability of an IE intervention. An analogue sample of adults with high anxiety sensitivity were recruited online. Participants ($N = 146$) viewed a video containing psychoeducation about the fear of anxiety and were randomized to receive either the standard IE treatment rationale or values IE treatment rationale video. In addition, participants responded to self-report questionnaires evaluating psychological symptoms and information in the videos. The values and standard rationales yielded similar effects on selection of an IE provider, willingness to begin IE treatment, anticipated adherence to IE, treatment expectancy and acceptability. However, participants who received the values rationale reported greater treatment credibility than those who received the

standard rationale. Overall, the findings from the current study provide insights into treatment rationales for IE and highlight directions for future investigation.

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I. INTRODUCTION

Panic attacks are characterized by a sudden rush of extreme discomfort that peaks within minutes, involving physiological and cognitive symptoms such as chest pain or discomfort, increased heart rate, shortness of breath, dizziness, and fear of dying or losing control (American Psychiatric Association [APA], 2013). Between 7-28% of the general population will suffer a panic attack at one point during their lifetime (de Jonge et al., 2016; Eaton et al., 1994; Kessler et al., 2005). Panic attacks may occur in the absence of a mental disorder or may be linked to a mental disorder; however, they are the signature feature of panic disorder. Panic disorder is diagnosed when panic attacks are recurrent and unexpected, and followed by persistent concern and/or changes in behavior due to the potential of subsequent panic attacks (APA, 2013). Approximately 4.7% of U.S. adults will receive a panic disorder diagnosis at some point in their lifetime and 2.7-2.8% of the population are affected each year (de Jonge et al., 2016; Kessler et al., 2006). Panic disorder is associated with numerous costs, including social impairment (Klerman et al., 1991; Markowitz et al., 1989), unemployment, absence from work or school, and occupational impairment (Rollman et al., 2005), chronic medical conditions, and physical disability (Schmidt & Telch, 1997). Further, panic disorder is often comorbid with other psychopathology, including major depression (de Jonge et al., 2016; Kessler et al., 1998), bipolar disorder (de Jonge et al., 2016; Goodwin & Hoven, 2002), and other anxiety disorders (de Jonge et al., 2016; Goisman et al., 1995), as well as increased risk for suicide (Goodwin & Roy-Byrne, 2006; Kanwar et al., 2013; Sareen et al., 2005).

Panic disorder is associated with considerable economic burden, as patients with panic disorder utilize the health care system at substantially high rates, even higher rates than patients with any other psychiatric diagnoses and without psychiatric diagnosis (Barsky et al., 1999; Deacon et al., 2008; Katon, 1996, 2006; Klerman et al., 1991; Lynch & Galbraith, 2003; Zane et al., 2003). Because the physiological symptoms associated with anxiety (e.g., chest pain, dyspnea) mimic a variety of medical conditions (e.g., heart attack), many individuals suffering from undiagnosed panic disorder first present to medical settings and continue presenting to medical settings if panic disorder remains undiagnosed (Katerndahl & Realini, 1995). For instance, 20% of all emergency room visits are accounted for by patients with panic disorder (Swinson et al., 1992) and half of all primary care visits in the U.S. are initiated due to physiological symptoms associated with panic disorder (i.e., heart palpitations, dizziness; Katon, 1996). A study by Marciniak and colleagues (2005) found that individuals with panic disorder incur an average of \$8,078 in total medical costs, which is substantially higher than the \$6,475 incurred by individuals diagnosed with any anxiety disorder. Thus, the significant costs associated with panic disorder have highlighted the need for greater understanding of the development, maintenance, and treatment of panic disorder.

Cognitive behavioral models of panic disorder (Barlow, 1988, 2002; Clark, 1986) maintain that recurrent, unexpected panic attacks result from the fear of anxiety-related physiological sensations (e.g., fear of increased heart rate) and catastrophic misinterpretations regarding the danger of those sensations (e.g., misinterpreting increased heart rate as an oncoming heart attack). This fear and beliefs about physiological sensations as dangerous is referred to as anxiety sensitivity (AS). Both classical and operant conditioning processes are involved in the development of panic disorder. Specifically, panic disorder is proposed to

develop when the experience of a panic attack causes anxiety and panic to become classically conditioned (i.e., pairing of a neutral stimulus with an unconditioned stimulus) to interoceptive cues (i.e., physiological sensations; Bouton et al., 2001). The likelihood of subsequent avoidance behaviors (e.g., refraining from going places where one has panicked) and safety behaviors (e.g., carrying pill bottles), which provide relief in the short-term, increase via operant conditioning (i.e., pairing of a behavior with a consequence to increase [reinforce] or decrease [punish] the likelihood of a behavior). Thus, panic disorder is maintained via negative reinforcement.

Together, these learned responses and AS result in hypervigilance to physiological symptoms (McNally, 2002), and even mild physiological arousal is interpreted as a warning sign of a panic attack. Unfortunately, the negatively reinforced avoidance behaviors and safety behaviors prevent the opportunity for extinction of the conditioned response; thereby, strengthening the conditioned association between panic and physiological arousal. That is, efforts to avoid said physiological sensations in an attempt to prevent feared outcomes (e.g., a heart attack) prevents opportunity for those incorrect beliefs to be disproven (Clark, 1999).

AS is more thoroughly defined as the fear of anxiety-related physical arousal due to dysfunctional beliefs about their consequences as physically, socially, or cognitively harmful (Reiss & McNally, 1985). Extensive research has shown that AS is a critical component in the development, maintenance, and treatment of panic disorder (Baillie & Rapee, 2005; McNally, 2002; Reiss, 1991). For instance, elevated levels of AS are observed in individuals diagnosed with panic disorder (Deacon & Abramowitz, 2006; Taylor et al., 1992), and longitudinal studies demonstrate that AS is associated with increased risk for panic attacks (Asmundson & Norton, 1993; Cox et al., 1991). Further, AS fluctuates alongside panic symptoms as evidenced by correlational and treatment studies (McNally & Lorenz, 1987; Otto et al., 1999; Penava et al.,

1998; Smits et al., 2004). However, AS is not specific only to panic, but is observed across many disorders and difficulties including other anxiety disorders (Taylor et al., 1992), and mood disorders (Cox et al., 2001; Otto et al., 1995; Simon et al., 2005), which has provided support for AS as a transdiagnostic process.

In accordance with the theoretical models, cognitive behavioral therapy (CBT; Arch & Craske, 2008) targets panic symptoms via the correction of catastrophic beliefs through exposure to feared physiological sensations and facilitation of learning that the previously feared physiological sensations are not dangerous. Panic Control Treatment (PCT; Barlow, Cohen, et al., 1984; Barlow et al., 1989), the first CBT for panic disorder protocol introduced in the 1980s, has emerged as one of the most well-studied CBT for panic disorder packages. The initial PCT protocol prescribed 11-12 60-minute weekly sessions, which focused on psychoeducation about anxiety and panic, cognitive restructuring of catastrophic and distorted thoughts, breathing retraining and muscle relaxation, and interoceptive exposure (IE) to feared physiological sensations (e.g., dizziness, shortness of breath). However, treatment programs for panic disorder have been considerably refined over the past three decades. For instance, the inclusion of breathing retraining has received considerable scrutiny. Although breathing retraining provided mild symptom relief for patients with panic disorder (Clark et al., 1985), its potential mechanisms of action via distraction and added sense of control lead researchers to question its theoretical compatibility and added benefits beyond other treatment components (Barlow, 2002). Results from a dismantling study by Schmidt and colleagues (2000) concluded no additional benefit of breathing retraining, and consequently, breathing retraining was no longer included as an essential component (White & Barlow, 2002).

Other modifications have been made to PCT, such as the addition of in vivo exposure to feared situations (Craske & Barlow, 1994), including significant others in treatment (Barlow et al., 1984; Cerny et al., 1987), and adding relapse prevention strategies (Hofmann & Barlow, 1996; Öst, 1989). Additionally, PCT is delivered in abbreviated formats (Côté et al., 1994; Craske et al., 1995), self-help formats (Gould & Clum, 1995; Hecker et al., 1996), and computer-delivered formats (Newman et al., 1997). As a result of extensive work, current PCT and CBT for panic disorder packages involve the refined and validated components of psychoeducation, cognitive restructuring, in vivo exposure to feared situations (e.g., unfamiliar areas, large crowds), and IE. Nevertheless, research continues to identify ways to refine and individualize treatment to improve efficacy and reduce costs.

CBT remains the most efficacious psychological treatment for panic disorder (Barlow et al., 2000a; Hofmann & Smits, 2008; Öst et al., 2004; Penava et al., 1998), as well as anxiety disorders broadly (Hofmann & Smits, 2008). Substantial reductions in symptoms of panic disorder are typically observed after delivery of between 12 and 15 sessions (Addis et al., 2004; Barlow et al., 2000b; Otto & Deckersbach, 1998); yet, some evidence supports the efficacy of five sessions (Otto et al., 2012) and 2-day intensive treatments (Deacon, 2007; Deacon & Abramowitz, 2006). Additionally, group CBT for panic disorder is as effective as CBT for panic disorder delivered via individual treatment (Lidren et al., 1994; Néron et al., 1995). In the first meta-analysis examining the efficacy of CBT for panic disorder and pharmacotherapy, Mitte (2005) utilized results from 124 studies and CBT was found to be the superior treatment for reducing anxiety compared to no-treatment and a placebo control. Depending on the type of analysis, CBT was as effective or more effective than pharmacotherapy, but there was no difference between CBT alone and a CBT pharmacotherapy combination (Mitte, 2005). In an

effort to further examine the specificity of treatment effects, Siev and Chambless (2007) examined results of five studies comparing CBT to relaxation training for panic disorder. Rates of clinically significant change (i.e., reduction of scores on panic symptom indices to what is typical of the “normal” population) were 72% and 50%, respectively, and it was concluded that CBT was the superior treatment for panic disorder. Lastly, in the most up-to-date analysis of the efficacy of CBT, Carpenter and colleagues (2018) examined 41 studies comparing CBT to placebo conditions. CBT for panic disorder was associated with small-to-moderate effect sizes, highlighting its superiority compared to placebo treatments; yet, also highlights the potential for further improvement (Carpenter et al., 2018).

Research has demonstrated that IE is the most efficacious component of CBT for panic disorder (Barlow, 2002; Chambless & Peterman, 2004; Craske & Barlow, 2000; Craske et al., 1997; Klosko et al., 1990; Penava et al., 1998; Pompoli et al., 2018) and, as expected, an efficacious intervention for decreasing AS (Boswell et al., 2013). In IE, individuals are exposed to feared physiological sensations (e.g., dizziness, shortness of breath, pounding heart) by engaging in tasks that are known to produce the feared physiological sensations (Antony et al., 2006; Schmidt & Trakowski, 2004). Symptom induction exercises used in IE modules of CBT for panic disorder include head shaking, head lifting, step-ups, breath holding, muscle tension, spinning, hyperventilation, breathing through a narrow straw, and mirror staring. Most notably, examinations of the effects of symptoms induction tasks revealed hyperventilation, breathing through a straw, spinning, and running in place as producing physiological sensations of the highest intensity (Antony et al., 2006; Schmidt & Trakowski, 2004). Similarly, hyperventilation, breathing through a straw, spinning, and using a tongue depressor were identified as producing the most fear and being the most similar to panic (Antony et al., 2006; Schmidt & Trakowski,

2004). By repeatedly engaging in these tasks, individuals experience habituation to the feared physiological sensations and corrective learning (Craske & Barlow, 2000; Schmidt et al., 2000). That is, repeated induction of the feared physiological sensations (e.g., pounding heart) without the feared consequences (e.g., heart attack) results in extinction of the fear response. Corrective learning then allows for the feared physiological sensations to possess two different meanings, (1) the excitatory meaning (e.g., pounding heart associated with fear of having a heart attack) and (2) an inhibitory meaning (e.g., pounding heart not associated with having a heart attack).

Research has also established efficacy for IE as a standalone treatment for panic disorder (Beck et al., 1997; Broocks et al., 1998; Griez & van den Hout, 1986). For example, Beck and colleagues (1997) presented seventeen panic disorder patients with 6 sessions of IE using 35% CO₂ inhalations. Significant reductions in worry about panic and interference from panic were observed across patients at posttreatment and follow-up, with only 35% meeting diagnostic criteria at posttreatment and 18% meeting diagnostic criteria at follow-up. Additionally, IE is not only effective at treating panic disorder but has demonstrated utility in the treatment of a variety of disorders and conditions with associated AS, including anxiety disorders (Boswell et al., 2013; Hunter & Antony, 2009; Plotkin, 2002; Telch et al., 2004; Walker & Furer, 2008), posttraumatic stress disorder (PTSD; Otto et al., 2003; Wald & Taylor, 2005, 2007; Wald et al., 2010), eating disorders (Boswell et al., 2019); certain health conditions (e.g., irritable bowel syndrome; Craske et al., 2011; Flack et al., 2018; Shipherd, 2006; Watt et al., 2006; Zucker et al., 2017); and some forms of substance use disorder (Zvolensky et al., 2003, 2008). Thus, efforts have been geared toward refining IE given its wide utility.

Although CBT including IE has been identified as the most efficacious evidence-based intervention for anxiety disorders (Hofmann & Smits, 2008; Norton & Price, 2007; Tolin, 2010),

there remains considerable room for improvement. For example, in the most recent meta-analysis of CBT for anxiety disorders, Carpenter and colleagues (2018) found a small-to-moderate effect size (Hedges' g) of 0.38 for panic disorder, whereas effect sizes for other anxiety disorders ranged from 0.41 to 1.13 (i.e., moderate to large effects). Further, among individuals with panic disorder seeking treatment, a considerable proportion either do not experience clinically significant responses to treatment or do not maintain gains after treatment (Loerinc et al., 2015). A recent meta-analysis conducted by Loerinc and colleagues (2015) found that CBT for panic disorder response rates (i.e., percentage of individuals in treatment groups that were classified as responders to treatment) were 53.2% post treatment and 59.3% at follow-up. In addition, there was considerable variability in response rates, with rates ranging from 10-97% post treatment and 1-100% at follow up. Finally, a meta-analysis by Haby and colleagues (2006) estimated the average dropout rate among individuals receiving CBT for panic disorder was 19% and ranged from 0-54%. Taken together, these studies illustrate the need to modify panic disorder treatments to improve upon retention, response rates, and symptom reduction.

In an attempt to identify barriers for successful treatment with CBT for panic disorder in clinical practice to researchers, a collaborative effort was formed between the Society of Clinical Psychology (Division 12 of the APA) and the Division of Psychotherapy (Division 29 of the APA). Practicing clinicians ($N = 338$) who use CBT for panic disorder were recruited to participate in a survey via advertisements on listservs and newsletters of professional psychological organizations (e.g., Association for Behavioral and Cognitive Therapies). A variety of patient factors as barriers to successful treatment were endorsed, including the chronicity and severity of panic disorder symptoms, patient social systems, the therapeutic relationship, difficulty implementing treatment, and patient motivation. Interestingly, patient

motivation was commonly identified as a significant problem that interfered with treatment (Wolf & Goldfried, 2014). Specifically, results indicated that 60% reported premature termination, 60% reported minimal motivation at treatment onset, and 31% reported decreased motivation following some reduction in symptoms. Similarly, Sanderson and Bruce (2007) found patient lack of engagement was the most frequently endorsed factor associated with suboptimal progress in treating panic disorder and endorsed by 60% of expert clinicians. Thus, both Wolf and Goldfried (2014) and Sanderson and Bruce (2007) suggest that clinicians consider the use of motivational techniques, such as those in Motivational Interviewing (MI; Miller & Rollnick, 2002) as an adjunct to CBT for panic disorder to address lack of engagement.

Numerous therapeutic techniques have been used to facilitate patient motivation in treatment; however, one specific direction that has gained increasing empirical interest is the inclusion of values identification (Hayes et al., 2012). Values, a core component of MI, are broadly defined as personal choices about what an individual finds to be important in life, which can motivate, guide, and direct purposeful behavior, and lead to intrinsic satisfaction (Dahl et al., 2009). The processes underlying the influence of values on behavior have been thoroughly investigated and documented in the behavior analytic literature.

Values serve to alter the functions of stimuli or events through establishing operations (Leigland, 2005; Michael, 1982), defined as events that temporarily alter the reinforcing qualities of other events (Michael, 1982, 1993). Although notably more complex than events involved in establishing operations, human language can be used to alter the reinforcing qualities of events in a similar way via augmental verbal contingencies (Zettle & Hayes, 1982). For example, a mother may tell her child that he will receive a gold sticker each day that he behaves well at school, and that these stickers can be exchanged for extra play time. If this child finds extra play time

appetitive, this will serve to augment the stickers, such that merely receiving a gold sticker will reinforce his behaving well at school. Because these processes allow for influence to be exerted over behavior without individuals ever having any history of contact with a particular given contingency, behavior can fall under control of consequences that are highly abstract (Törneke, 2010). In the complex context of human values, these verbal establishing operations are referred to as motivative augmental rules. For example, if a man values being a caring husband, this can augment events such as his partner talking about her day and her eating dinner that he prepared such that they motivate and reinforce behaviors consistent with being a caring husband. Stated simply, clarifying one's values can motivate behavior that is consistent with said values (Dahl et al., 2009).

Given this understanding of how values can alter the appetitive and reinforcing qualities of other events and thus guide behavior that is complex and abstract, values have been incorporated as a motivational component in empirically supported behavioral techniques and treatments. For instance, values have been incorporated in motivational interviewing. Motivational interviewing is a transtheoretical therapy approach that emphasizes resolving ambivalence about behavior change and strengthening motivation for change through the use of values (Miller & Rollnick, 2002). In motivational interviewing, patients are interviewed about their values and how their values connect to treatment goals. Discrepancies between valued behavior and current behavior are discussed to resolve ambivalence about change and motivate commitment to change. Evidence supports the efficacy of motivational interviewing as a standalone treatment for substance use disorders (Burke et al., 2002, 2003; Dunn et al., 2001). Moreover, evidence supports the efficacy of motivational interviewing as a treatment adjunct to motivate engagement in other psychological interventions, including CBT for mood and anxiety

disorders (Randall & McNeil, 2017; Romano & Peters, 2015). In a recent meta-analysis, Marker and Norton (2018) concluded that treatment outcomes, including anxiety symptom reduction, are improved when motivational interviewing is included as an adjunct to CBT for anxiety disorders compared to CBT for anxiety disorders alone. Additionally, the use of motivational interviewing is supported by indices of treatment motivation such as treatment attendance (Saunders et al., 1995), homework adherence (Westra & Dozois, 2006), and medication compliance (Interian et al., 2010).

Brief Behavioral Activation Treatment for Depression (BATD) packages (e.g., Lejuez et al., 2001, 2011) have also emphasized patient values in treatment, specifically in scheduling behavioral activities. In BATD, the clinician assists the patient in identifying values and developing a schedule of activities and goals that are consistent with each of their identified values (Lejuez et al., 2001). Though no studies to date comparing effectiveness of behavioral activation treatments without values to BATD variants are known to the author, evidence supports the efficacy of BATD at improving depressive symptoms (Daughters et al., 2008; Gawrysiak et al., 2009; Hopko et al., 2003, 2005; MacPherson et al., 2010; Pagoto et al., 2008) and comorbid anxiety and depressive symptoms (Hopko et al., 2004).

Additionally, values have been incorporated in Acceptance and Commitment Therapy (ACT; Hayes et al., 1999). ACT is an empirically driven expansion of traditional behavior therapy that deems identification of values and promoting valued behavior as the primary purpose of treatment. The emphasis on values in ACT is specifically stated to be in support of “providing a context in which a client may be more willing to experience difficult thoughts and feelings as she moves in valued directions” (Dahl et al., 2009, p. 10). In ACT, clinicians assist patients in identifying values, setting values-based goals, and monitoring progress toward said

goals (Hayes et al., 2012). Evidence supports the efficacy of ACT for an array of problems, ranging from chronic pain (Hughes et al., 2017) and smoking cessation (Gifford, Kohlenberg, Hayes, Antonuccio, Piasecki, et al., 2004), to depression and anxiety disorders (A-tjak et al., 2015; Twohig & Levin, 2017), mixed anxiety disorders (Arch et al., 2012), and panic disorder (Eifert et al., 2009). Additionally, evidence supports the efficacy of ACT in motivating treatment adherence, measured specifically by treatment attendance (Luoma et al., 2012) and attrition (White et al., 2011).

Evidence from randomized controlled trials (RCTs) have generally supported the inclusion of packages containing values components in facilitating exposure therapy. Westra and Dozois (2006) compared a three-session motivational interviewing pre-treatment adjunct to group CBT for anxiety disorders to a no pre-treatment group for 55 patients with a principal anxiety diagnosis (45% diagnosed with panic disorder). The motivational interviewing pre-treatment group not only evidenced greater homework compliance but an increase in treatment responders compared to the no pre-treatment group (Westra & Dozois, 2006). Evidence has also favored the inclusion of packages containing values components among patients who have previously refused exposure therapy. Maltby and Tolin (2005) examined agreement to begin exposure therapy among 12 patients with obsessive-compulsive disorder who had recently refused exposure therapy. Patients were randomized into either a four-session MI-based readiness to exposure therapy group or a waitlist control group. Following a four-week period, 86% of patients who received the MI-based adjunct elected to begin exposure therapy, whereas only 20% of the control condition elected to begin exposure therapy.

Further, there is preliminary evidence supporting the inclusion of packages containing values components in exposure therapy in CBT for panic disorder. In an unpublished

dissertation, Karekla (2004) compared an ACT-enhanced PCT and PCT alone for 22 patients diagnosed with panic disorder. No differences on treatment outcome variables or attrition totals were observed between the two groups; however, differences in the pattern of treatment attrition between conditions emerged. In the PCT condition, the majority of patients dropped out of treatment following the introduction of the exposure component. In the ACT-enhanced PCT condition, there were no dropouts at the introduction of exposure, rather patient dropouts were evenly distributed over the course of treatment. Thus, Karekla (2004) concluded that an acceptance- and values-based rationale may increase motivation to engage in the necessary exposure exercises.

To date, there are no randomized controlled dismantling studies examining the inclusion of a values component in exposure therapy; however, laboratory research has aided in experimental analysis of the influence of values on engagement in exposure tasks. For instance, Páez-Blarrina and colleagues (2008), examined the influence of an ACT-values rationale, a control values rationale, and a no values rationale on performance during a pain tolerance task. The ACT-values rationale involved interviewing participants about their values and integrating the pain to be experienced as part of a valued direction, whereas the control values rationale established pain as being incompatible with valued actions. Participants then received electric shocks of increasing pain during a computerized task with the option to discontinue until the maximum of 15 shocks. Results revealed that 70% of participants in the ACT-values condition tolerated the maximum of 15 shocks, even after reporting “very much pain,” whereas only 10% and 20% of participants in the control values and untrained conditions reached the maximum number of shocks. Thus, Páez-Blarrina and colleagues’ (2008) findings support the motivational context of values on exposure to pain tolerance. In a similar study that examined the influence of

values on behavior in an exposure task, Branstetter-Rost and colleagues (2009) examined the effects of an acceptance intervention with and without values on pain tolerance during a cold-pressor task. The values component involved a discussion of the participant's values and tolerance of physical pain in service of their most deeply held value. Results revealed that participants in the acceptance plus values condition demonstrated greater pain tolerance, measured by length of time in the cold water, than the acceptance alone and control conditions. Thus, Branstetter and colleagues' (2009) findings again support the role of values in motivating behavior and toleration in the context of physical pain.

Experimental analogue research has further explicated the influence of values on performance during exposure tasks. Bluett (2014) experimentally manipulated the rationale for exposure exercises for 81 socially anxious adults. In this two-session exposure-based intervention participants were randomized to receive either a fear reduction rationale, a psychological flexibility rationale, a values rationale, or no rationale (control condition) for engaging in the exposure exercises. The values rationale involved interviewing participants about their values and instructing participants to focus on their values while engaging in the exposure exercises. Participants were asked to engage in a 10-minute exposure exercise (e.g., public speech) at session one, between session exposure tasks, and then another 10-minute exposure exercise (e.g., public speech once again) at session two. Though results indicated no group differences in homework compliance (e.g., amount of between-session exposure tasks completed), group differences emerged with regard to time of engagement during the in-session exposure exercises. At session one, participants who received an active intervention (e.g., fear reduction rationale, psychological flexibility rationale, or values rationale) gave longer speeches (e.g., spoke for the full suggested 10 minutes) than participants in the control condition. In the

second session, though speech time did not differ between active conditions, more participants in the values condition spoke for the entire time (e.g., 10 minutes) compared to those in the fear reduction condition. Thus, Bluett (2014) concluded that incorporating values may be an effective approach to fostering engagement in exposure-based interventions.

Taken together, existing evidence suggests that incorporation of values may motivate engagement in IE (Bluett, 2014; Branstetter-Rost et al., 2009; Karekla, 2004; Maltby & Tolin, 2005; Páez-Blarrina et al., 2008; Westra & Dozois, 2006). However, prior research has included additional components when examining the influence of values, such as those involved in motivational interviewing (Miller & Rollnick, 2002), BATD (Lejuez, et al., 2011; Lejuez et al., 2001), and ACT (Hayes et al., 1999), that prevent the independent examination of values on motivation to engage in exposure exercises. Further, there is no research known to date by the author that examines the influence of values on motivation in IE, in particular. Therefore, research examining the effect of a values component in isolation on motivation to begin and acceptability of IE exercises is needed. The results of this study have the potential to further improve treatment efficacy reducing costs associated with panic disorder and the many other conditions treated by IE.

Current Study

The purpose of the current study was to examine the effect of emphasizing values in the treatment rationale on treatment selection, willingness to begin treatment utilizing IE, anticipated adherence to an IE treatment, credibility and expectancy, and acceptability of an IE intervention. This study utilized a clinical analogue sample of adults with elevated AS, a risk factor for panic attacks and the development and maintenance of panic disorder (Baillie & Rapee, 2005; McNally, 2002; Reiss, 1991). Participants were randomly assigned to receive one of two

rationales: (1) a values rationale, or (2) a standard rationale. The primary dependent variables for the current study were treatment selection, willingness to begin treatment utilizing IE, anticipated adherence to an IE treatment, credibility and expectancy, and acceptability of IE. The primary independent variable was emphasis of IE rationale: (a) values rationale, or (b) standard rationale.

The following hypotheses were examined:

1. Participants in the values condition will be more likely to select IE when asked to select a treatment provider, as assessed by the Treatment Selection Survey, than those in the standard condition.
2. Participants in the values condition will be more willing to begin IE treatment by booking the appointment offered or requesting a different appointment time when offered an appointment to receive IE treatment, as assessed by the IE Appointment Survey, than those in the standard condition.
3. Participants in the values condition will report greater anticipated adherence to IE, as assessed by the Treatment Adherence and Acceptability Scale, than those in the standard condition.
4. There will be no difference in treatment credibility and expectancy, as assessed by the Credibility/Expectancy Questionnaire, between the values condition and standard condition.
5. Participants in the values condition will report greater acceptability of treatment, as assessed by the Treatment Acceptability Questionnaire, than those in the standard condition.

II. METHODS

Participants

An a priori power analysis was conducted using G*Power 3 (Faul et al., 2007) to determine the sample size necessary to conduct an independent samples t-test. Results indicated that a minimum sample of 126 participants (64 participants per group) would be needed to detect, with 95 percent confidence, a medium effect size (i.e., Cohen's $d = .5$). Thus, approximately 170 participants (85 participants per group) were recruited for participation via Amazon's Mechanical Turk (MTurk) using TurkPrime (Litman et al., 2017). MTurk is an online crowdsourcing platform through which workers complete online tasks for compensation. MTurk has been increasingly used as a research platform in behavioral sciences, and evidence supports the use of MTurk in conducting clinical research (Chandler & Shapiro, 2016; Shapiro et al., 2013) and to recruit anxious samples (Arch et al., 2015; Arditte et al., 2016; Shapiro et al., 2013).

MTurk workers in the United States who had completed a minimum of 100 tasks with an approval rating of at least 95% ($N = 387$) were eligible for participation in the study. Criteria regarding number of tasks completed and approval rating were selected to increase the probability of high-quality data (Peer et al., 2014). Of those ($n = 256$) who screened positive for clinical levels of anxiety sensitivity, 27 individuals declined to participate in the full study. Participants were excluded for: a total score below the anxiety sensitivity clinical cutoff ($n = 131$), premature withdrawal from the study ($n = 53$), failing items of inattention and careless responding ($n = 5$; e.g., "If you are paying attention, please select 'Chair' below"), and entering

nonsense syllables or irrelevant responses into text boxes ($n = 24$). See Figure 1 for a participant flow diagram.

The final sample ($N = 146$) consisted of slightly more females (54.1%) than males (43.2%). Participants were predominantly White (73.3%), ranging in age from 18 to 65 with an average age of 32.36 years ($SD = 9.01$). See Table 1 for a full description of sociodemographic characteristics of the sample.

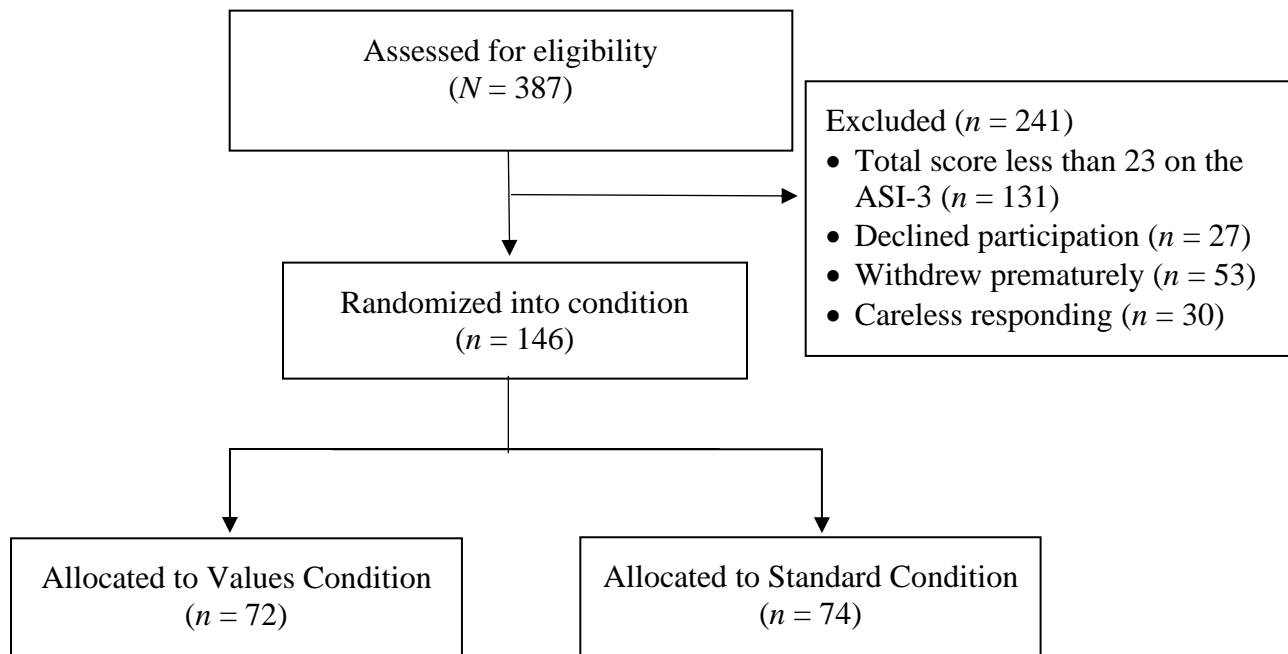


Figure 1. Participant flow.

Measures

Anxiety Sensitivity Index – 3 (ASI-3). The ASI-3 (Taylor et al., 2007) is an 18-item self-report measure of the fear of physiological arousal-related sensations. The ASI-3 consists of a three-factor structure, with six items assessing physical concerns (e.g., “When I feel pain in my chest, I worry that I am going to have a heart attack”), six items assessing social concerns (e.g., “I worry that other people will notice my anxiety”), and six items assessing cognitive concerns

(e.g., “When my thoughts seem to speed up, I worry that I might be going crazy”). Participants were asked to evaluate each statement from “very little” to “very much” on a five-point Likert scale. Scores on the ASI-3 can range from 0 to 72, with higher scores reflecting greater fear of arousal-related symptoms. The total score was used in the current study to screen participants and as a general measure of AS. Participants who scored at or above a total of 23 on the ASI-3, indicative of high AS (see Allan et al., 2014), were invited to participate in the study. The ASI-3 total and subscales demonstrate excellent convergent, discriminant, and criterion-related validity (Taylor et al., 2007). The ASI-3 demonstrated good reliability ($\alpha = .83$) in the current sample.

Demographic and Medical Questionnaire. Participants were given a short measure that included items such as age, gender, ethnicity, as well as current and past medical conditions, current and past treatment for an anxiety disorder, and current psychiatric medications.

Fear of COVID-19 Scale (FCV-19S). The FCV-19S (Ahorsu et al., 2020) is a recently developed seven item self-report measure of fear of the COVID-19 pandemic. Participants were presented with statements such as “I am afraid of losing my life because of Coronavirus-19” and asked to evaluate each item from “strongly disagree” to “strongly agree” on a five-point Likert scale. Scores on the FCV-19S can range from 7 to 35, with higher scores reflecting higher levels of fear. The FCV-19S demonstrates good internal consistency, convergent, divergent and criterion-related validity (Ahorsu et al., 2020; Winter, et al., 2020). The FCV-19S demonstrated good reliability ($\alpha = .89$) in the current sample.

Albany Panic and Phobia Questionnaire (APPQ). The APPQ (Rapee et al., 1995) is a 27-item self-report measure of the fear of activities often avoided by individuals with agoraphobia and social phobia, and activities that typically produce physical sensations. The APPQ consists of a three-factor structure with nine items assessing activities feared by

individuals with agoraphobia (e.g., “Walking alone in isolated areas”), nine items assessing activities feared by individuals with social phobia (e.g., “Giving a speech”), and nine items assessing activities that typically produce interoceptive sensations (e.g., “Running upstairs). Participants were asked to evaluate each activity item from “no fear” to “extreme fear” on a nine-point Likert scale. Scores on the APPQ can range from 0 to 216, with higher scores reflecting higher levels of fear. The APPQ subscales demonstrate good internal consistency, convergent, divergent, and criterion-related validity (Rapee et al., 1995). In the current sample, good internal consistency was observed for all three scales (α s = .79 - .85).

Willingness to tolerate distress. Willingness to tolerate distress was assessed by utilizing activities on the APPQ – Agoraphobia subscale and asking participants to respond to the question, “How willing would you be to do [most feared activity] next week?” Responses range from 0% (not at all willing) to 100% (extremely willing). Scores for all nine items were averaged for a total willingness score.

Treatment Options. To assess provider preference and willingness to begin IE treatment, the Treatment Selection Survey and IE Appointment Survey were administered.

Provider Selection Survey. Selection of an IE provider was assessed by a one-item survey developed by the author. Participants were instructed to “Select a provider with whom you would like to follow through with treatment,” for which response options consisted of an IE provider, other mental health care provider, or no provider. Prior studies support the use of similar items to assess mental health treatment preference and selection (Dwight-Johnson et al., 2000; Gardner et al., 2015; Gum et al., 2006; Lang, 2005; Lin et al., 2005; Pearlstein et al., 2006; Wetherell et al., 2004).

IE Appointment Survey. Willingness to begin IE treatment was assessed by a one-item survey developed by the author. Participants were presented with the following information: “There is an opening for treatment to be provided free of cost on Monday, August 10 at 9:00 AM CST via telehealth from a therapist at the University of Mississippi Psychological Services Center. It does not matter where in the United States you are physically located. All that would be needed is: an hour and a half of your time, an electronic device with video and audio capability (e.g., laptop, smartphone, tablet), and a stable internet connection. Would you like to book this appointment for treatment?” Participants were offered an opportunity to decline treatment, book the appointment for treatment, or request another date and time for treatment.

Treatment Acceptability and Adherence Scale (TAAS). The TAAS (Milosevic et al., 2015) is a ten-item self-report measure of anticipated adherence to a given treatment. Participants were provided with items such as “If I participated in this treatment, I would be able to adhere to its requirements” and indicate agreement ranging from “disagree strongly” to “agree strongly” on a seven-point Likert scale. Scores on the TAAS can range from 10 to 70 and higher scores reflect greater treatment acceptability and anticipated ability to adhere to it. The TAAS demonstrates acceptable to good internal consistency, good convergent and divergent validity (Milosevic et al., 2015). The TAAS demonstrated good reliability ($\alpha = .86$) in the current sample.

Credibility/Expectancy Questionnaire (CEQ). The CEQ (Devilley & Borkovec, 2000) is a six-item self-report measure of treatment expectancy and rationale credibility widely used in psychotherapy research. The CEQ consists of a two-factor structure. On the credibility subscale, participants were provided with four questions such as, “At this point, how successfully do you think this treatment will be in reducing your symptoms?” and responded to them ranging from “not at all” to “very much” on a nine-point Likert scale. On the expectancy subscale, participants

were provided with two items assessing the extent of improvement the participant expects as a result of the treatment from 0% to 100%. Higher scores reflect greater levels of treatment expectancy and rationale credibility. The CEQ demonstrates high internal consistency and good test-retest reliability (Deville & Borkovec, 2000). In the current sample, good internal consistency was observed for both the credibility ($\alpha = .84$) and expectancy ($\alpha = .88$) subscales.

Treatment Acceptability Questionnaire (TAQ). A three-item self-report questionnaire was administered to participants to assess acceptability of the treatment provided. Participants rated the treatment's acceptability, likeability, and aversiveness from "not at all" to "extremely" on a five-point Likert scale. The TAQ demonstrated good reliability ($\alpha = .76$) in the current sample.

Procedure

All procedures were approved by the University of Mississippi's institutional review board prior to the start of participant recruitment. Eligible workers were presented with a brief overview of the purpose of the screener, tasks involved, risks and benefits, and the ASI-3 was completed by those who consented. Participants were compensated \$0.10 for completion of the ASI-3. Participants meeting cutoff criteria on the ASI-3 (total score ≥ 23) were invited to participate in the larger questionnaire study. Interested participants were provided with a brief overview of the purpose of the study, the procedure and tasks involved, the risks and benefits of participation in the study, confidentiality, a description of compensation, and the participant's right to withdraw at any point during the study. Participants were compensated an additional \$3.00 for completion of all study procedures. See Appendix A for a copy of each measure described above.

After providing consent, participants were randomly assigned to the experimental (values rationale) or control condition (standard rationale) via Qualtrics Randomize function.

Participants first completed a series of questionnaires including: Demographic and Medical Questionnaire, FCV-19S, APPQ, and Willingness to Tolerate Distress items. Then, participants viewed a two-minute video that provided information about the fear of physiological sensations (i.e., psychoeducation; See Appendix B for a copy of the script used in the psychoeducation video). Consistent with Barlow and Craske (2007), the researcher described the fear of physiological sensations as the product of inaccurate beliefs about the potential for threat and the diminished belief that one can appropriately tolerate fear and the related physiological sensations. Next, participants viewed a brief three-minute video either describing the values rationale or the standard rationale for IE treatment. Steps were taken to increase the likelihood of engagement with the videos (i.e., participants were prevented from forwarding to the next portion of the study until the time of the length of the video has elapsed). Last, participants completed the CEQ, Treatment Acceptability Questionnaire, TAAS, Treatment Selection Survey, and the IE Appointment Survey. All participants were debriefed about the purpose of the study upon completion or withdrawal from the study, which included a description of the rationale of the study along with information about treatments for anxiety, resources, and referral information participants interested in pursuing treatment for anxiety or panic.

Values rationale. See Appendix B for a copy of the script used in the values rationale video. The values rationale used for a coping with pain task implemented by Páez-Blarrina and colleagues (2008) was adapted to integrate examples relevant to distress and discomfort specific to interoceptive exposure for the current study. In the values rationale condition, an example was provided of an individual engaging in a task that related to a deeply held value despite severe

discomfort (i.e., persisting in chemotherapy treatment for cancer despite aversive side effects). The participant was prompted to think about why most people undergoing chemotherapy do not quit. The participant was then prompted to recall an instance when the participant engaged in a task that involved severe discomfort in order to do something valued. Two more examples of an individual engaging in a task related to a value despite discomfort were provided (i.e., spending time studying for a degree, traveling a long distance to see a loved one). Next, IE was described as an effective procedure designed to help individuals tolerate uncomfortable body sensations so they can *engage in more that they value*. The straw breathing task was provided as an example of a task involved in IE treatment. The experimenter described the straw breathing task (i.e., breathing through a cocktail straw for 60 seconds), symptoms elicited during the task (i.e., breathlessness, dizziness, increased heart rate), and gave a brief five-second demonstration of the task. Participants were informed that IE involves repeating exercises enough times and in the right way such that new learning occurs and conditioning is broken so they can *engage in more that they value*. Following this video, participants completed the final questionnaires (i.e., CEQ, Treatment Acceptability Questionnaire, TAAS, Treatment Selection Survey, and the IE Appointment Survey).

Standard rationale. See Appendix B for a copy of the script used in the standard rationale video. The rationale for engaging in IE described by Barlow and Craske (2007) was adapted for the current study to match the length and examples provided in the values rationale. Participants randomly assigned to the standard rationale condition were provided with an example of an individual engaging in a task that elicited severe discomfort before the individual quit (i.e., experiencing heart pounding, sweating, and difficulty breathing while attempting to run five miles before stopping). The participant was then prompted to recall and provide an example

of an instance when the participant engaged in a task that involved severe discomfort, so they had to quit. Another example of an individual engaging in a task, experiencing severe discomfort, and quitting was provided (i.e., studying hard, experiencing an unbearable headache, then stopping). Next, IE was introduced as an effective procedure to help individuals tolerate uncomfortable body sensations so *fear of body sensations can be reduced and they can feel better*. The straw breathing task was demonstrated as an example and participants were informed that IE involves repeating exercises enough times and in the right way such that new learning occurs and conditioning is broken so they can *experience less discomfort* related to anxious body sensations. Following this video, participants completed the final questionnaires (i.e., CEQ, Treatment Acceptability Questionnaire, TAAS, Treatment Selection Survey, and the IE Appointment Survey).

Data Analytic Approach

All statistical analyses for the current study were performed with the SPSS Version 26 statistical package. A significance level of $p < .05$ was used for all statistical analyses. Scores on all self-report measures were assessed for normality and examined for skewness and kurtosis. Descriptive analyses were conducted on all variables for each condition at each assessment.

Prior to testing the hypotheses, a series of independent samples t-tests and chi square analyses were conducted to evaluate between groups equivalence on demographic and psychological variables. Results from an independent samples t-test revealed no significant age differences between groups, $t(144) = -0.406, p = .686$. A chi-square analysis revealed no significant gender differences between groups, $X^2 = (3, N = 146) = 4.687, p = .196$. Additionally, independent samples t-tests revealed no significant differences between groups regarding AS, $t(144) = 0.411, p = .682$, fear of activities that typically produce interoceptive sensations, $t(144)$

= 0.032, $p = .975$, or fear of activities typically avoided by individuals with agoraphobia, $t(144) = 1.101$, $p = .273$ or social phobia, $t(144) = 0.989$, $p = .324$., or willingness to engage in activities typically avoided by individuals with agoraphobia, $t(144) = -0.097$, $p = .923$. Chi square analyses revealed no significant differences between groups regarding diagnosis of an anxiety disorder, $X^2 = (1, N = 146) = 1.338$, $p = .247$, or endorsement of panic attack(s), $X^2 = (1, N = 146) = 0.948$, $p = .330$. With regard to COVID-19 distress, an independent samples t-test revealed no differences between groups, $t(144) = 1.639$, $p = .103$. In addition, chi square analyses revealed no differences between groups in infection of COVID-19, $X^2 = (1, N = 136) = 2.030$, $p = .154$. In sum, group equivalence was supported as no significant differences between groups were observed on the baseline and demographic variables; thus, no control variables were included in the primary analyses. To test the study hypotheses, a series of t -tests and chi-square analyses were conducted.

III. RESULTS

Descriptive Statistics and Sample Characteristics

Means and standard deviations for all measures are presented in Table 2. Normality of data was assessed, and skewness and kurtosis for each measure were within the acceptable range.

Most participants (69.9%) endorsed a history of at least one panic attack and 56.8% reported experiencing panic attack(s) in the past year. Of those with a history of at least one panic attack, the majority (84.3%) reported the panic attack(s) being unexpected or occurring out of the blue. Half of participants (49.3%) reported a lifetime anxiety disorder diagnosis. About a third of participants (38.4%) reported currently taking medication for mental health problems. The majority of patients (69.9%) denied any history of psychological treatment, including therapy.

The current sample's mean score of 37.23 ($SD = 10.9$) on the ASI-3 was similar to other samples with elevated AS, yet higher than panic disorder samples found by Taylor and colleagues (2007; $M = 32.6$, $SD = 14.3$) and Rifkin and colleagues (2015; $M = 29.3$, $SD = 12.8$). Scores on the ASI-3 physical concerns subscale (vs. social and cognitive concerns) were the most pronounced in the current sample.

Regarding the APPQ, the current sample's mean score of 16.11 ($SD = 10.93$) on the panic subscale was equivalent to APPQ panic subscale scores for a panic disorder sample with moderate/severe avoidance (Rapee et al., 1995; $M = 16.3$, $SD = 13.5$). The current sample's mean score of 24.52 ($SD = 12.72$) on the agoraphobia subscale was lower than APPQ agoraphobia subscale scores for a panic disorder sample with moderate/severe avoidance ($M =$

32.3, $SD = 13.7$); yet, higher than APPQ agoraphobia subscale scores for a panic disorder sample with mild avoidance ($M = 20$, $SD = 14.4$). The current sample's mean score of 37.73 ($SD = 14.44$) on the social phobia subscale was higher than APPQ social phobia subscale scores for a panic disorder sample with moderate/severe avoidance ($M = 20.8$, $SD = 14.2$), and also higher than APPQ social phobia subscale scores for a social phobia sample ($M = 31.5$, $SD = 13.2$; Rapee et al., 1995).

Regarding fears of COVID-19, the current sample's mean score of 19.49 ($SD = 7.01$) on the FCV-19S was elevated compared to FCV-19S scores among a U.S. college sample ($M = 18.1$, $SD = 7.1$; Perz et al., 2020). The current sample's score was also elevated compared to FCV-19S scores found in an outpatient psychiatric sample in Taiwan ($M = 18.46$, SD unknown; Chang et al., 2020).

Primary Analyses

Selection of an IE provider. Participants in the values condition were hypothesized to be more likely to select an IE provider (Hypothesis 1) than those in the standard condition. To test this hypothesis, chi square analyses were conducted. Results revealed no differences in selection of an IE provider between groups, $X^2 = (1, N = 146) = 3.063$, $p = .080$. See Table 3 for chi-square test results and descriptive statistics for provider selection by condition.

Willingness to begin treatment. Participants in the values condition were hypothesized to be more willing to book the appointment offered or request a different appointment time when offered an appointment to receive IE treatment (Hypothesis 2) than those in the standard condition. To determine differences in bookings of appointment for IE treatment between groups, chi square analyses were conducted. For analytic purposes, both options “Yes, I would like to book this appointment” and “No, because this date and time does not work for me, but I

am interested in selecting another appointment time” were coded as “yes,” whereas options “No, because I am not interested in treatment” and “No, because I am not interested in online treatment” were coded as “no.” Results revealed no significant between group differences in booking of appointment for IE treatment, $\chi^2 = (1, N = 146) = 0.417, p = .519$. See Table 4 for chi-square test results and descriptive statistics for appointment booking by condition.

Anticipated adherence to treatment. Participants in the values condition were hypothesized to report greater anticipated adherence to IE (Hypothesis 3) than those in the standard condition. To determine differences in anticipated adherence to treatment between groups, an independent samples t-test was conducted. Results revealed there was no significant difference in anticipated adherence to treatment between groups, $t(144) = -1.677, p = .096$.

Treatment credibility and expectancy. It was hypothesized that there would be no difference in treatment credibility and expectancy (Hypothesis 4) between the values condition and the standard condition. To determine differences in treatment credibility and expectancy, two independent samples t-tests were conducted. Results revealed a significant difference in treatment credibility between groups, $t(144) = 2.537, p = .012$, such that treatment credibility in the values condition was higher than that in the standard condition. Results revealed no significant difference in treatment expectancy between groups, $t(144) = 0.430, p = .093$.

Treatment acceptability. Participants in the values condition were hypothesized to will report greater acceptability of treatment (Hypothesis 5) than those in the standard condition. To determine differences in acceptability of treatment between groups, an independent samples t-test was computed. Results revealed no differences in treatment acceptability between groups, $t(144) = 1.413, p = .160$.

IV. DISCUSSION

The current study is the first known to investigate the effect of emphasizing values in the treatment rationale for IE on treatment selection, willingness to begin treatment utilizing IE, anticipated adherence to an IE treatment, credibility and expectancy, and acceptability of an IE intervention in an online sample of adults with high AS. Given the numerous costs associated with panic disorder (Klerman et al., 1991; Markowitz et al., 1989; Rollman et al., 2005; Schmidt & Telch, 1997), the results of this study aimed to contribute to improvements in treatment efficacy, and ultimately, reduce costs associated with panic disorder and the many other conditions treated by IE. Extensive research demonstrates AS is a critical component in the development, maintenance, and treatment of panic disorder (Baillie & Rapee, 2005; McNally, 2002; Reiss, 1991) as well as other anxiety disorders (Taylor et al., 1992), and mood disorders (Cox et al., 2001; Otto et al., 1995; Simon et al., 2005). Therefore, a clinical analogue sample of adults with elevated AS was utilized to examine the aims of the current study. In sum, results revealed no differences between conditions in treatment selection, willingness to begin treatment, anticipated adherence, expectancy, or acceptability of an IE intervention. However, findings revealed that the values rationale did enhance treatment credibility.

The current study used an analogue sample of adults; yet, study metrics indicated that the symptom severity levels reported by participants were comparable to a clinical sample. The overall sample endorsed levels of AS higher than those typically found in panic disorder samples (Rifkin et al., 2015; Taylor et al., 2007), as well as other clinical samples, including obsessive-compulsive disorder (Taylor et al., 2007), social anxiety disorder (Rifkin et al., 2015; Taylor et

al., 2007), generalized anxiety disorder (Rifkin et al., 2015; Taylor et al., 2007), and posttraumatic stress disorder (Rifkin et al., 2015). Regarding panic attacks, most participants (69%) endorsed a history of at least one and near half (56.8%) reported experiencing at least one in the past year. The majority (84.3%) of participants with a history of at least one panic attack endorsed the panic attack(s) being unexpected or occurring out of the blue. Further, half of participants (49.3%) reported a lifetime anxiety disorder diagnosis. Thus, we believe results from the current study can be generalized to other samples with pathological anxiety.

Findings indicated the treatment rationale did not significantly influence the selection of an IE provider when provided the option between an IE provider, another mental health care provider, or no provider. Thus, findings did not support the hypothesis that participants who received a values rationale would be more likely to select an IE provider. There are a few potential reasons for this finding. First, evidence indicates that gender (Avcı et al., 2019), credentials, specific expertise, and personal characteristics (e.g., friendly, nonjudgmental; Lipscomb et al., 2010) are variables of highest importance to individuals when selecting a mental health provider; however, only limited information regarding expertise was provided in the current study. It could be that participants prioritized the other aforementioned variables, for which they had no information, or participants may not have identified high AS as problematic to their functioning or simply were not interested in treatment for AS. For instance, 17% of participants selected “no provider,” which may indicate lack of interest in treatment or the providers based off of the limited information that was provided. Future research should evaluate variables of importance when selecting potential treatment providers. Additionally, participants may not have appreciated the unique differences among providers regarding treatment efficacy. For instance, prior studies have shown that patients place more emphasis on information about a

provider's specific performance information (Boswell et al., 2018) and prioritize therapeutic relationship, therapist qualities, therapist experience, and being allowed to do more of the speaking in session over intervention empirical support (Swift & Callahan, 2010). Information was provided about the efficacy of the treatment provided by the provider (i.e., "Interoceptive exposure provider, which has shown to be effective for most people;" "Other mental health care provider, even if the treatment may not work"); however, additional information may have clarified the distinctions among these providers. For instance, information regarding first-line treatments and evidence-based practice may have advantageous. Nevertheless, it remains possible that other factors, such as working alliance (Garcia & Weisz, 2002) and other therapist characteristics (Swift & Callahan, 2010), may be prioritized over provider and treatment efficacy. Future research should provide information about IE as an evidence-based treatment for AS, as well as information about other non-evidence-based treatment options that are typically offered in outpatient treatment settings. Future research should also provide characteristic information about the providers from whom treatment is being offered.

Overall, approximately one-third (32%) of participants were willing to begin IE treatment. Prior work has not explicitly evaluated participant willingness to engage in IE; however, current findings suggest that there were no differences in willingness to begin IE treatment between the values and standard rationale conditions. Findings may have been influenced by hesitations related to mental health stigma (Bharadwaj et al., 2017), limited insight (Mojtabai et al., 2011), and lack of motivation for treatment (Nock & Photos, 2006). Further, participants may not have believed that the dose of therapy (i.e., one 90-minute session) would be sufficient or that the treatment would fully address their concerns (Piper et al., 1999). Unfortunately, the current study did not assess AS-related functional interference or willingness

to seek treatment for AS-related concerns. Findings may have also been influenced by the platform of the IE treatment session offered (i.e., telemental health), as internet-delivered CBT has proven less preferred by potential patients than in-person CBT (Soucy & Hadjistavropoulos, 2017). In addition, factors including limited access to an electronic device with video and audio capability, a stable and strong enough internet connection to support teleconferencing, or a private location to engage in telemental health may have posed barriers to participants electing to book the appointment for treatment (Madigan et al., 2020). Future studies should assess insight into AS as a problem, perceptions of mental health treatment, motivation for change, perceptions of internet-delivered treatment, and access to resources needed to engage in telemental health.

The current findings are inconsistent with prior research suggesting that values may motivate engagement in IE (Maltby & Tolin, 2005; Páez-Blarrina et al., 2008). Specifically, Páez-Blarrina and colleagues (2008) found that participants who received a values rationale were more willing to engage in a pain task and tolerate pain via electric shock than those in the control and no values conditions. Páez-Blarrina and colleagues (2008) utilized a pain task consisting of electric shocks, assessed willingness to tolerate physical pain, and the rationale was delivered in-person involving interaction and personalization; therefore, the salience of the values and pain task may have contributed to the findings. Although effort was made in the current study to engage with the participant through questions proposed in the rationale videos (e.g., “Why do you think they do not quit?” and “Have you ever been, not exactly in such a situation, but in a somehow similar one...?”), there was no live interaction. Therefore, participants may not have come into contact with their own personal values during the intervention or related engagement in IE treatment with pursuing said values. As a more rigorous test of the current hypotheses, future studies may benefit from including delivery of personalized in-person and interactive

treatment rationales. Additionally, future studies should assess exposure-based outcome variables such as willingness to tolerate physical discomfort commonly elicited by IE (e.g., respiratory distress associated with the straw breathing task).

Contrary to hypothesis, there were also no differences in anticipated adherence to an IE treatment between the values rationale and standard rationale conditions. Participants in both groups reported lower anticipated adherence to treatment compared to scores for exposure therapy from clinically anxious samples (Blakey et al., 2019; Milosevic & Radomsky, 2013) and scores for internet-delivered CBT from a clinically anxious sample (Soucy & Hadjistavropoulos, 2017). Additional components provided in the rationale for internet-delivered CBT that may have contributed to increased anticipated adherence found by Soucy and Hadjistavropoulos (2017) include: 12 lessons covered in once-weekly sessions with additional check-ins with a therapist by phone or email, information provided about each lesson, additional perceived benefits beyond reduction in anxiety reported by patients, and a list of advantages and disadvantages of the treatment. Future studies should include the previously mentioned components as well as examine the influence of a values rationale for internet delivered IE across multiple sessions and/or internet-delivered PCT. As described previously, it could be possible that the current sample had limited insight into AS as a problem, were simply not interested in treatment, did not perceive the dose of therapy (i.e., one 90-minute session) would be sufficient or that the treatment would fully address their concerns. Consequently, they may not have anticipated adhering to the requirements of IE. Further, limited information about providers could have contributed to low anticipated adherence, as provider-patient alliance and communication largely contribute to mental health treatment adherence (Thompson & McCabe,

2012). Future studies should assess views of IE to gain a better understanding of potential reasons for low anticipated adherence.

Credibility and expectancy were expected to be similar in both groups, and while there were no differences in expectancy, the values rationale was rated as significantly more credible than the standard rationale. These results imply that a values rationale may contribute to increases in how believable, convincing, and logical the treatment is compared to the standard rationale for IE treatment. These findings highlight the importance of linking engagement in treatment to valued domains to increase treatment credibility. Prior research has highlighted the importance of assessing and strengthening treatment credibility at the onset and throughout treatment given the association between treatment credibility and posttreatment outcomes (Constantino et al., 2018). Further, credibility and expectancy scores in the current study were equivalent to credibility and expectancy scores prior to IE among a high AS sample found by Smits and colleagues (2008). These results suggest that descriptions and rationales for IE as brief as three minutes produce the same credibility and expectancy as lengthier versions, which could potentially lead to reductions in time spent describing IE and the rationale and swifter delivery of active ingredients of IE treatment.

Lastly, there were no differences in treatment acceptability between the values and standard rationale conditions, implying that a values rationale does not enhance IE treatment acceptability. Regarding facets of treatment acceptability assessed, the current sample's treatment acceptability and aversiveness scores were equivalent to standard IE scores obtained from a high AS sample by Deacon and colleagues (2013); however, the likeability ratings were higher in the current study than standard IE in Deacon and colleagues (2013) study. These findings suggest that descriptions and rationales for IE as brief as three minutes produce similar

acceptability ratings and increased likeability than lengthier versions, which could potentially lead to swifter delivery of active ingredients of IE treatment.

Data were collected in June of 2020; therefore, it is important to interpret the current findings in the context of the worldwide COVID-19 pandemic. Given the overlap between COVID-19 and anxiety sensations (e.g., respiratory distress, gastrointestinal symptoms), it could be that the COVID-19 pandemic and fear of COVID-19 symptoms impacted AS levels in the current sample. At the time of data collection, 126,393 COVID-19 deaths had been reported in the United States according to the Centers for Disease Control and Prevention (CDC; CDC, 2020a). Very few (1.5%) participants in the current sample reported having been infected with COVID-19, and the majority (67.9%) denied knowing anyone personally who had been infected with COVID-19. Yet, the sample endorsed heightened levels COVID-19-related fears. The current sample reported elevated fears of COVID-19 compared to a U.S. college sample (Perz et al., 2020), the only comparative U.S. sample that could be located by the author at the time of this study's conclusion. as well as an outpatient psychiatric sample in Taiwan (Chang et al., 2020).

Fears of COVID-19 may have impacted participants' responses on self-report measures and interest in treatment at the time of the study. The COVID-19 pandemic has led to increased psychiatric morbidity (CDC, 2020b) and exacerbated psychiatric disturbances (Gruber et al., in press), including anxiety disorders (Asmundson et al., 2020). The current study utilized an anxious sample, and in light of the recent findings by Park and colleagues (2020) that distraction is the most commonly utilized coping strategy for COVID-19-related fears, participants may have been more inclined to engage in distraction rather than seek therapy. Therefore, it could be

that participants' methods of distraction prevented identification of anxiety as a problem or that participants were generally less willing to seek mental health treatment at the time of the study.

Additionally, although effort was made to adhere to the CDC guidelines limiting social contact to decrease the risk of COVID-19 transmission by offering treatment via telemental health, it could be that participants declined the appointment due to this platform. In fact, approximately 41% of participants declined the appointment and endorsed not being interested in online treatment as the reason. Evidence supports the effectiveness of telemental health care for a variety of psychological conditions (Langarizadeh et al., 2017), and patients generally indicate comparable treatment satisfaction and therapeutic alliance as in-person services (Jenkins-Guarnieri et al., 2015). However, public attitudes toward include the belief that services provided via telemental health are not as effective as in-person services (Grubaugh et al., 2008). Future studies should examine attitudes toward telemental health and access to necessary resources for the appointment. Additionally, future studies should offer an appointment for in-person IE treatment. Despite the potential impact of the COVID-19 pandemic, findings from the current study provide important findings and recommendations for future research.

A few additional limitations and suggestions for future research should be considered. First, given the potential impact of COVID-19 on the current findings, future studies should examine responses to a values rationale apart from the potential influence of a worldwide pandemic. A second potential limitation involves utilization of an analogue sample of participants who endorsed fear and beliefs about physiological sensations as dangerous rather than treatment seeking patients with panic disorder diagnoses. The current sample was a non-treatment seeking sample; therefore, a treatment seeking sample that was willing and ready to change may have responded differently to the rationales. Future studies should examine

responses to a values rationale in a sample of treatment seeking sample of individuals diagnosed with panic disorder. A third potential limitation involves lack of information regarding experience with the treatment examined in this study. Although current or past mental health or psychiatric treatment was assessed, experience with CBT and/or IE, specifically, was not assessed. Future studies should examine knowledge of and experience with both CBT and IE. A fourth potential limitation involves the dose of the rationale and limited interactive delivery of the rationale. Though the length of the rationale matched that of previous research investigating the influence of a values rationale (i.e., Páez-Blarrina et al., 2008), it is unclear whether dose utilized was appropriate or should have been extended in length. Unlike the rationale provided by Páez-Blarrina and colleagues (2008), however, the rationale was delivered via a pre-recorded video which differs greatly from how treatment rationales are delivered in treatment settings. Future investigations should evaluate optimal duration and involve an interactive dialogue to ensure the adequate dose of rationale. A fifth potential limitation involves the timeliness of the IE appointment, as evidence indicates longer wait times for care is strongly associated with treatment non-attendance (e.g., McCullumsmith et al., 2015). The date of the appointment offered in the current study was approximately two months following participation in the study. Although participants were presented with the option to request a different appointment date and time, it could be that participants were interested in seeking treatment immediately or sooner than two months and did not think that immediate or sooner appointments would be available if requested. Future studies should examine shorter wait times for appointments for IE treatment. A sixth potential limitation involves the use of an online platform for data collection. Steps were taken to increase the likelihood of engagement with the rationale videos; however, it's uncertain if participants attended to the videos to receive the full dose delivered. In the context of

treatment, it is also likely that treatment perceptions are moderated by additional variables, such as therapeutic rapport and early therapeutic gains (Milosevic & Radomsky, 2013). Future investigations should involve in person delivery of rationales and data collection.

In conclusion, prior evidence suggests values may motivate engagement in IE (Bluett, 2014; Branstetter-Rost et al., 2009; Karekla, 2004; Maltby & Tolin, 2005; Páez-Blarrina et al., 2008; Westra & Dozois, 2006); however, there is no research prior to this study that examines the impact of a values rationale on motivation to engage in IE. The current study is an important first step toward identifying strategies that may contribute to engagement in IE, the most efficacious component of CBT for panic disorder (Barlow, 2002; Chambless & Peterman, 2004; Craske & Barlow, 2000; Craske et al., 1997; Klosko et al., 1990; Penava et al., 1998; Pompoli et al., 2018, which has the potential to improve treatment efficacy and reduce costs associated with panic disorder and other conditions associated with high AS. Overall, the findings from the current study provide insights into the impact of a brief values rationale on factors related to IE treatment. Relative to those who received the standard rationale for IE, the values rationale yielded similar effects on selection of an IE provider, willingness to begin IE treatment, anticipated adherence to IE, treatment expectancy and acceptability. The values rationale did, however, yield greater treatment credibility compared to the standard rationale. In light of the current methodological limitations, recommendations for future studies include assessment of the influence of a values rationale for IE delivered in a face-to-face, interactive manner barring the context of a viral pandemic with a variety of IE treatment appointment options among a treatment-seeking panic disorder sample.

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APPENDICES

Table 1

Sociodemographic Characteristics of Participants

Characteristic	Values	Standard	Total
	(<i>n</i> = 72) <i>n</i> (%)	(<i>n</i> = 74) <i>n</i> (%)	(<i>N</i> = 146) <i>n</i> (%)
Gender			
Female	42 (58.3)	37 (50)	79 (54.1)
Male	29 (40.3)	34 (45.9)	63 (43.2)
Transgender	1 (1.4)	0 (0)	1 (0.7)
Non-binary	0 (0)	3 (4.1)	3 (2.1)
Race			
White	58 (80.6)	49 (66.2)	107 (73.3)
Black/African American	4 (5.6)	9 (12.2)	13 (8.9)
Asian/Southeast Asian	9 (12.5)	15 (20.3)	24 (16.4)
American Indian/Alaska Native	1 (1.4)	1 (1.4)	2 (1.4)
Ethnicity			
Hispanic or Latino	7 (9.7)	13 (17.6)	20 (13.7)
Sexual orientation			
Heterosexual/straight	55 (76.4)	61 (82.4)	116 (79.5)
Gay	1 (1.4)	2 (2.7)	3 (2.1)
Lesbian	2 (2.8)	0 (0)	2 (1.4)
Bisexual	11 (15.3)	8 (10.8)	19 (13)
Queer	1 (1.4)	0 (0)	1 (0.7)
Asexual	2 (2.8)	3 (4.1)	5 (3.4)
Relationship status			
In a relationship	49 (68.1)	42 (56.8)	91 (62.3)
Married or in a civil union	27 (37.5)	21 (28.4)	48 (32.9)
Living together	20 (27.8)	16 (21.6)	36 (24.7)
Living apart	6 (8.3)	10 (13.5)	16 (11)
Student status			
Not a student	53 (73.6)	58 (78.4)	111 (76)
Part-time student	4 (5.6)	4 (5.4)	8 (5.5)
Full-time student	15 (20.8)	12 (16.2)	27 (18.5)
Employment status			
Employed full-time	34 (47.2)	40 (54.1)	74 (50.7)
Employed part-time	15 (20.8)	15 (20.3)	30 (20.5)
Unemployed	15 (20.8)	19 (25.7)	34 (23.3)
Retired	1 (1.4)	0 (0)	1 (0.7)
Other	7 (9.7)	0 (0)	7 (4.8)
Highest education level			
Some high school	2 (2.8)	0 (0)	2 (1.4)
Graduated high school	10 (13.9)	5 (6.8)	15 (10.3)
Some college, no degree	15 (20.8)	21 (28.4)	36 (24.7)
Two-year degree or technical	8 (11.1)	8 (10.8)	16 (11)

Four-year degree	28 (38.9)	31 (41.9)	59 (40.4)
Some graduate school, no degree	5 (6.9)	1 (1.4)	6 (4.1)
Master's degree	3 (4.2)	7 (9.5)	10 (6.8)
Professional or doctoral degree	1 (1.4)	1 (1.4)	2 (1.4)

Table 2.

Descriptive Statistics for Self-Report Measures

	<i>M (SD)</i> Total (<i>N</i> = 146)	<i>M (SD)</i> Values (<i>n</i> = 72)	<i>M (SD)</i> Standard (<i>n</i> = 74)
ASI-3 Total	37.23 (10.94)	37.61 (10.41)	36.86 (11.49)
ASI-3 Physical	11.66 (5.36)	12.01 (5.57)	11.32 (5.17)
ASI-3 Cognitive	10.30 (5.78)	10.38 (5.60)	10.23 (5.99)
ASI-3 Social	15.27 (4.52)	15.22 (4.81)	15.31 (4.25)
FCV-19S	19.49 (7.01)	20.44 (6.90)	18.55 (7.03)
APPQ Social	37.73 (14.44)	38.93 (15.36)	36.57 (13.48)
APPQ Agoraphobia	24.53 (12.72)	25.71 (12.59)	23.39 (12.82)
APPQ Panic	16.11 (10.93)	16.14 (8.49)	16.08 (12.93)
Willingness	53.39 (23.12)	53.20 (22.09)	53.57 (24.24)
TAAS	33.51 (11.22)	31.94 (11.00)	35.04 (11.30)
CEQ-Credibility	5.72 (2.06)	6.15 (1.77)	5.29 (2.23)
CEQ-Expectancy	5.81 (2.72)	6.19 (2.58)	5.44 (2.81)
TAQ	7.85 (2.92)	8.19 (2.87)	7.51 (2.95)

Note. ASI-3 Total = Anxiety Sensitivity Index – 3 – Total score; ASI-3 Physical = Anxiety Sensitivity Index – 3 – Physical Concerns subscale; ASI-3 Cognitive = Anxiety Sensitivity Index – 3 – Cognitive Concerns subscale; ASI-3 Social = Anxiety Sensitivity Index – 3 – Social Concerns subscale; FCV-19S = Fear of Coronavirus-19 Scale; APPQ Social = Albany Panic and Phobia Questionnaire – Social subscale; APPQ Agoraphobia = Albany Panic and Phobia Questionnaire – Agoraphobia subscale; APPQ Panic = Albany Panic and Phobia Questionnaire – Panic subscale; Willingness = Willingness to tolerate distress; TAAS = Treatment Acceptability and Adherence Scale; CEQ-Credibility = Credibility/Expectancy Questionnaire – Credibility subscale; CEQ-Expectancy = Credibility/Expectancy Questionnaire – Expectancy subscale; TAQ = Treatment Acceptability Questionnaire; Values = values rationale condition; Standard = standard rationale condition.

Table 3

Results of Chi-square Test and Descriptive Statistics for Provider Selection by Condition

<i>Condition</i>	<i>Provider Selection</i>		
	<i>IE Provider</i>	<i>Other Provider</i>	<i>No Provider</i>
<i>Values</i>	50 (69.4%)	12 (16.7%)	10 (13.9%)
<i>Standard</i>	41 (55.4%)	18 (24.3%)	15 (20.3%)

Note. $\chi^2 = 3.06$, $df = 2$. Numbers in parentheses indicate column percentages.

Table 4

Results of Chi-square Test and Descriptive Statistics for Appointment Booking by Condition

<i>Condition</i>	<i>Appointment Booking</i>			
	<i>No, not interested in treatment</i>	<i>No, not interested in online treatment</i>	<i>No, but would like another appointment time</i>	<i>Yes, I would like to book this appointment</i>
<i>Values</i>	20 (27.8%)	27 (37.5%)	15 (20.8%)	10 (13.9%)
<i>Standard</i>	19 (25.7%)	33 (44.6%)	9 (12.2%)	13 (17.6%)

Note. $\chi^2 = 2.49$, $df = 3$. Numbers in parentheses indicate column percentages.

APPENDIX A: MEASURES

Demographic and Medical Questionnaire

1. Age: _____
2. Gender:
____ (1) Female
____ (2) Male
____ (3) Transgender
____ (4) Other _____
3. What sex were you assigned at birth, on your original birth certificate?
____ (1) Male
____ (2) Female
4. Race:
____ (1) American Indian/Alaska Native
____ (2) Asian/Southeast Asian
____ (3) Black/African American
____ (4) Native Hawaiian/Other Pacific Islander
____ (5) White
5. Ethnicity: Are you Hispanic or Latino?
____ (1) Yes
____ (2) No
6. Are you currently in a romantic relationship with a partner or partners?
____ (1) No
____ (2) Yes, one partner
____ (3) Yes, I have multiple partners
If yes, are you (mark all that apply)
____ (1) Not applicable
____ (2) Married or in a civil union
____ (3) Living together
____ (4) Living apart
7. Are you a student?
____ (1) Not a student
____ (2) Part-time student
____ (3) Full-time student
8. What is your employment status?
____ (1) Unemployed
____ (2) Employed part-time (working 1-30 hours/week)
____ (3) Employed full-time (working more than 30 hours a week)
____ (4) Retired
____ (5) Other, please specify: _____

9. What's the highest level of education you have achieved?

- (1) No high school
- (2) Some high school
- (3) Graduated high school
- (4) Some college, but did not graduate
- (5) Graduated with 2-year degree or technical school
- (6) Graduated with 4-year degree
- (7) Some graduate school but no graduate degree
- (8) Attained Master's degree (i.e., M.A., M.S., M.B.A., etc.)
- (9) Attained Professional or Doctoral degree (i.e., Ph.D., J.D., M.D., etc.)

10. How do you self-identify?

- (1) Gay
- (2) Lesbian
- (3) Bisexual
- (4) Queer
- (5) Questioning
- (6) Heterosexual/Straight
- (7) Asexual
- (8) Other (Please specify): _____

11. Please list your current and past medical conditions:

Dates (from-to)	Medical conditions

12. Have you ever been diagnosed with an anxiety disorder? (yes/no)

If yes, list diagnoses:

Date	Diagnosis

13. Please list all current medications you take:

Medication Name	Dosage	How often	How long have you been taking it?

a.	Have you had any changes to your medications in the last 3 months?	Yes	No
	<i>If yes, please describe:</i>		
b.	Have you consistently taken your medications over the last 3 months?	Yes	No
	<i>If no, please describe:</i>		

14. Please list any psychiatric medications you've taken in the past:

Medication Name Dosage When did you start? When did you stop?

15. Please list any current or past mental health or psychiatric treatment (therapy):

Dates Details

16. Have you ever had one or more panic attacks in your life? (yes/no)

- a. Sometimes panic attacks are unexpected or occur *out of the blue*. Have you ever had a panic attack like this? (yes/no)
- b. For approximately how long have you been experiencing panic attacks?
_____ years _____ months
- c. In the past year, approximately how many panic attacks have you had? _____
- d. Of those that you've had in the past year, how many were expected or cued (i.e., you knew one was coming)? _____
- e. How many panic attacks in the past year were unexpected or occurred out of the blue? _____

17. To what extent has your daily schedule and life been affected by COVID-19?

- ____(1)No disruption at all.
 ____ (2)A little disruption, but I mostly function well.
 ____ (3)Many things are disrupted, but I can still manage.
 ____ (4)My life is disrupted in many ways and I have trouble managing.
 ____ (5)My life is completely disrupted and I cannot function at all.

18. Do you know someone personally who has been infected with COVID-19?

_____ (1) No

_____ (2) Yes

_____ (3) Don't know

19. Have you been infected with COVID-19?

_____ (1) No

_____ (2) Yes

_____ (3) Don't know

20. Do you live in a state that has instituted a stay-at-home order?

_____ (1) No

_____ (2) Yes

Albany Panic and Phobia Questionnaire (APPQ)

Please rate, on the following scale, the amount of fear that you think you would experience in each of the situations listed below if they were to occur in the next week. Try to imagine yourself actually doing each activity and how you would feel.

0 ----- 1 ----- 2 ----- 3 ----- 4 ----- 5 ----- 6 ----- 7 ----- 8
No fear Slight fear Moderate fear Marked fear Extreme fear

- | | |
|---|---|
| _____ 1. Talking to people. | _____ 25. Staying overnight away from home. |
| _____ 2. Going through a car wash. | _____ 26. Feeling the effects of alcohol. |
| _____ 3. Playing an active sport on a hot day. | _____ 27. Going over a long, low bridge. |
| _____ 4. Blowing up a balloon quickly. | |
| _____ 5. Eating in front of others. | |
| _____ 6. Hiking on a hot day. | |
| _____ 7. Getting gas at a dentist. | |
| _____ 8. Interrupting a meeting. | |
| _____ 9. Giving a speech. | |
| _____ 10. Exercising intensely alone. | |
| _____ 11. Going long distances from home alone. | |
| _____ 12. Introducing yourself to groups. | |
| _____ 13. Walking alone in isolated areas. | |
| _____ 14. Driving on highways. | |
| _____ 15. Wearing striking, showy clothes. | |
| _____ 16. Possibility of getting lost. | |
| _____ 17. Drinking a strong cup of coffee. | |
| _____ 18. Sitting in the center of a cinema. | |
| _____ 19. Running up stairs. | |
| _____ 20. Riding on a subway. | |
| _____ 21. Speaking on the telephone. | |
| _____ 22. Meeting strangers. | |
| _____ 23. Writing in front of others. | |
| _____ 24. Entering a room full of people. | |

Anxiety Sensitivity Index – 3 (ASI-3)

Please rate each item by selecting one of the five answers for each question. Please answer each statement by circling the number that best applies to you.

	Very little	A little	Some	Much	Very much
1. It is important not to appear nervous.	0	1	2	3	4
2. When I cannot keep my mind on a 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 a 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 that 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
11. It scares me when I blush in front of 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 public.	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

Credibility/Expectancy Questionnaire (CEQ)

We would like you to indicate below how much you believe, *right now*, that the treatment you will receive will help to reduce your anxiety. Belief usually has two aspects to it: (1) what one *thinks* will happen and (2) what one *feels* will happen. Sometimes these are similar; sometimes they are different. Please answer the questions below. In the next set, answer in terms of what you *think*. In the second set answer in terms of what you really and truly *feel*.

1. At this point, how logical does the therapy offered to you seem?

1 2 3 4 5 6 7 8 9
not at all logical somewhat logical very logical

2. At this point, how successfully do you think this treatment will be in reducing your anxiety symptoms?

1 2 3 4 5 6 7 8 9
not at all successful somewhat successful very successful

3. How confident would you be in recommending this treatment to a friend who experiences similar problems?

1 2 3 4 5 6 7 8 9
not at all confident somewhat confident very confident

4. By the end of the therapy period, how much improvement in your anxiety symptoms do you think will occur?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Set II

For this set, close your eyes for a few moments, and try to identify what you really *feel* about the therapy and its likely success. Then answer the following questions.

1. At this point, how much do you really *feel* that therapy will help you to reduce your anxiety symptoms?

1 2 3 4 5 6 7 8 9
not at all somewhat very much

2. By the end of the therapy period, how much improvement in your anxiety symptoms do you really *feel* will occur?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Fear of COVID-19 Survey (FCV-19S)

Please indicate your level of agreement with the statements below from “strongly disagree” to “strongly agree.”

	1 Strongly disagree	2 Disagree	3 Neither agree nor disagree	4 Agree	5 Strongly agree
1. I am most afraid of coronavirus-19.	1	2	3	4	5
2. It makes me uncomfortable to think about coronavirus-19.	1	2	3	4	5
3. My hands become clammy when I think about coronavirus-19.	1	2	3	4	5
4. I am afraid of losing my life because of coronavirus-19.	1	2	3	4	5
5. When watching news and stories about coronavirus-19 on social media, I become nervous or anxious.	1	2	3	4	5
6. I cannot sleep because I’m worrying about getting coronavirus-19.	1	2	3	4	5
7. My heart races or palpitates when I think about getting coronavirus-19.	1	2	3	4	5

Willingness to Begin Treatment Item

1. There is an opening for treatment to be provided free of cost on Monday, August 10 at 9:00 AM CST via telehealth from a therapist at the University of Mississippi Psychological Services Center. It does not matter where in the United States you are physically located. All that would be needed is: an hour and a half of your time, an electronic device with video and audio capability (e.g., laptop, smartphone, tablet), and a stable internet connection. Would you like to book this appointment for treatment?

- a) No, because I am not interested in treatment
- b) No, because I am not interested in online treatment
- c) No, because this date and time does not work for me, but I am interested in selecting another appointment time
Select date and time: _____
- d) Yes, I would like to book this appointment.

**Note: The following feedback will be given if option c OR d is selected:

“Thank you for electing to book an appointment. This response choice was used as a hypothetical option and therefore does not reflect a scheduled appointment with a therapist. Information will be provided at the end of this study for those interested in seeking treatment services, including links to two directories of therapists for whom you can search by zip code.”

Treatment Selection Item

1. Select a provider with whom you would like to follow through with treatment.
 - a) Interoceptive exposure provider, which has been shown to be effective for most individuals
 - b) Other mental health care provider, even if the treatment may not work
 - c) No provider; I chose to continue to feel distressed

APPENDIX B: TREATMENT RATIONALES

Psychoeducation + Values Rationale (Experimental Condition):

I would like to talk to you now about why people fear uncomfortable body sensations, and what can be done to overcome this fear. There are three primary reasons why people might fear their own body sensations. First, they may believe that certain sensations have potentially harmful consequences. For example, some people think that extreme lightheadedness or dizziness can cause them to pass out. Second, when people repeatedly experience uncomfortable body sensations and anxiety at the same time, they can gradually develop a conditioned, gut-level fear response to the sensations. Third, when people go out of their way to avoid uncomfortable body sensations, they are unable to learn that their sensations are not harmful, that they are tolerable, and that they will eventually go away.

*As you know, many people have a really hard time with anxiety and uncomfortable body sensations, but they persist and keep working even with very severe discomfort. Have you known or heard of someone who has been treated with chemotherapy? You know that sometimes this treatment is very aversive, people refer that they feel dizzy and sick, they lose their hair and feel a lot of unpleasant symptoms, but even so, only a few refuse the treatment. Why do you think most of them do not refuse or quit? (Participant will respond something like “Because they need the treatment to live or recover their health”). Exactly, because feeling bad during a short period could be related to recovering from cancer in the long run, or at least to an improvement in quality of life. Have you ever been, not exactly in such a situation, but in a somehow similar one where you have felt bad for a while in order to achieve something important, something that was meaningful to you, something you value? (Elicit one or two personal examples that would correspond with such experiences – If the participant does not provide an example, say, *For example, when you spend time studying, or when you travel a long distance to see a loved one, in the short run it is painful but you do it because getting a degree, or maintaining those relationships are important to you.* Then ask for an example).*

In this study, you will participate in an effective treatment for helping people tolerate uncomfortable body sensations so you can engage in more things that matter to you, that you value, like (refer to example provided). To do this, you will engage in an overbreathing exercise to produce the symptoms associated with anxiety. You will repeat the exercise enough times and in just the right way so that you learn that the symptoms are not harmful, that you can handle them, and that you can break the conditioning, so you can engage in more that you value.

The technique you will practice today involves repeatedly performing an overbreathing exercise for periods of one minute. After each minute-long trial, you will have a resting period during which you will be asked to rate your anxiety, negative predictions about the body sensations you are experiencing, and your ability to tolerate your uncomfortable body sensations. You will be asked to repeatedly practice the overbreathing exercises until you become convinced that your body sensations are not dangerous, and that are able to tolerate them. This will help you learn that the symptoms are not harmful, that you can handle them, and help you break the conditioned association between the sensations and anxiety, so you can engage in more that you value.

Psychoeducation + Standard Rationale (Control Condition):

I would like to talk to you now about why people fear uncomfortable body sensations, and what can be done to overcome this fear. There are three primary reasons why people might fear their own body sensations. First, they may believe that certain sensations have potentially harmful consequences. For example, some people think that extreme lightheadedness or dizziness can cause them to pass out. Second, when people repeatedly experience uncomfortable body sensations and anxiety at the same time, they can gradually develop a conditioned, gut-level fear response to the sensations. Third, when people go out of their way to avoid uncomfortable body sensations, they are unable to learn that their sensations are not harmful, that they are tolerable, and that they will eventually go away.

As you know, many people have a really hard time with anxiety and uncomfortable body sensations, and even when they want to do things, sometimes they can't because of the severe discomfort they suffer. Imagine a person who decides he wants to run 5 miles every day. But as soon as he hits 1.5 miles his heart is pounding, he breaks into a sweat, and has difficulty breathing then quits. Why do you think he has to quit? (Participant will respond something like "Because he couldn't stand the pain and sometimes you have to quit"). Exactly, he will have to quit pursuing this goal because he cannot continue with such discomfort. Have you ever been, not exactly in that situation, but in a somehow similar one where you had to quit doing something because you were experiencing lots of discomfort? (Elicit one or two personal examples that would correspond with such experiences – If the participant does not provide an example, say, For example, when you are studying so hard and you have to stop because of an unbearable headache. You want to continue, but sometimes you can't because the pain becomes a barrier for doing what you want to do. Then ask for an example).

In this study, you will participate in an effective treatment for reducing fears of uncomfortable body sensations so you can feel better. To do this, you will engage in an overbreathing exercise to produce the symptoms associated with anxiety. You will repeat the exercise enough times and in just the right way so that you learn that the symptoms are not harmful, that you can handle them, and that you can break the conditioning, so you can experience less discomfort related to body sensations.

The technique you will practice today involves repeatedly performing an overbreathing exercise for periods of one minute. After each minute-long trial, you will have a resting period during which you will be asked to rate your anxiety, negative predictions about the body sensations you are experiencing, and your ability to tolerate your uncomfortable body sensations. You will be asked to repeatedly practice the overbreathing exercises until you become convinced that your body sensations are not dangerous, and that are able to tolerate them. This will help you learn that the symptoms are not harmful, that you can handle them, and help you break the conditioned association between the sensations and anxiety, so you can experience less discomfort related to body sensations.

VITA

Gina Quebedeaux Boullion, M.S.

ginaqboullion@gmail.com

EDUCATION

August 2021 (Projected) **Doctor of Philosophy, Clinical Psychology** (APA-accredited)
University of Mississippi; Oxford, MS
Dissertation: *Acceptability, anticipated adherence, and willingness to begin interoceptive exposure: Examination of the influence of a values rationale*
Chair: Laura J. Dixon, Ph.D.

May 2015 **Master of Science, Applied Psychology**
University of Louisiana at Lafayette; Lafayette, LA
Thesis: *The relationships among anxiety, experiential avoidance, and valuing in daily experiences*
Chair: Emily K. Sandoz, Ph.D.

May 2012 **Bachelor of Science, Psychology**
University of Louisiana at Lafayette; Lafayette, LA
Major: Psychology; Minor: English

LICENSES AND CERTIFICATIONS

2018 **Examination for Professional Practice in Psychology (EPPP)**
Passed at the Doctoral level

2018 – 2020 **Provisionally Certified Mental Health Therapist (PCMHT)**
Mississippi Department of Mental Health

2018 **Nonviolent Crisis Intervention**
Certified through the Crisis Prevention Institute

SUPERVISED CLINICAL EXPERIENCE

July 2020 – Present: Predoctoral Intern
VA North Texas Health Care System; Dallas, TX

- July 2020 – February 2021: Mental Health Trauma Clinic, Substance Use Disorder Focus
Supervisor: Lindsey Cooper, Psy.D.
Duties include assessment and treatment of veterans with comorbid PTSD and substance

use disorders in an outpatient clinic. Additional duties include co-leadership of a mindfulness group and serving as a member of the Disruptive Behavior Committee.

- July 2020 – February 2021: Fort Worth Mental Health Outpatient Clinic
Supervisor: Heidi Koehler, Ph.D., ABPP
Duties include assessment and treatment of veterans presenting for outpatient mental health treatment for difficulties including mood, anxiety, and personality disorders. Additional duties include serving on the Dialectical Behavior Therapy (DBT) team involving co-leadership of an Advanced DBT Skills group, participating in weekly DBT consultation calls, and conducting individual DBT sessions.
- August 2020 – February 2021: Mental Health Diamond Clinic
Supervisor: Colette Miesse, Ph.D.
Duties include treatment of veterans presenting for outpatient mental health treatment for Major Depressive Disorder utilizing an Interpersonal Psychotherapy for Depression protocol.
- February 2021 – April 2021: Primary Care Mental Health Integration
Supervisors: Eric Mariano, Ph.D., Kristen Medina, Ph.D., & Marquisha Lee, Ph.D., ABPP, CBSM
Duties include screening, referring, and providing brief behavioral health treatments for veterans screening positive for mental health-related issues in the Primary Care Clinic. Additional duties include assessment and treatment of veterans presenting for treatment for insomnia utilizing a Cognitive Behavioral Therapy for Insomnia protocol.
- February 2021 – April 2021: Medical/Surgical Psychology Consultation Team
Supervisor: Janet Ashworth, Ph.D.
Duties include psychological assessment and diagnosis for medical populations including veterans seeking bariatric surgery or organ transplant, and veterans with hepatitis C virus, oncology, and sleep-related conditions.
- February 2021 – July 2021: Spinal Cord Injury Center
Supervisor: Rebecca Frontera, Psy.D.
Duties include treatment of veterans presenting for outpatient mental health treatment for chronic pain utilizing a Cognitive Behavioral Therapy for Chronic Pain protocol.
- May 2021 – July 2021: Inpatient Psychiatry Unit
Supervisor: Aletha Miller, Ph.D.
Duties will include psychological assessment and treatment of veterans in an intensive psychiatric unit. Additional duties will include co-facilitating process-oriented, psychoeducational, and diagnostic specific-oriented groups as well as social skills training while working as a part of a large interdisciplinary team.

Aug 2019 – June 2020: Advanced Assessment Extern

Psychological Assessment Clinic; University of Mississippi; University, MS

Supervisor: Scott Gustafson, Ph.D., ABPP

Duties included conducting comprehensive psychological evaluations with integrative reports and providing assessment feedback for learning disabilities, Attention-Deficit/Hyperactivity Disorder, mood and anxiety disorders, and personality disorders.

July 2019 – June 2020: Therapy Extern

The Baddour Center, Education and Behavioral Supports Division; Senatobia, MS

Supervisors: Josh Fulwiler, Ph.D., and Deborah McNamee, BCBA

Duties included assessment and treatment of individuals with intellectual disabilities, developmental disabilities, and cognitive impairments (e.g., traumatic brain injury) at a residential living community. Additional duties included assisting with development of behavior plans in conjunction with a board-certified behavior analyst, conducting routine dementia screeners and tardive dyskinesia assessments, providing staff trainings on various topics as needed, and conducting social skills and behavioral activation groups.

Aug 2017 – July 2020: Therapy Extern

Psychological Services Center; University of Mississippi; University, MS

Supervisors: Kelly G. Wilson, Ph.D., Alan Gross, Ph.D., Laura J. Dixon, Ph.D., Todd Smitherman, Ph.D., FAHS, and Scott Gustafson, Ph.D., ABPP

Duties included assessment and treatment of adult students and community members presenting with anxiety, mood, personality, adjustment, and substance use disorders.

July 2018 – June 2019: Therapy Extern

Communicare; Marshall County Office, Holly Springs, MS

Supervisors: Dixie Church, LMFT, Kipp Heatherly, LCSW, and Scott Gustafson, Ph.D., ABPP

Duties included assessment and treatment underserved and rural clients presenting with a range of psychological disorders, comorbid substance use disorders, and serious mental illness (e.g., schizophrenia, schizoaffective disorder, bipolar, etc.). Additional duties included case management, crisis intervention, interfacing with Department of Human Services, judicial and legal authorities including federal probation and parole officers, and drug court.

Aug 2014 – Aug 2016: Clinical Assistant and Psychometrist

Acadiana Medical Psychological Services; Lafayette, LA

Supervisors: Amy Cavanaugh, Ph.D., M.P., and C. Scott Eckholdt, Ph.D., A.P.M.P.

Duties included conducting psychological evaluations and assessments for children and adults referred by Disability Determination Services of Louisiana. Additional responsibilities included conducting comprehensive psychological evaluations with integrative reports for learning disabilities, Attention-Deficit/Hyperactivity Disorder, mood and anxiety disorders, personality disorders, and those involved in child custody litigation.

Aug 2014 – Aug 2015: Psychometrist

Jefferson Neurobehavioral Group; Lafayette, LA

Supervisors: Darren Strother, Ph.D., and Jean Boudreaux, Ph.D.

Duties included conducting comprehensive psychological evaluations for learning

disabilities, gifted placement, pre-surgical evaluations, pain psychological evaluations, Attention-Deficit/Hyperactivity Disorder, and neuropsychological impairments for children, adults, and geriatric populations.

May 2014 – Sept 2014: Therapy Extern

The Family Tree Information, Education, & Counseling Center; Lafayette, LA

Supervisors: Wendy Leger, LCSW, and Jessica Baudoin, Ph.D., LMFT, LPC

Duties included providing counseling services for individuals and couples with a wide range of behavioral and relational difficulties. Duties also included co-facilitating a weekly group, entitled Project H.O.P.E. (Helping Offenders Parent Effectively), designed to teach and promote healthy parenting skills to incarcerated parents at the Lafayette Parish Correctional Center and facilitating implementation of techniques covered during weekly visits between the incarcerated parents and their children in the jail setting. Administrative responsibilities included aiding in grant proposals for program funding, revision of the Declaration of Practice to include social media policies, creating an appointment reminder system and multiple tracking systems for clients receiving services through the organization.

June 2013 – Aug 2013: Psychometrist and Applied Behavior Analysis (ABA) Extern

Jefferson Neurobehavioral Group; Lafayette, LA

Supervisors: Joslyn McCoy, Ph.D., BCBA-D, & Darren Strother, Ph.D.

Duties included implementing multiple on-site and at-home programs designed by a board-certified behavior analyst for children with varying developmental delays. Additional duties included test administration for psychoeducational and autism evaluations, in addition to co-facilitating a weekly social skills group for children and adolescents with varying developmental delays.

SPECIALTY TRAINING

Acceptance and Commitment Therapy (ACT)
Cognitive Behavioral Therapy (CBT)
Cognitive Behavioral Therapy for Chronic Pain (CBT-CP)
Cognitive Behavioral Therapy for Insomnia (CBT-I)
Cognitive Processing Therapy for PTSD (CPT)
Dialectical Behavior Therapy (DBT)
Interpersonal Psychotherapy for Depression (IPT)
Prolonged Exposure for PTSD (PE)

PUBLICATIONS

PEER-REVIEWED PUBLICATIONS

5. **Boullion, G. Q.,** Witcraft, S. M., Schadegg, M. J., Perry, M. M., & Dixon, L. J. (2021). Emotion regulation difficulties and depression among individuals with dermatological and body dysmorphic concerns. *Journal of Nervous and Mental Disease*. Advance online publication. doi:10.1097/NMD.0000000000001355

4. Sandoz, E. K., **Boullion, G. Q.**, Mallik, D., & Hebert, E. R. (2020). Relative associations of body image avoidance constructs with eating disorder pathology in a large college student sample. *Body Image*, 34, 242-248. doi:10.1016/j.bodyim.2020.07.002
3. **Boullion, G. Q.**, Pavlacic, J. M., Schulenberg, S. E., Buchanan, E. M., & Steger, M. F. (2020). Meaning, support, and resilience as predictors of posttraumatic growth: A study of the Louisiana flooding of August 2016. *American Journal of Orthopsychiatry*, 90(5), 578-585. doi:10.1037/ort0000464
2. Turner, K. A., Williamson, J. M., & **Boullion, G. Q.** (2018). Recent research publications of interest to logotherapists. *The International Forum for Logotherapy*, 41, 57-62.
1. Williamson, J. M., Turner, K. A., & **Boullion, G. Q.** (2018). Recent research publications of interest to logotherapists. *The International Forum for Logotherapy*, 41, 38-44.

BOOK CHAPTERS

1. Sandoz, E. K., **Boullion, G. Q.**, & Rachal, D. O. (2020). Second and third wave behavior therapies. In R. A. Rehfeldt, J. Tarbox, M. Fryling, and L. Hayes (Eds.), *Applied behavior analysis of language and cognition*. Oakland, CA: New Harbinger.

MANUSCRIPTS UNDER REVIEW

2. **Boullion, G. Q.**, & Sandoz, E. K. (under review). Experiential avoidance moderates the relationship between anxiety and valued behavior in daily experiences. *Manuscript submitted for publication*.
1. Sandoz, E. K., Bordieri, M. J., **Boullion, G. Q.**, & Tyndall, I. (under review). An examination of transformation of evaluative and consequential functions through derived relations with participant-generated values-relevant stimuli. *Manuscript submitted for publication*.

PROFESSIONAL RESEARCH PRESENTATIONS, POSTERS, & PANELS

60. Dixon, L. D., Schadegg, M. J., **Boullion, G. Q.**, Witcraft, S. M., & Perry, M. P. (2019, November). *Obsessive-compulsive related disorders, emotion regulation, and quality of life in adults with skin disease*. Paper presented at the 53rd Annual Association for Behavioral and Cognitive Therapy Convention, Atlanta, GA.
59. **Boullion, G. Q.**, Perry, M. P., Witcraft, S. M., Schadegg, M. J., & Dixon, L. J. (2019, November). *Social anxiety and loneliness: The indirect effect of emotion regulation difficulties*. Poster presented at the 53rd Annual Association for Behavioral and Cognitive

Therapy Convention, Atlanta, GA.

58. Perry, M.M, **Boullion, G. Q.**, Schadegg, M.J., Witcraft, S.M. & Dixon, L. J. (2019, November). *Examining interpersonal and intrapersonal emotion regulation, social anxiety, and aggression among college students*. Poster presented at the 53rd Annual Association for Behavioral and Cognitive Therapy Convention, Atlanta, GA.
57. Schadegg, M. J., Witcraft, S. M., Perry, M. M., **Boullion, G. Q.**, & Dixon, L. J. (2019, November). *An aggressive reaction to sound: The interactive effects of anxiety sensitivity and misophonia on facets of aggression*. Poster presented at the 53rd Annual Association for Behavioral and Cognitive Therapy Convention, Atlanta, GA.
56. Witcraft, S. M., Schadegg, M. J., **Boullion, G. Q.**, Perry, M. M., & Dixon, L. J. (2019, November). *What sensitivities matter in dental anxiety? Investigating sensitivity to anxiety, pain, and disgust*. Poster presented at the 53rd Annual Association for Behavioral and Cognitive Therapy Convention, Atlanta, GA
55. Schmitz, C. R., Berry, S. K., **Boullion, G. Q.**, & Dixon, L. D. (2019, April). *An examination of gender differences and distress tolerance in relation to smoking status*. Poster presented at the 6th Annual University of Mississippi Conference on Psychological Science, Oxford, MS.
54. Berry, S. K., **Boullion, G. Q.**, & Dixon, L. D. (2019, April). *Perceived stress and skin symptoms in a college sample*. Poster presented at the 6th Annual University of Mississippi Conference on Psychological Science, Oxford, MS.
53. **Boullion, G. Q.**, & Dixon, L. J. (2019, March). *How does mental health affect loneliness in college students?* Paper presented at the 9th Annual Graduate Research Symposium, University of Mississippi, Oxford, MS.
52. **Boullion, G. Q.**, Dixon, L. J., Perry, M. P., & Witcraft, S. M. (2018, November). *Emotion regulation difficulties and depression among individuals with dermatological and body dysmorphic concerns*. Paper presented at the Association for Behavioral and Cognitive Therapies 52nd Annual Convention, Washington, DC.
51. Perry, M. M., **Boullion, G. Q.**, Witcraft, S. M., Viana, A., & Dixon, L. J. (2018, November). *The importance of a mother's perceived ability to regulate emotions in postpartum maternal quality of life and parenting distress*. Poster presented at the Association for Behavioral and Cognitive Therapies 52nd Annual Convention, Washington, DC.
50. Witcraft, S. M., Perry, M. M., **Boullion, G. Q.**, & Dixon, L. J. (2018, November). *The*

moderating role of anxiety sensitivity social concerns in stress and quality of life among adults with skin disease. Poster presented at the Association for Behavioral and Cognitive Therapies 52nd Annual Convention, Washington, DC.

49. Thorn, M., **Boullion, G. Q.**, Hebert, E. R., Kellum, K. K., & Wilson, K. G. (2018, July). *An examination between family stress and psychological flexibility.* Poster presented at the Association for Contextual Behavioral Science 16th Annual World Conference, Montreal, QC, Canada.
48. **Boullion, G. Q.**, & Dixon, L. D. (2018, April). *Limited access to emotion regulation strategies influences depression among individuals with dermatological and body dysmorphic concerns.* Paper presented at the 5th Annual University of Mississippi Conference on Psychological Science, Oxford, MS.
47. Berry, S., Pierce, R., Stockton, T., **Boullion, G. Q.**, & Dixon, L. J. (2018, April). *Anxiety, anxiety sensitivity, and the functional impact of skin picking among individuals with dermatological concerns.* Poster presented at the 5th Annual University of Mississippi Conference on Psychological Science, Oxford, MS.
46. Pavlacic, J. M., Schulenberg, S. E., Buchanan, E. M., & **Boullion, G. Q.** (2018, April). *Predicting mindfulness behaviors from values progression using ecological momentary assessment.* Paper presented at the 5th Annual University of Mississippi Conference on Psychological Science, Oxford, MS.
45. Thorn, M. L., **Boullion, G. Q.**, Hebert, E. R., Kellum, K. K., & Wilson, K. G. (2018, April). *Family stress and psychological flexibility.* Poster presented at the 5th Annual University of Mississippi Conference on Psychological Science, Oxford, MS.
44. Davis, L., **Boullion, G. Q.**, Jacobson, E., Kellum, K. K., & Wilson, K. G. (2018, April). *Disney princess' influence on dating.* Poster presented at the 5th Annual University of Mississippi Conference on Psychological Science, Oxford, MS.
43. **Boullion, G. Q.** (2017, September). *Moment by moment: Improving self-report methods with experience sampling.* Paper presented at the Mississippi Psychological Association's 68th Annual Convention, Biloxi, MS.
42. **Boullion, G. Q.**, Turner, K., Williamson, J., Schulenberg, S. E., & Steger, M. F. (2017, July). *Resilience, meaning, and growth among survivors of the August 2016 Louisiana flooding.* Poster presented at the International Positive Psychology Association 5th Annual World Congress, Montreal, QC, Canada.

41. **Boullion, G. Q.** (2017, May). Panel Chair. *Behavior analysts' role in higher education and university settings*. Panel discussion conducted at the Association for Behavior Analysis International 43rd Annual Convention, Denver, CO.
40. Summers, V., Williams, N., **Boullion, G. Q.**, & Sandoz, E. K. (2017, May). *Moving with meaning: Examining the impact of stimuli with derived values functions on behavioral flexibility*. Paper presented at the Association for Behavior Analysis International 43rd Annual Convention, Denver, CO.
39. McManus, J. D., Bordieri, M., **Boullion, G. Q.**, Butcher, G., & Sandoz, E. K. (2017, May). *Assessing changes in body image flexibility following flexibility-based interventions*. Paper presented at the Association for Behavior Analysis International 43rd Annual Convention, Denver, CO.
38. **Boullion, G. Q.**, Williams, N., & Sandoz, E. K. (2016, June). *Values and behavioral flexibility: What are the effects of valuing on sensitivity to contingencies of reinforcement?* Paper presented at the Association for Contextual Behavioral Science 14th Annual World Conference, Seattle, WA.
37. Sandoz, E. K., Auzenne, J., Butcher, G., & **Boullion, G. Q.** (2016, June). *The body image flexibility assessment procedure: Development of a behavioral measure of body image flexibility*. Paper presented at the Association for Contextual Behavioral Science 14th Annual World Conference, Seattle, WA.
36. **Boullion, G. Q.**, Williams, N., & Sandoz, E. K. (2016, May). *Values and behavioral flexibility: What are the effects of valuing on sensitivity to contingencies of reinforcement*. Paper presented at the Association for Behavior Analysis International 42nd Annual Conference, Chicago, IL.
35. Auzenne, J., Williams, N., Butcher, G., **Boullion, G. Q.**, Chiasson, H., Bordieri, M., & Sandoz, E., K. (2016, May). *Creating a measure that measures up: Exploring Self-report, Experience Sampling, and Behavioral Measures of Body Image Flexibility*. Paper presented at the Association for Behavior Analysis International 42nd Annual Conference, Chicago, IL.
34. Protti, T., Williams, N., **Boullion, G. Q.**, Hebert, E., Sandoz, E. K., & Bordieri, M. (2016, May). *Learning with purpose: A preliminary demonstration of derived transformation of values functions*. Paper presented at the Association for Behavior Analysis International 42nd Annual Conference, Chicago, IL.
33. Cantu, G., Williams, N., Auzenne, J., Butcher, G., **Boullion, G. Q.**, Bordieri, M., & Sandoz, E. K. (2016, May). *Assessing body-relevant behavior: Examining convergence*

between two behavioral measures of body image flexibility. Paper presented at the Association for Behavior Analysis International 42nd Annual Conference, Chicago, IL.

32. Gieseemann, A., **Boullion, G. Q.**, & Sandoz, E. K. (2015, May). *What matters in the moment: Relationships among anxiety, experiential avoidance, and valuing in daily experiences.* Paper presented at the Association for Behavior Analysis International 41st Annual Conference, San Antonio, TX.
31. Williams, N., **Boullion, G.**, Auzenne, J., Hebert, E., Greene, S., Bordieri, M., & Sandoz, E. (2015, May). *Modeling body image flexibility using the concepts of transfer of function and competing sources of control.* Paper presented at the Association for Behavior Analysis International 41st Annual Conference, San Antonio, TX.
30. **Boullion, G. Q.**, & Sandoz, E. K. (2015, March). *Making progress through the obstacles: Predicting valuing from momentary experiences of anxiety and experiential avoidance.* Paper presented at the Southeastern Chapter Association for Contextual Behavioral Science 1st Biannual Conference, Lafayette, LA.
29. Williams, N., **Boullion, G. Q.**, Auzenne, J., Hebert, E., Bordieri, M., & Sandoz, E. K. (2015, March). *Modeling body image flexibility using the concepts of transfer of function and competing sources of control.* Paper presented at the Southeastern Chapter Association for Contextual Behavioral Science 1st Biannual Conference, Lafayette, LA.
28. Burns, L. C., **Boullion, G. Q.**, Auzenne, J., Hebert, E., Greene, S., Bordieri, M., & Sandoz, E. K. (2014, November). *Seeing is believing: Toward a behavioral measure of psychological flexibility.* Paper presented at the Gulf Coast ABA Conference in Baton Rouge, LA.
27. Burns, L. C., **Boullion, G. Q.**, Auzenne, J., Hebert, E., Greene, S., Bordieri, M., & Sandoz, E. K. (2014, November). *Seeing is believing: Toward a behavioral measure of psychological flexibility.* Paper presented at the Undergraduate Invitational Honors Conference in Lafayette, LA.
26. Rachal, O., **Boullion, G. Q.**, Jeanis, M., & Sandoz, E. K. (2014, June). *Find Mickey: The impact of community tragedy on valued and avoidant behaviors.* Paper presented at the Association for Contextual Behavioral Science 12th Annual World Conference, Minneapolis, MN.
25. Auzenne, J., **Boullion, G. Q.**, Hebert, E., Greene, S., Bordieri, M., & Sandoz, E. K.

- (2014, June). *Seeing is believing: Toward a behavioral measure of psychological flexibility*. Paper presented at the Association for Contextual Behavioral Science 12th Annual World Conference, Minneapolis, MN.
24. **Boullion, G. Q.** (2014, June). Panel Chair. *Anxiety and valuing: Using contextual behavioral science to understand, assess, and increase valued living in individuals with anxiety*. Panel discussion facilitated at the Association for Contextual Behavioral Science 12th Annual World Conference, Minneapolis, MN.
23. LeBleu, E., **Boullion, G. Q.**, Auzene, J., Hebert, E., Greene, S., Bordieri, M., & Sandoz, E. K. (2014, May). *Seeing is believing: Towards a behavioral measure of psychological flexibility*. Paper presented at the Association for Behavior Analysis International 40th Annual Convention, Chicago, IL.
22. Albarado, R., **Boullion, G. Q.**, Mullen, A., & Sandoz, E. K. (2014, May). *Flexibility in context: Exploring the use of ecological momentary assessment of psychological flexibility*. Paper presented at the Association for Behavioral Analysis International 40th Annual Convention, Chicago, IL.
21. Thibeaux, K., Mullen, A., Lebleu, E., Greene, S., Hebert, E., **Quebedeaux, G.**, & Sandoz, E.K. (2013, October). *The mind in the mirror: Derived relational responding and body image*. Paper presented at the Louisiana Behavior Analysis Association Conference, Baton Rouge, LA.
20. Squyres, E., LeBleu, E. L., **Quebedeaux, G.**, Hebert, E., Greene, L., & Sandoz, E. K. (2013, October). *Seeing meaning: Transformation of values functions*. Paper presented at the Louisiana Behavior Analysis Association conference, Baton Rouge, LA.
19. Mullen, A., **Quebedeaux, G.**, Greene, S., Hebert, E., & Sandoz, E. K. (2013, May). *Assessing psychological flexibility: A RFT-based behavioral measure*. Paper presented at the Association for Behavioral Analysis International 39th Annual Convention, Minneapolis, MN.
18. Thibeaux, K., Greene, S., Hebert, E., **Quebedeaux, G.**, & Sandoz, E. K. (2013, May). *The mind in the mirror: Derived relational responding and body image*. Paper presented at the Association for Behavioral Analysis International 39th Annual Convention, Minneapolis, MN.
17. LeBleu, E. L., **Quebedeaux, G.**, Hebert, E., Greene, L., & Sandoz, E. K. (2013, May). *Seeing meaning: Transformation of values functions*. Paper presented at the Association

for Behavioral Analysis International 39th Annual Convention, Minneapolis, MN.

16. Eastin, S., **Quebedeaux, G.**, & Sandoz, E. K. (2013, May). *Beneath the mask: An evaluation of cosmetic use among college females*. Paper presented at the Association for Behavioral Analysis International 39th Annual Convention, Minneapolis, MN.
15. Auzenne, J., **Quebedeaux, G.**, Hebert, E., Greene, S., & Sandoz, E.K. (2013, April). *Transformation of values functions through derived relational responding*. Paper presented at the Undergraduate Academic Summit, Monroe, LA.
14. LeBleu, E. L., Greene, S., **Quebedeaux, G.**, Hebert, E., & Sandoz, E. K. (2013, April). *Body image flexibility: Developments with derived relational responding*. Paper presented at the Undergraduate Academic Summit, Monroe, LA.
13. LeBleu, E., **Quebedeaux, G.**, Hebert, E., Greene, S., Bordieri, M., Sandoz, E. K. (2013, April). *Values: Impacts on relational responding*. Paper presented at the North Louisiana Behavioral & Social Sciences Conference; Ruston, LA.
12. Mullen, A., **Quebedeaux, G.**, Hebert, E., Greene, S., Bordieri, M., Sandoz, E. K. (2013, April). *Learning to hate the body: An examination of derived relational responding in the context of body image disturbance and flexibility*. Paper presented at the North Louisiana Behavioral & Social Sciences Conference; Ruston, LA.
11. Squyres, E., **Quebedeaux, G.**, Greene, S., Cordova, S., & Sandoz, E.K. (2013, April). *DO NOT DISTURB: Body image flexibility and body image disturbance*. Paper presented at the Northern Louisiana Behavioral & Social Sciences Conference, Ruston, LA.
10. **Quebedeaux, G.**, Eastin, S., Greene, S., Skatulski, L., Sandoz, E. K. (2013, April). *Beneath the mask: An evaluation of cosmetic use among college females*. Paper presented at the Northern Louisiana Behavioral & Social Sciences Conference, Ruston, LA.
9. Squyres, E., **Quebedeaux, G.**, Greene, S., & Sandoz, E. K. (2012, July). *DO NOT DISTURB: Body image flexibility and body image disturbance*. Paper presented at the Association for Contextual Behavioral Science 10th Annual World Conference, Washington, DC.
8. Mullen, A., Hebert, E., **Quebedeaux, G.**, & Sandoz, E. K. (2012, July). *Going from null to neat-o: Psychological flexibility processes applied to a behavioral statistics study group*. Paper presented at the Association for Contextual Behavioral Science 10th Annual

World Conference, Washington, DC.

7. Benoit, B., Hebert, E. R., **Quebedeaux, G.**, Greene, S., & Sandoz, E. K. (2012, July). *ACT on campus: Facilitating psychological flexibility for college adjustment*. Paper presented at the Association for Contextual Behavioral Science 10th Annual World Conference, Washington, DC.
6. **Quebedeaux, G.**, & Sandoz, E. K. (2012, July). *Time of the season: Valued living in college students over the course of a semester*. Paper presented at the Association for Contextual Behavioral Science 10th Annual World Conference, Washington, DC.
5. **Quebedeaux, G.**, & Sandoz, E. K. (2012, July). *Beneath the mask: An evaluation of cosmetic use among college females*. Paper presented at the Association for Contextual Behavioral Science 10th Annual World Conference, Washington, DC.
4. LeBlanc, S., Greene, S., **Quebedeaux, G.**, & Sandoz, E. K. (2012, July). *Living beyond what we see in the mirror: Acceptance and Commitment Therapy for body image*. Paper presented at the Association for Contextual Behavioral Science 10th Annual World Conference, Washington, DC.
3. **Quebedeaux, G.** (2012, July). Symposium Chair. *More than skin deep: Understanding, evaluating, and intervening on body image flexibility*. Symposium conducted at the Association for Contextual Behavioral Science 10th Annual World Conference, Washington, DC.
2. Greene, S., **Quebedeaux, G.**, Leblanc, S., & Sandoz, E. K. (2012, May). *Living beyond what we see in the mirror: Acceptance and Commitment Therapy for body image*. Paper presented at the Association for Behavior Analysis International 38th Annual Convention, Seattle, WA.
1. **Quebedeaux, G.**, Greene, S., Cordova, S., & Sandoz, E. K. (2012, May). *DO NOT DISTURB: Body image flexibility and body image disturbance*. Paper presented at the Association for Behavior Analysis International 38th Annual Convention, Seattle, WA.

INVITED LECTURES

5. **Boullion, G. Q.**, & Dixon, L. J. (2020, February). *An introduction to exposure therapy for anxiety disorders*. Workshop presented to research assistants in the Health & Anxiety Research & Treatment Lab, Oxford, MS.
4. **Boullion, G. Q.**, & Tinsley, D. (2019, October). *Effectively communicating and caring for individuals with dementia*. Workshop presented to direct care workers in the

Enrichment Assisted Living Home at The Baddour Center, Senatobia, MS.

3. Weber, M. C., Liberto, A. K., Polk, A. N., **Boullion, G. Q.**, & Pineau, D. J. (2019, September). *Administration and scoring of the Woodcock Johnson – Fourth Edition (WJ-IV) Tests of Achievement, Cognitive Abilities, and Oral Language*. Workshop presented to graduate students in the Clinical Psychology Ph.D. Program at the University of Mississippi, Oxford, MS.
2. **Boullion, G. Q.** (2017, August). *Administration and scoring of the Weschler Adult Intelligence Scale – Fourth Edition (WAIS-IV)*. Workshop presented to first year graduate students enrolled in Techniques of Assessment I: Cognitive Tests course in the Clinical Psychology Ph.D. Program at the University of Mississippi, Oxford, MS.
1. **Quebedeaux, G.**, Kennison, A., Hebert, J., & Sandoz, E. K. (2011, July). *ACT on campus: Facilitating psychological flexibility for college adjustment*. Workshop presented at the Association for Contextual Behavioral Science 9th Annual World Conference, Parma, Italy.

GRANT EXPERIENCE

Aug 2012 - July 2014

Research Coordinator

Subprogram Grant #: LEQSF(2011-14)-RD-A-29

Project Title: *The 'me' I see: Verbal learning processes in body image disturbance*

Primary Investigator: Emily K. Sandoz, Ph.D.

RESEARCH EXPERIENCE

Jan 2018 – Present

Graduate Research Assistant

Health and Anxiety Research and Treatment Lab

University of Mississippi; Oxford, MS

Supervisor: Laura Dixon, Ph.D.

Sept 2016 – May 2018

Graduate Research Assistant

Mississippi Contextual Psychology Lab

University of Mississippi; Oxford, MS

Supervisors: Kelly G. Wilson, Ph.D. & Karen Kate Kellum, Ph.D.

Aug 2016 – Dec 2017

Graduate Research Assistant

Clinical-Disaster Research Center

University of Mississippi; Oxford, MS

Supervisor: Stefan E. Schulenberg, Ph.D.

May 2012 – May 2016

Lab Coordinator & Graduate Research Assistant

Louisiana Contextual Science Research Group

University of Louisiana at Lafayette; Lafayette, LA
Supervisor: Emily K. Sandoz, Ph.D.

Jan 2011 – May 2012

Undergraduate Research Assistant

Louisiana Contextual Science Research Group
University of Louisiana at Lafayette; Lafayette, LA
Supervisor: Emily K. Sandoz, Ph.D.

EDITORIAL ACTIVITIES

Mentored Ad-Hoc Reviewer

Assessment

Journal of Applied Behavior Analysis

Journal of Anxiety Disorders

Journal of Contextual Behavioral Science

Psychological Trauma

The Psychological Record

TEACHING EXPERIENCE

July 2017 – May 2018

Behavioral Science Statistics Consultant and Tutor

Department of Psychology
University of Mississippi; Oxford, MS
Supervisor: Rebekah Smith, Ph.D.

Aug 2017 – May 2018

Teaching Assistant

University of Mississippi; Oxford, MS
Course: Statistics for Behavioral Sciences
Instructor: Nicolaas Prins, Ph.D.

Jan 2017 – May 2017

Teaching Assistant

University of Mississippi; Oxford, MS
Course: Introduction to Psychology
Instructors: Tonya Vandenbrink, M.S. & Joshua Hamer, M.S.

Aug 2015 – May 2016

Adjunct Instructor of Psychology

South Louisiana Community College; Lafayette, LA
Course: Introduction to Psychology I
Department Head: Delana Prudhomme, M.S.

Jan 2014 – May 2014

Teaching Assistant

University of Louisiana at Lafayette; Lafayette, LA
Course: Psychological Counseling
Instructor: Emily K. Sandoz, Ph.D.

Jan 2012 – Dec 2012

Teaching Assistant

University of Louisiana at Lafayette; Lafayette, LA

Course: Psychology of Adjustment

Instructor: Emily K. Sandoz, Ph.D.

OTHER PROFESSIONAL ACTIVITIES & SERVICE

**August 2018 – April 2020
Mentor**

Undergraduate Honors Thesis Graduate Student

University of Mississippi; Oxford, MS

Honors Student: Sarah K. Berry

Thesis: An assessment of acne, stress, and psychological symptoms in college students: A daily diary study

Chair: Laura J. Dixon, Ph.D.

Jan 2019 – July 2019

**Director, Louisiana/Mississippi ACBS 2019 Conference
Organization and Management Team**

Association for Contextual Behavioral Science Affiliate

Oxford, MS

Aug 2018 – May 2019

Senator, Graduate Student Council

University of Mississippi; Oxford, MS

Oct 2017 – Aug 2018

**Member, Psychology Department Communications
Committee**

University of Mississippi; Oxford, MS

Jan 2014 – May 2015

**Director, Resource Development for Undergraduates in
Psychology**

University of Louisiana at Lafayette; Lafayette, LA

Jan 2013 – May 2015

Graduate Representative, Psychology Colloquium

University of Louisiana at Lafayette; Lafayette, LA

Jan 2013 – May 2015

Director, “Graduate Students Tell All” Series

University of Louisiana at Lafayette; Lafayette, LA

Aug 2010 – May 2011

**Executive Board Member, V-Day: A Global Movement
to End Violence Against Women and Girls**

Lafayette Chapter; Lafayette, LA

AWARDS AND HONORS

2019

Psychology Department Travel Award, University of Mississippi

2019

Outstanding Data Blitz Presentation Award, 9th Annual Graduate Research Symposium, University of Mississippi

- 2019 Graduate Student Council Travel Award, University of Mississippi
- 2018 Psychology Department Travel Award, University of Mississippi
- 2018 Outstanding Research Presentation Award, 5th Annual Conference on Psychological Science, University of Mississippi
- 2016 – 2020 Graduate Assistantship, University of Mississippi
- 2016 Psychology Department Travel Award, University of Mississippi
- 2015 Nominated for UL Lafayette Alumni Association’s Outstanding Graduate Award, University of Louisiana at Lafayette
- 2015 Nominated for Phi Beta Kappa Association of Southwest Louisiana’s Richard G. Neiheisel Graduate Award, University of Louisiana at Lafayette
- 2014 Graduate Student Organization Travel Award, University of Louisiana at Lafayette
- 2013 Graduate Student Organization Travel Award, University of Louisiana at Lafayette
- 2012 Graduate Student Organization Research Materials Award, University of Louisiana at Lafayette
- 2012 – 2014 Graduate Research Assistantship, University of Louisiana at Lafayette
- 2011 Student Government Association Undergraduate Travel Award, University of Louisiana at Lafayette

AFFILIATIONS

Association for Behavioral and Cognitive Therapies
 Association for Contextual Behavioral Science

REFERENCES

Available upon request.