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Understanding Social Anxiety Symptoms Through Interpersonal Emotion Regulation Strategies

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UNDERSTANDING SOCIAL ANXIETY SYMPTOMS THROUGH INTERPERSONAL EMOTION REGULATION STRATEGIES

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ABSTRACT

Social anxiety disorder (SAD) is one of the most prevalent and chronic psychological disorders among college students. Previous literature has shown that emotion regulation (ER) difficulties are relevant to the maintenance and aggravation of SAD. Within SAD, ER research has exclusively explored intrapersonal (within person) ER difficulties. However, interpersonal (between two or more people) ER difficulties have not been explored as a potential factor contributing to the intensity of social anxiety symptoms. Therefore, the aim of the current study was to examine the use of interpersonal ER strategies in SAD symptoms among college students. In the current study, students in psychology courses were screened for the presence of elevated social anxiety symptoms using a SAD screener, and eligible students were invited via email to complete an online set of questionnaires. Participants were 294 undergraduate students at the University of Mississippi who completed an online battery of questionnaires examining social anxiety symptoms, intrapersonal ER difficulties, and interpersonal ER difficulties. Consistent with the literature, intrapersonal ER difficulties were significant in the prediction of SA symptoms. However, counter to the study's hypotheses, interpersonal ER difficulties did not significantly contribute to the model of SA symptoms. Findings are consistent with previous literature that ER difficulties are associated with the intensity of SA symptoms. Future studies should further examine interpersonal ER difficulties among SA symptoms with dyad-based behavioral measures, EMA, or test hypotheses in a clinical sample.

Keywords: social anxiety disorder; intrapersonal emotion regulation difficulties; interpersonal

emotion regulation difficulties; college students

DEDICATION

This work is dedicated to Dr. James Perry, my grandfather, and his lifetime commitment to service and advocation for mental health

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1.INTRODUCTION

1.1 Social Anxiety Disorder

Social anxiety disorder (SAD) is one of the most common disorders in childhood and adolescence, which often persists into adulthood and increases risk for depression, substance abuse, and decreased quality of life (Stein & Stein, 2008). The core of SAD is characterized by intense anxiety in response to social situations where individuals are subject to evaluation by others (American Psychiatric Association, 2013). In contrast to many mental disorders, SAD is an interpersonal disorder, wherein the anxiety disrupts an individual's relationships with other people (Alden & Taylor, 2004). In particular, research has demonstrated that individuals with higher SAD symptoms experience fewer social relationships (Hart, Turk, Heimberg, & Liebowitz, 1999; Rodebaugh, Lim, Shumaker, Levinson, & Thompson, 2015), and in social relationships, they report decreased marital satisfaction (Heinrichs, 2003) and lower levels of emotional intimacy (Wenzel, 2002). Understanding how SAD is developed and maintained is essential because of its vast negative outcomes. For instance, symptoms of SAD have been associated with decreases in life satisfaction, poor quality of life across multiple domains
(Dryman, Gardner, Weeks, & Heimberg, 2016; Ruscio et al., 2008; Stein & Kean, 2000) isolation and loneliness (Baytemir & Yildiz, 2017; Lim, Rodebaugh, Zyphur, & Gleeson, 2016), diminished social support (Rapee, Peters, Carpenter, & Gaston, 2015), and suicidality (Dilsaver, Akiskal, Akiskal, & Benazzi, 2006; Rapp, Lau, & Chavira, 2017).

SAD exists throughout the lifespan; yet, uniquely affects young people. Among the college age group (18- 24 years old), the prevalence of symptomatic SAD has been estimated to be approximately 12.7% for women and 13.1% for men (Fehm, Beesdo, Jacobi, & Fiedler, 2008), compared to the past-year prevalence rate of 6.8% found in the general population (Kessler, Chiu, Demler, & Walters, 2005). Elevated social anxiety has a direct and negative association with quality of life during the college transition, and dysfunctional interpersonal dynamics common to SAD are particularly problematic for this age group (Ghaedi, Tavoli, Bakhtiari, Melyani, & Sahragard, 2010). One study found that students experiencing increased social anxiety have an increased likelihood to have limited social ties and thus not be able to adjust to the academic demands of the university setting as evidenced by lower grades at the end of the year (Brook & Willoughby, 2015). In addition, individuals experiencing SAD are less likely to be engage in reciprocal sharing and trusting behaviors in their relationships (Anderl et al., 2018). SAD has historically been linked to at least moderate increases of functional impairment across different areas of functioning in college students, including education, employment, marriage/ romantic relationships, and friendships/social networks compared to healthy individuals (Schneier et al., 1994). Extending beyond the college period, a diagnosis of SAD is related to decreases in career aspirations, job attainment, and occupationally-related social skills (Himle et al., 2014).

The cognitive behavior model is the predominant framework used to understand mechanisms underlying and contributing to SAD (Clark & Wells, 1995; Heimberg, Brozovich, & Rapee, 2010; Hofmann, 2014; Rapee & Heimberg, 1997). Broadly, these models propose that individuals experiencing social anxiety engage in maladaptive cognitive and behavioral

processes before, during, and after social encounters. Common factors found across the theoretical models of SAD include avoidance/escape behaviors, attentional biases, anticipatory and post-event processing, performance deficits, and negative self-processing (see Wong & Rapee, 2016). In a cognitive model of social anxiety, the elevation of self-focused attention in social situations is essential to creating and maintaining social anxiety. Fear of the negative outcomes of social situations triggers an individual focus on internal cues (e.g., bodily sensations, dysfunctional thoughts), which causes an impaired pattern of responding to external cues. The elevated attention to internal cues restricts the individual's ability to perceive positive information from the environment and confirms the validity of social fears (Clark & Wells, 1995). Further developing the SAD model, Rapee and Heimberg (1997) incorporated behavioral strategies with these cognitive processes. For instance, after experiencing a social situation, individuals form strategies to reduce the threat of distress or anxiety through different types of avoidance including overt, subtle, cognitive, and safety behaviors (Rapee & Heimberg, 1997).

1.2 SAD and Emotion Regulation

In recent exploration of the cognitive-behavioral model of SAD, the role of emotion regulation (ER) has been investigated as a fundamental maintenance factor (Goldin & Gross, 2010; Hofmann, Sawyer, Fant, & Asnaani, 2012; Aldao, Jazaieri, Goldin, & Gross, 2014). Broadly, ER is the process of modulating one's emotions across contexts to meet the demands of the environment (Aldao, Nolen-Hoeksema, & Schweizer, 2010). To adapt to the environment, individuals employ strategies to change the intensity or magnitude of one's emotional experience. The ability to effectively regulate emotions has been linked to positive health outcomes, academic/employment success, and improved social relationships (Aldao et al., 2010). Although fewer studies have examined SAD and ER, there is strong support for the role of

difficulty with ER as a crucial transdiagnostic issues underlying other psychiatric disorders (Shukla & Pandey, 2019), including borderline personality disorder (Gratz et al., 2017), major depressive disorder (Liu & Thompson, 2017), bipolar disorder (Van Rheenen, Murray, & Rossell, 2015), generalized anxiety disorder (Roemer et al., 2009; Tull, Stipelman, Salters-Pedneault, & Gratz, 2009) and PTSD (Raudales, Short, & Schmidt, 2019; Tull et al., 2016). One method of classifying ER strategies is by examining the modality of use, and specifically, the use of intrapersonal (within one person) and interpersonal (between two or more people) strategies. Intrapersonal ER can occur alone or in the presence of others, whereas interpersonal ER requires social interactions with others. Intrapersonal ER focuses on the individual's awareness, understanding, and acceptance of emotion while also being able to control impulsive behavior urges and engage in goal-directed behavior when experiencing intense emotion (Gratz & Roemer, 2004). By comparison, interpersonal ER has been a term used to illustrate the desire to share emotional experiences (Rimé, 2007), motivation to change others emotional states (Niven, Totterdell, & Holman, 2009; Niven, Totterdell, Stride, & Holman, 2011), change in negative affect in the presence of others (Coan, 2011), and ER solely in the context of social interaction in pursuit of a regulatory goal (Zaki & Williams, 2013).

The literature on intrapersonal strategies is fairly extensive. In brief, intrapersonal strategies emphasize the individual's experience of emotion and the strategies that are used within the internal, individual experience, such as attentional deployment, reappraisal, situation modification, and response modulation (Gross, 2007; Webb, Miles, & Sheeran, 2012). Within anxiety disorders, maladaptive intrapersonal ER strategies are dysfunctional and impairing emotional responses to feelings of anxiety, which are posited to perpetuate the cycle of avoidance (Aldao et al., 2010). Therefore, to form functional responses to anxiety and shame,

adaptive intrapersonal ER is needed for the modulation of negative emotions (Cristea, Matu, Tatar, & David, 2013).

Comparing individuals with SAD and healthy individuals, research has demonstrated that individuals have an increased likelihood to have worse social experiences when suppressing negative thought when experiencing clinical levels of SAD (Blalock, Kashdan, & Farmer, 2016). Compared to other anxiety and mood disorders, anxiety of social situations is associated with intrapersonal ER difficulties above and beyond age or other anxiety and mood disorders (Rusch, Westermann, & Lincoln, 2012). Examining specific intrapersonal ER difficulties, it has been shown that individuals with social anxiety have an increased tendency to exhibit deficits such as a poorer understanding of the function of emotions (Southam-Gerow & Kendall, 2000). In addition, individuals with higher social anxiety symptoms show a greater engagement in experiential avoidance, compared to use of other ER strategies, when experiencing negative emotions (e.g., sadness, guilt, nervousness; O'Toole, Zachariae, & Mennin, 2017). Beyond exhibiting a poorer understanding of emotions and experiential avoidance, a 14-day daily diary study revealed that individuals with SAD have been shown to exert more effort in regulating negative emotions, which lead to the experience of fewer positive social events and positive emotions (Farmer & Kashdan, 2012). Across the examination of intrapersonal ER and SAD, anxiety symptoms are associated with increased engagement in maladaptive ER strategies, including decreased cognitive appraisal/acceptance, decreased emotional awareness, dysregulated emotion expression, and reduced emotion management (Aldao et al., 2014; Klemanski, Curtiss, McLaughlin, & Nolen-Hoeksema, 2017; Lougheed & Hollenstein, 2012).

Interpersonal ER is differentiated as the process of using other people's responses or emotions to regulate one's own emotion (Zaki & Williams, 2013). Examples of interpersonal ER

strategies include: venting, seeking social support, empathetic concern, reassurance seeking, seeking problem-solving support, and talking about one's emotions to others as ways to manage one's distressing and negative emotions (Batson, 2017; Dixon-Gordon, Haliczer, Conkey, & Whalen, 2018). Individuals with a larger repertoire of adaptive interpersonal ER strategies have been reported to experience a greater number of positive social interactions and greater ability to express emotions, thus leading to improved functioning and quality of life (Netzer, Van Kleef, & Tamir, 2015; Williams, Morelli, Ong, & Zaki, 2018). In contrast, dysfunctional interpersonal ER strategies have been linked to psychopathology and social dysfunction (Dingle, Neves, Alhadad, & Hides, 2018; Hofmann, 2014; López, Ambrona, & Gummerum, 2017). However, few studies have investigated the unique role of interpersonal ER in the social dysfunction that maintains and exacerbates a diagnosis of SAD.

1.3 Interpersonal Emotion Regulation and SAD

To date, there are only a few number of studies examining SAD and interpersonal ER; however, dysfunctional interpersonal processes are evident in SAD (Alden & Taylor, 2004). Alden and Taylor (2004) conceptualize SAD as maladaptive interpersonal processes that perpetuate and aggravate social fears. Within this model, expressions of interpersonal behavior that contribute to social anxiety are characterized by "warm" or "cold" attributes to denote maladaptive interpersonal patterns as a way of differentiating how patients with SAD respond to clinical intervention. As frequently seen in the presence of SAD, warm characteristics include fear of disagreeing with or offending others, as well as the fear of not being able to form and maintain social relationships. In contrast, cold attributes are less commonly observed in individuals with SAD and include expressions of anger and hostility. Within social relationships, cold attributes are associated with impairing emotional detachment. These patterns of

interpersonal behavior provide a foundation for understanding how dysfunctional social interactions contribute to the maintenance of SAD.

Most symptoms of SAD are internally experienced (e.g., fear, distress); yet, maladaptive interpersonal processes have external consequences, resulting in poorer social relationships, which may be detrimental in multiple domains of life and has a far-reaching negative impact on the individual's well-being (Anderl et al., 2018; Fernandez & Rodebaugh, 2011). For instance, one study examining social relationships among college students found that students with elevated social anxiety have an increased likelihood to use dysfunctional interpersonal strategies (i.e., over dependence on others and non-assertiveness) than students with no social anxiety (Davila & Beck, 2002). Across other populations, SAD symptoms have also been associated with impairing social strategies, such as emotional distancing and vindictiveness (Kachin, Newman, & Pincus, 2001). Further, dysfunctional interpersonal strategies that are present in SAD, such as greater anger and poorer anger expression skills, are associated with lower response rate to cognitive behavioral therapy (Erwin, Heimberg, Schneier, & Liebowitz, 2003).

Integrating the SAD and interpersonal processes literatures, research indicates maladaptive interpersonal processes are prominent in SAD, which can lead to significant and damaging consequences in several life areas. Notably, individuals with SAD report decreased quality of life, (Ruscio et al., 2008; Stein & Kean, 2000), social isolation (Baytemir & Yildiz, 2017; Lim et al., 2016), and limited social support (Rapee et al., 2015). Further, Dryman and colleagues (2016) found individuals with SAD perceived functional impairments in life satisfaction across occupational, educational, and social domains. Nevertheless, although impairing interpersonal patterns are common within SAD, there is limited research on the role of interpersonal ER in SAD. Research examining interpersonal ER and psychopathology has the

potential to shed light on how social behaviors impact the maintenance and exacerbation of psychopathology (Dixon-Gordon, Whalen, Scott, Cummins, & Stepp, 2016; Dixon-Gordon et al., 2018; López et al., 2017).

Maladaptive interpersonal ER strategies have been implicated in the maintenance and propagation of borderline personality disorder (Dixon-Gordon et al., 2016; Gratz, Moore, & Tull, 2016), obsessive compulsive disorder (Zad, Shams, Meysami, & Erfan, 2017), and anorexia nervosa (Fischer et al., 2017). Within a sample of individuals with clinical levels of depression, dysfunctional interpersonal ER strategies such as suppressing emotions to others have been associated with lower social support, decreased emotional intimacy, and social satisfaction (Marroquín, 2011). To provide a better understanding of how interpersonal ER strategies operate across diagnoses, Hofmann (2014) posited the interconnection between maladaptive interpersonal ER and anxiety and mood disorders. The theoretical framework broadly describes maladaptive interpersonal ER strategies as prevalent in individuals with anxiety and mood disorders with strategies (e.g., excessive reassurance seeking) being influential in how the disorders are maintained and lead to dysfunctional social consequences. Following the development of this theoretical framework, there have been a few studies supporting this theory in the treatment of SAD and other anxiety disorders (Hofmann & Otto, 2008; Mennin, Fresco, Ritter, & Heimberg, 2015).

Interestingly, in contrast to dysfunctional interpersonal ER strategies (i.e., emotional suppression, difficulty in emotional expression, excessive reassurance seeking), functional interpersonal ER strategies have been demonstrated over intrapersonal emotional strategies to be more effective at reducing distress in social situations (Gainsburg & Earl, 2018; Levy-Gigi & Shamay-Tsoory, 2017). Further, regulating emotions through interpersonal interactions has been

demonstrated to be an effective strategy for responding to difficult and distressing emotions in social situations. For instance, Gainsburg and Earl (2018) investigated the use of interpersonal ER in the avoidance of distress. In this study, researcher assistants used interpersonal ER strategies (e.g., reassurance) to attempt to lower participants' experience of negative emotions in response to potentially distressing video content. Then, participants rated the effectiveness of the attempts to regulate their negative emotions. During the lab task, individuals who used interpersonal ER strategies (i.e., warnings & reassurance) were found to experience fewer negative emotions than individuals who used intrapersonal ER strategies (e.g., avoidance, reappraisal) as their method of ER.

Research on interpersonal ER and anxiety disorders is in its infancy, and in these early steps, one important step has been the development of tools for assessing functional and dysfunctional interpersonal ER patterns present in psychopathology. For example, the Interpersonal Emotion Regulation Questionnaire (IERQ) is the first assessment to characterize a different form of ER strategies centered around social processes (i.e., enhancing positive affect, perspective taking, soothing, and social modeling). In particular, it was developed to assess broad interpersonal ER strategies present in both clinical and non-clinical populations (Hofmann, Carpenter, & Curtiss, 2016). One notable strength of IERQ is that it examines general social processes within ER. However, it does not uniquely examine interpersonal ER in the development, maintenance, and aggravation of psychological disorders. Therefore, to assess specifically dysfunctional interpersonal ER strategies' role in diagnoses, a separate measure was developed to assess maladaptive interpersonal ER strategies. In this measure, the Difficulties in Interpersonal Emotion Regulation (DIRE) characterizes dysfunctional ER strategies into distinct categories, including excessive reassurance seeking and venting. Throughout the investigation of

the interplay between maladaptive interpersonal ER and psychological disorders, these two strategies have been denoted as common and impairing (Hofmann, 2014). Further, excessive reassurance seeking and venting have been established as maintenance factors in various mental disorders, including anxiety and depression (Halldorsson & Salkovskis, 2017; Joiner & Metalsky, 2001; Malooly, Flannery, & Ohannessian, 2017; Xia, Ding, Hollon, & Yi, 2015). Therefore, examining the links between interpersonal ER strategies (i.e., venting and excessive reassurance seeking) and SAD is critical.

Reassurance seeking is an ER strategy wherein individuals seek out social support to ease negative emotions (Pettit & Joiner, 2006). However, when reassurance seeking is overused, excessive reassurance seeking (ERS), it can be detrimental to interpersonal relationships (Van Orden & Joiner, 2006). ERS is defined as a maladaptive ER strategy that relies on excessive validation from others to ease symptoms of distress. Additionally, ERS is theorized to serve as a causal factor of anxiety as a safety behavior in preventing disconfirmation of negative beliefs (Salkovskis, Rimes, Warwick, & Clark, 2002). In comparison to reassurance seeking, ERS occurs in a dysfunctional and impairing pattern that propagates symptoms of anxiety, stress, and depression by reinforcing a small reduction of symptoms in the short-term (Kane, Bahl, & Ouimet, 2018).

ERS is a transdiagnostic interpersonal ER strategy exhibited in the maintenance and aggravation of psychopathology. Elevated levels of reassurance seeking have been associated with future depressive symptomology (Joiner & Metalsky, 2001). Further, ERS has been established as a critical factor to understanding the exchange between social anxiety and depression, as one study found that increases in social anxiety were associated with increased use of reassurance-seeking in a sample of individuals with depression (Grant et al., 2014). In an

examination of ERS in anxiety pathology (Cougle et al., 2012), ERS was examined as a maintaining factor in anxiety disorders among an undergraduate sample (Boelen & Reijntjes, 2009; Douglas, Gosselin, & Ladouceur, 2001). Consistent with the hypothesis, ERS emerged as a unique significant predictor among other variables (i.e., depressive symptoms, intolerance of uncertainty, and trait anxiety) in the prediction of anxiety symptoms for GAD, OCD, and SAD. Further, ERS is a suggested maintenance factor across diverse anxiety diagnoses including health anxiety (Salkovskis & Warwick, 1986), generalized anxiety (Woody & Rachman, 1994), and obsessive-compulsive disorder (Parrish & Radomsky, 2010). Comparing clinical and non-clinical populations, individuals with social anxiety have been shown to have increased excessive reassurance seeking behaviors (Wilson, Koerner, & Antony, 2018). In addition to influencing anxiety symptoms, ERS has been demonstrated to be connected to decreased functioning in social relationships. Fowler and Gasiorek (2017) found that among intimate partners of individuals with clinical depression, ERS was used as a relationship maintenance factor; however, it was also associated with higher levels of relationship dissatisfaction. Additionally, ERS has been associated with a higher frequency and rate of romantic partner rejection (Stewart & Harkness, 2015). Given these findings, ERS is essential to investigate because ERS may serve as a previously unexamined pattern of behavior contributing to the exacerbation of SAD, as well as negatively impact social relationships for those with SAD.

With regard to venting, this ER strategy broadly describes the emotional expression of anger, either verbal, physical, or written (Parlamis, 2012). Venting is characterized as an interpersonal strategy used to help individuals decrease feelings of anger and distress through negative expressions to others (Wendorf & Yang, 2015). In the anxiety literature, venting of emotions has primarily been studied as a dysfunctional interpersonal strategy in younger

populations such as children, adolescents, and young adults (Gerstein et al., 2011; Malooly et al., 2017; Vannucci, Flannery, & McCauley Ohannessian, 2018). Within the college student population, venting strategies are connected to elevated depression, anxiety, and stress (Fokas & Soysa, 2017). Specifically, venting as a coping mechanism, compared to functional ER strategies (e.g, positive reinterpretation active coping), is related to increases of anxiety pathology in young adults (Iida, Gleason, Green-Rapaport, Bolger, & Shrout, 2017). Further demonstrating the significance of venting, college students endorsed venting as the most common strategy for coping with a high stress situation (i.e., September 11 terrorist attack) and was found to predict immediate and long-term anxiety outcomes (Liverant, Hofmann, & Litz, 2004). Although much of the research in this area has been conducted in youth, venting has also been prevalent as a coping strategy among older-adults. In particular, venting is demonstrated to be a prevailing ER strategy compared to other adaptive ER strategies (e.g., positive reframing) with elevated anxiety symptoms among a sample of older-adults (Orgeta & Orrell, 2014).

In a closer examination of the relational impact of venting, venting has been connected to negative interpersonal consequences, including retaliation (Bushman, 2002; Bushman, Baumeister, & Stack, 1999), functional impairment in the work place (Gibson, Schweitzer, Callister, & Gray, 2009), and increased expressions of anger (Parlamis, Allred, & Block, 2010). A study investigating venting as a coping style within psychological syndromes found venting was positively associated with greater anxiety levels than other psychiatric disorders (i.e., bipolar, psychosis, and drug dependence) (Vollrath, Alnaeæs, & Torgersen, 2003). Specifically within SAD literature, anger expressions have been illustrated to be a more detrimental social anxiety symptom (Kashdan & McKnight, 2010). Further, research has supported ER difficulties as a mechanism to understand elevated rates of aggressive behavior in SAD (Dixon, Tull, Lee,

Kimbrel, & Gratz, 2017). Although venting has not been explicitly explored in SAD, research supports greater aggressive emotion expression as means to regulate social anxiety symptoms.

1.4 The Current Study

The purpose of the current study was to examine interpersonal ER difficulties, as defined by excessive reassurance seeking and venting, in relation to social anxiety symptoms among a cross-sectional sample of socially anxious college students. The college population is within the age group with the highest frequency of SAD (18-24 years; Fehm et al., 2008). Although there is strong empirical support for ER difficulties among SAD, the majority of the literature has explored exclusively intrapersonal ER difficulties although interpersonal dysfunction is evident in SAD. Therefore, it was essential to investigate interpersonal ER as potential factor that maintains and exacerbates SAD above and beyond the contribution of intrapersonal ER difficulties. Within the current study, the primary dependent variable was social anxiety symptoms experienced in interactions with others and in performance situations. The primary independent variables were two maladaptive interpersonal ER strategies – venting and excessive reassurance seeking. It was hypothesized that venting and excessive reassurance seeking would be associated with elevated social anxiety symptoms above and beyond intrapersonal ER difficulties and relevant demographic and psychological variables selected a priori based on previous SAD research.

Hypotheses

1) The key variables (i.e., venting, excessive reassurance seeking, intrapersonal ER difficulties, and social anxiety symptoms) will demonstrate that greater dysregulation is associated with greater social anxiety symptoms.

2a) Increased interpersonal ER difficulties will be associated with higher interaction social

anxiety symptoms after controlling for intrapersonal ER difficulties and control variables (i.e., gender and depressive symptoms).

2b) Increased interpersonal ER difficulties will be associated with higher performance social anxiety symptoms after controlling for intrapersonal ER difficulties, and control variables (i.e., gender and depressive symptoms)

2. METHODS

2.1 Participants

The current study recruited undergraduate students aged 18 and older who are enrolled in a psychology course at the University of Mississippi. Students received either course credit or extra credit for the completion of the study. An a priori power analysis was conducted using G*Power version 3.1, and results indicated that a sample size of $N = 279$, would be adequate to detect a small effect size ($f^2=0.05$) at 0.8 power with required statistical significance of $p < .05$ (Rusch et al., 2012). A small effect size is used in the current study to account for the known impact of depression, gender, and intrapersonal ER difficulties on social anxiety symptoms (Funder & Ozer, 2019). Eligible students were identified based from the Sona online recruitment system following their completion of multiple self-report measures including the Social Phobia Inventory (SPIN; Connor et al., 2000), which is a brief screening measure for social anxiety. Inclusion criteria for the study were that individuals must score a total SPIN score above 11 (>11) which indicates the presence of at least mild social anxiety symptoms (J. Davidson, personal communication, May 14, 2015) to be invited to participate in the current study. A score of ≥ / >11 was used as an inclusion criterion to ensure that individuals participating in the study are experiencing symptoms of social anxiety. Additionally, individuals outside the young adult age group (18-24) were excluded from the study to ensure that the current study evaluates the age group with highest prevalence of SAD.

2.2 Measures

The *Demographics Questionnaire* were given to participants to record demographic information such as age, race, ethnicity, and gender among the eligible participants. Additionally, participants were asked to report current GPA, living situations, and previous medical and psychiatric history.

The *Depression, Anxiety, and Stress Scale- 21* (DASS-21, Lovibond & Lovibond, 1995) is a self-report questionnaire that measures the core symptoms of anxiety, depression, and stress symptoms. The DASS-21 consists of 21 items that are rated on a 4-point Likert-type scale from *0=did not apply to me at all* to *3=applied to me very much, or most of the time* with higher scores indicating greater anxiety, stress, and depression symptoms. The DASS-21 consists of three subscales (i.e., anxiety symptoms, stress symptoms, and depression symptoms) with the scale being validated among a non-clinical sample. Additionally, the DASS-21 has been validated among a psychiatric outpatient population (Davies, Caputi, Skarvelis, & Ronan, 2015) and across different countries (Oei, Sawang, Goh, & Mukhtar, 2013). For the current study, the depression scale was exclusively used from the DASS-21. A psychometric evaluation of the DASS-21 demonstrated that the depression scale (α = .85) had a good internal reliability. Further, the DASS-21 illustrated strong concurrent validity with other measures of depression (i.e., Beck-Depression Inventory-II) (Osman et al., 2012). In the current study, the depression scale demonstrated excellent internal consistency (α = .91).

The *Difficulties in Interpersonal Regulation of Emotions* (DIRE, Dixon-Gordon et al., 2018) is a self-report measure that assesses inappropriate and appropriate ways of handling hypothetical interpersonal scenarios. The measure captures the strategies used in IER

dysfunction: excessive reassurance seeking and venting. Additionally, the DIRE captures intrapersonal ER strategies: avoidance and acceptance. The DIRE hypothetical scenarios are intended to represent different domains such as work-oriented, romantic, and social domains. Additionally, the DIRE offers six interpersonal strategies: raise your voice, complain to others, talk to loved ones about their feelings, keep contacting people, keep asking for reassurance, and ask for problem solving assistance. The DIRE consists of 7 items in response to 3 hypothetical scenarios, for a total of 21 items. The participants are asked how likely they would be to use different regulation strategies on a 5-point Likert-type scale from 1=*very unlikely* to 5=*very likely*. Additionally, participants are asked to rate the level of distress that each scenario would produce on a scale of 0 (*not at all distressed*) to 100 (*extremely distressed)*. The DIRE is scored as four separate subscales with two intrapersonal ER subscales (Avoid & Acceptance) and two interpersonal ER subscales (Excessive Reassurance Seeking & Venting). Higher scores on each subscale indicate more difficulty with each type of ER difficulty. All scales have demonstrated adequate internal consistency (Distress: α = .63, Avoidance: α = .63, Accept: α = .75, Venting: α = .78, Reassurance- seeking: α = .88; Dixon-Gordon et al., 2018). In the current study all scales demonstrated adequate internal consistency (Avoidance: α = .68, Accept: α = .80, Venting: α = .70, Reassurance- seeking: α = .82).

The *Social Phobia Inventory* (Connor et al., 2000) is a 17-item self-report questionnaire used as a preliminary screener for social anxiety disorder (SAD). In the current study, the SPIN was used as an initial screener to invite exclusively individuals with elevated social anxiety symptoms to participate in the study. The questionnaire allows patients to give a self-assessment of clinically important symptom domains of social phobia such as avoidance, fear of

interaction/performance, and physical arousal. Items are rated on a 5-point Likert-type scale from 0=*not at all* to 4=*extremely*. The questionnaire is scored using a total score with higher scores indicating more severe social anxiety symptoms. A clinical cutoff score of 19 and above has been demonstrated to be adequate to indicate the presence of SAD (Antony, Coons, McCabe, Ashbaugh, & Swinson, 2006). In an adolescent population, the SPIN has been demonstrated to have construct and discriminative validity against a semi-structured clinical interview for detecting social phobia with 85.1% specificity and 81.2% sensitivity (Ranta, Kaltiala-Heino, Rantanen, Tuomisto, & Marttunen, 2007). Further, the SPIN illustrates strong psychometric properties such as good test-retest reliability, internal cohesion, convergent validity and divergent validity (Connor et al., 2000).

The *Social Interaction Anxiety Scale* (SIAS, Mattick & Clarke, 1998) is a 20-item self-report measure that assesses cognitive, behavioral, and physiological responses to social anxiety disorder. In particular, the SIAS questionnaire evaluates social anxiety elicited by interactions with others. Items are rated on a 5-point Likert-type scale from 0=*not at all* to 4=*extremely*. The questionnaire is scored as a total score with a possible total of 60. Previous literature has supported that two clinical cutoff scores for the SIAS is 34 which is indicative of social phobia and 43 which indicates the presence of social anxiety disorder (Heimberg, Mueller, Holt, Hope, & Liebowtiz, 1992). The SIAS has been demonstrated to be reliable in several other countries including Japan and Australia (Wong et al., 2019) and across diverse populations such as with African-Americans (Carter, Sbrocco, Tang, Rekrut, & Condit, 2014). Furthermore, a confirmatory factor analysis confirmed support of the bifactor model of assessing social anxiety disorder with a combination of SIAS and SPS questionnaires (Gomez & Watson, 2017). The SIAS has good test-retest reliability, convergent, and divergent validity (Mattick & Clarke,

1998). Finally, the SIAS demonstrated high internal validity (Cronbach's α = .91; Mattick & Clarke, 1998). In the current study the total score demonstrated excellent internal consistency (α = 0.93).

The *Social Phobia Scale* (SPS, Mattick & Clarke, 1998) is a 20-item self-report questionnaire that assesses social anxiety during routine and performance activities. Additionally, the SPS evaluates fear of external cues of social anxiety such as "blushing". The SPS is often used in conjunction with the SIAS scale. Items are rated on a 5-point Likert-type scale from 0=*not at all* to 4=*extremely*. SPS is scored similarly to the SIAS and scored as a global score. Previous literature supports that the clinical cutoff score used for the SPS is 24 to indicate performance social phobia. (Heimberg et al., 1992). Like the SIAS, the questionnaire has been validated in other countries (Wong et al., 2019) and in other diverse populations (Carter et al., 2014). Further, both the SPS and SIAS have been evaluated for criterion validity using performance and interaction stressors and demonstrated strong psychometric support (Thompson, Kaminska, Marshall, & Van Zalk, 2019). The SPS has demonstrated high internal consistency (Cronbach's α = 0.89; Mattick & Clarke, 1998). Additionally, the SPS has shown good test-retest reliability, convergent, and divergent reliability (Mattick & Clarke, 1998). In the current study the total score demonstrated excellent internal consistency (α = 0.94).

2.3 Procedure

Participants were recruited from the online SONA system online system as part of the University of Mississippi's Department of Psychology. Students were administered the SPIN screener as part of the initial questionnaire students must complete to gain access to the SONA online system. After completing the pre-screen, students with scores above 11 on the SPIN were invited through email to participate in the current online study. After obtaining written informed

consent, participants were given a set of online questionnaires to complete through Qualtrics survey platform. Questionnaires were randomized for each administration. Further, questionnaires included attention and validity checks throughout the set of measures to ensure participants are answering questionnaires to the best of their ability. Finally, students were debriefed and awarded either research or extra course or research credit for their participation. All procedures were approved through the University of Mississippi Institutional Review Board.

2.4 Data Cleaning Procedure

Statistical analyses were completed using the statistic software SPSS Version 26 (IBM Corp., 2019). Participants with duplicate cases were first excluded resulting with 376 unique cases. Reponses to the attention check items were reviewed and identified one participant to exclude for self-reported inattention while completing the questionnaire. Next, participants were evaluated for missing data. Participants with 10% or more missing data points were excluded from analyses, which resulted in the exclusion of 84 cases, leading to a total $N = 294$. An independent t-test (i.e. age) and Chi-Square tests (i.e., gender and education level) were used to evaluate demographic differences between participants with and without missing data, and no significant differences were observed. Mahalanobis distance was used to identify potential outlier variables (Ben-Gal, 2005), and no outliers were identified. Data met assumptions of normality, skewness, and kurtosis.

3. RESULTS

3.1 Participants Characteristics

Among the 294 participants included in the analyses, the sample was predominately female *(n*= 223, 75.9%), ages ranged from 18-22 (*M* = 18.71, *SD* = .949). Participants identified as 85.7% White, 8.8% Black, 2.4% Asian, 2.0% Hispanic/Latino, 0.3% Native American, and 0.3% Other. Further, participants identified their number of years in college as 73.1% first year, 15.3% second year, 6.5% third year, 3.4% fourth year, and 1.7% other.

On average, the sample endorsed levels of depression in the mild range, (*M* = 12.58, *SD* = 4.87). Further, the sample endorsed elevated levels of interaction social anxiety (*M* = 35.59, *SD* = 14.07) with 51.5% of the sample scoring at above the clinical cutoff for social phobia, a total score of 34 (Mattick & Clarke, 1998). Further the sample endorsed an elevated level of performance social anxiety (*M* = 26.23, *SD* = 16.16) with the 48.3% of the sample scoring at above the clinical cutoff for social phobia, a total score of 24 (Mattick & Clarke, 1998).

3.2 Primary Analyses

3.21 Hypothesis 1

A series of Pearson bivariate correlations were conducted to examine associations between key study variables. A summary of these correlational results can be found in Table 1. First, associations with depression (i.e., control variable) were examined. As expected, depression was positively associated with interaction and performance-based social anxiety at a

moderate strength level (Cohen, 1988). Further, depression was significantly associated with difficulties in intrapersonal ER strategies (i.e., acceptance and avoidance). Specifically, depression symptoms were significantly, negatively associated with the use of acceptance and significantly positively associated with avoidance. The strength of these associated was small (Cohen, 1988). Depression symptoms were not significantly associated with interpersonal ER strategies (i.e., venting, reassurance seeking).

Next, associations between intra- and interpersonal ER strategies and interaction social anxiety symptoms were examined. Significant, interaction social anxiety symptoms were positively associated with the use of avoidance ER strategies. Although the strength of the association was small (Cohen, 1988), the direction of the association between interaction social anxiety and avoidance intrapersonal ER strategy supported the hypothesis. The correlations between acceptance and interpersonal ER strategies (i.e., venting, reassurance seeking) were not significant ($p > .20$).

Finally, and in the expected direction, performance-based social anxiety symptoms were positively, significantly associated with increased use of avoidance strategies at a low strength level (Cohen, 1988). However, no significant associations were observed between performance-based social anxiety and acceptance, venting, and excessive reassurance seeking (respectively).

3.22 Hypothesis 2a

A hierarchical multiple regression was conducted to examine the hypothesis that venting and excessive reassurance seeking (i.e., interpersonal ER difficulties) would significantly predict interaction social anxiety symptoms, after accounting for relevant variables. A summary of these analyses can be found in Table 2. In the first step, female gender and depression accounted for 26.7% of the variance in interaction social anxiety (F [2, 219] = 39.87, $p < .001$). In the second

step, intrapersonal ER strategies (i.e., acceptance and avoidance) accounted for an additional 0.3% variance in interaction social anxiety (F [2, 217] = 20.11, p = .598). In the last step, interpersonal ER strategies were entered, and excessive reassurance seeking and venting added 0.7% variance (F [2, 215] = 13.75, p = .360), wherein the full model accounted for 27.7% of the variance in interaction social anxiety. Thus, the hypothesis that interpersonal ER strategies would account for unique variance in interaction social anxiety symptoms, above and beyond variance accounted for by relevant variables was not supported.

3.23 Hypothesis 2b

A hierarchical multiple regression was conducted to examine the hypothesis that interpersonal ER difficulties venting and excessive reassurance seeking would significantly predict symptoms of performance-based social anxiety, after accounting for relevant variables. A summary of these analyses can be found in Table 3. In the first step, female gender and depression accounted for 21.7% of the variance in performance-based social anxiety F (2, 263) = 36.45, p < .001. In the second step, intrapersonal ER strategies (i.e., acceptance and avoidance) added 0.3% variance to the model (F [2, 261] = 18.40, p = .608). In the last step, interpersonal ER strategies (excessive reassurance seeking and venting) were entered and accounted for an additional 0.2% variance (F [2, 259] = 12.33, p = .700), with the full model accounting for 22.2% of the variance in performance-based social anxiety. In sum, although female gender and depression were significantly associated with performance-based social anxiety symptoms, the full model did not support the hypothesis that interpersonal ER strategies would account for unique variance in performance-based social anxiety symptoms.

3.3 Exploratory Analyses

Given the novelty of this framework, one-step models were computed to explore the

independent contributions of intrapersonal ER strategies (avoidance, acceptance) and interpersonal ER strategies (excessive reassurance seeking, venting) for both performance-based and interaction social anxiety.

First, one-step models were conducted to examined the association between ER strategies and interaction social anxiety symptoms. See Table 4 for a summary of results. First, intrapersonal ER strategies and interaction social anxiety symptoms were explored. Acceptance and avoidance strategies accounted for 1.7% of the variance in interaction social anxiety F (2, 241) = 3.38, p = .036, which supports the hypothesis between intrapersonal ER strategies and interaction social anxiety symptoms. Secondly, interpersonal ER strategies were explored with a summary of analyses in Table 4. Excessive-reassurance seeking and venting strategies accounted for 1.2% of the variance in interaction social anxiety symptoms F (2, 241) = 1.43, p = .240, which did not support the hypothesis between interpersonal ER strategies and interaction social anxiety symptoms.

Similarly, intrapersonal ER strategies and performance-based social anxiety symptoms were explored (see Table 5). Acceptance and avoidance strategies accounted for 2.3% of the variance in performance-based social anxiety F (2, 291) = 3.47, p = .032, which supports the hypothesized association between intrapersonal ER strategies and performance-based social anxiety symptoms. Next, a one-step model examining interpersonal ER strategies were examined (see Table 5). Excessive-reassurance seeking and venting strategies accounted for 0.71% of the variance in performance-based social anxiety (F [2, 291] = 0.73 p = .484), which did not support the hypothesized association between interpersonal ER strategies and performance-based social anxiety symptoms.

4. DISCUSSION

SAD is characterized by fear of social evaluation and interpersonal impairment. (Alden & Taylor, 2004). Although there is strong empirical evidence for the presence of intrapersonal ER difficulties within individuals with SAD (Goldin & Gross, 2010; Hofmann, Sawyer, Fant, & Asnaani, 2012; Aldao, Jazaieri, Goldin, & Gross, 2014), there has been little investigation into interpersonal ER difficulties within SAD despite the known presence of ER difficulties (Rusch, Westermann, & Lincoln, 2012) and interpersonal dysfunction that are concurrent with social anxiety (Alden & Taylor, 2004). Therefore, the present aim of the current study was to examine interpersonal ER difficulties, defined as excessive reassurance seeking and venting, in relation to social anxiety symptoms among a sample of socially anxious college students.

To examine the first hypothesis of the current study, Pearson bivariate correlations were examined among key study variables (i.e., venting, excessive reassurance seeking, intrapersonal ER difficulties, demographic/psychological variables, and social anxiety symptoms). Consistent with previous empirical evidence (Kraines, White, Grant, & Wells, 2019; Langer et al., 2019), greater depression symptoms were associated with a greater number of social anxiety symptoms. Further, consistent with the literature, participants who reported greater social anxiety symptoms reported greater avoidance patterns (O'Toole, Zachariae, & Mennin, 2017; Rusch, Westermann, & Lincoln, 2012; Southam-Gerow & Kendall, 2000). However, inconsistent with empirical evidence supporting the presence of venting and excessive reassurance seeking in SAD

literature, a significant association between social anxiety symptoms and interpersonal ER difficulties was not observed (Gerstein et al., 2011; Malooly et al., 2017; Vannucci, Flannery, &McCauley Ohannessian, 2018; Wilson, Koerner, & Antony, 2018).

The second hypothesis examined the associations between interaction and performance-based social anxiety symptoms and interpersonal ER difficulties after controlling for intrapersonal ER difficulties and control variables (i.e., gender and depression symptoms). Consistent with the literature and the hypothesis, depression was predictive greater interaction and performance-based social anxiety symptoms. However, no study variables were found to be predictive of either interaction and performance-based social anxiety symptoms in the full model. Due to the novelty of the framework and the measure employed in this study, exploratory, one-step hierarchical regression models were investigated to isolate the potential contribution of intra- and interpersonal ER strategies. Consistent of previous empirical evidence, the one-step hierarchical regression models supported that increased use of avoidance was predictive of greater interaction and performance-based social anxiety symptoms. However, the one-step hierarchal models did not provide evidence for the association between interpersonal ER strategies and social anxiety symptoms.

A number of potential explanations and limitations may account for the current findings and be used to inform future research. First, the two interpersonal ER strategies will separately be examined. Then, general limitations of the sample and methodology will be assessed. Finally, future directions given the limitations of the current study will be explored.

One potential explanation for the unsupported results between reported social anxiety symptoms and use of excessive reassurance seeking strategies is the method in which excessive reassurance seeking strategies are conceptualized and assessed in the current study. Of note, the

study employed a newly developed measure based on the theoretical role of broad use of excessive reassure seeking in interpersonal emotion regulation. Rector and colleagues (2011) examined assessments of excessive reassurance seeking and found that among different empirically supported measures three distinct factors were identified as a comprehensive method to measuring excessive reassurance seeking. These factors include uncertainty about decisions, attachment/security of relationships, and perceived general threat and anxiety. Although the questionnaires used in the current study assessed for these factors through measuring general use of excessive reassurance seeking, the measures did not examine these factors directly. Therefore, in future studies of SA symptoms and excessive reassurance seeking, excessive reassurance seeking could be assessed according to these different factors to create a comprehensive assessment of this strategy among participants.

Further, it may be important to consider that with elevated SA symptoms, individuals may be more heavily using intrapersonal ER strategies and then secondarily using interpersonal ER strategies in distressing social situations. For instance, previous evidence has supported that dissecting excessive reassurance seeking into fear of positive evaluation and fear of negative evaluation is critical in the measurement of excessive reassurance seeking strategy frequency among socially anxious individuals (Kane, Bahl, & Ouimet, 2018). Therefore, it may be more essential to examine excessive reassurance seeking as a means of avoidance (an intrapersonal ER strategy) rather than as an interpersonal ER strategy (Taylor, Danielle, Kraines, Grant, & Wells, 2019). In addition to reconceptualizing excessive reassurance seeking as an intrapersonal ER strategy, previous literature has supported that excessive reassurance seeking is a stronger predictor of depression symptoms rather than anxiety symptoms (Joiner & Schmidt, 1998). It has been hypothesized that SA symptoms have a causal role in the development of depressive

symptoms where rumination and feelings of hopelessness are used to manage anxiety symptoms (Starr & Davila, 2012). SAD and depression symptoms often co-occur (Langer & Rodebaugh, 2014), therefore, future studies should evaluate variations and similarities in the transdiagnostic nature of interpersonal ER strategies across depression and anxiety symptoms (Kraines, White, Grant, & Wells, 2019; Langer et al., 2019).

Similarly, limitations in measurement may have affected the hypothesis examining venting as an interpersonal ER strategy in social anxiety symptoms. Specifically, it is possible that the propensity to use venting as an ER strategy may not have been salient within the current paradigm for young adults with elevated SAD symptoms. In a study by Cho, White, Yang, & Soto (2019), SAD symptoms were explored in a lab speech task where physiological reactivity was measured and used to indicate whether the physiological intensity of SA symptoms corresponded to one's choice in ER strategy (i.e., reappraisal, distraction, and venting). The results showed that when individuals had a higher physiological reactivity to elevated SA symptoms during the speech task, individuals more commonly choose venting as an ER strategy compared to other strategies. Therefore, these findings suggest that it may be critical to induce SA symptoms while individuals are choosing their preferred ER strategy in order to examine the relationship between venting and interpersonal ER strategies. Further, Vollrath, Alnaeaes, & Torgersen (2003) explored the differential effect of coping in different psychiatric disorders. The study discovered that venting is a common coping strategy among an outpatient population with clinical levels of anxiety, depression, and mood disorders. Conversely, the current study, which only examined sub-clinical levels of social anxiety, may not have had the appropriate degree of sensitivity to detect venting as an ER strategy.

Despite the lack of support for ERS and venting in relation to SAD symptoms in this

study examining undergraduate students with elevated SAD symptoms, evidence supports the connection between SA symptom severity and interpersonal ER strategies in which greater SA symptoms correspond to greater interpersonal dysfunction. For example, literature supported that individuals with generalized social phobia were the most likely to have difficulty social relationships compared to individuals with either subclinical SA symptoms, generalized anxiety, and healthy controls (Kachin, Newman & Pincus, 2001). Further, it has been hypothesized that interpersonal dysfunction may elucidate the relationship between SA symptoms and comorbid depression symptoms. Starr, Hammen, Connolly, & Brennan (2014) examined the associations between anxiety, depression, and interpersonal dysfunction within a longitudinal experimental design. Their results found that observable interpersonal dysfunction occurs when anxiety symptoms begin to cause individuals functional impairment and distress. Therefore, it is hypothesized that evidence of maladaptive interpersonal ER strategies would be seen in future studies where participants were experiencing functional impairment and distress due to their anxiety symptoms.

Another hypothesis as to why the connection between interpersonal ER and SA symptoms remains unclear could due to how the study accounted for individuals' differences of emotion regulation needed for each interpersonal ER vignette. More specifically, in the current methodology vignettes indicated general stressful interpersonal scenarios (i.e., work, friends, and romantic partner); however, the vignettes were not tailored to elicit SA symptoms. Therefore, it may be imperative for future research to design and use vignettes that specifically elicit SA symptoms to more closely examine interpersonal ER strategies among individuals with SAD.

4.1 Limitations and Future Directions

With evidence supporting the presence of venting and excessive reassurance seeking in

clinical samples, one limitation of the current study was the examination of interpersonal ER strategies in a non-clinical sample. Although many individuals endorsed clinical levels of SAD symptoms, future research should investigate interpersonal strategies among individuals with clinical levels of SA symptoms among different self-report measures of social anxiety (e.g., SIAS & SPS). The current study did not utilize a treatment seeking sample; therefore, cannot assume SA symptoms met a threshold level to exhibit interpersonal dysfunction. Further the use of a college student sample is limiting with expectation that college students have more resources and higher social functioning compared to a community sample. In addition, the current study did not assess SA symptoms with a structured clinical interview (e.g., Diagnostic Interview for Anxiety, Mood, and OCD and Related Neuropsychiatric Disorders). Therefore, the study was able to capture general severity of SA symptoms but did not conduct a comprehensive measurement of the functional impairment and distress associated with SA symptoms.

A second limitation to the current study was the use of cross-sectional survey data in the exploration of interpersonal ER strategies and SA symptoms. A future direction to address this limitation would be to construct an experimental design which utilizes a dyad-based paradigm where use of interpersonal ER strategies could be measured behaviorally. For instance, interpersonal ER strategies have been examined previously in romantic dyads to measure the interaction between emotion regulation and various measures of psychological well-being (i.e., mood, affect, intimacy, worry, and generalized anxiety; Horn, Samson, Debrot, & Perrez, 2019; Parkinson, Simons, Niven, 2016). Previous evidence has supported that a dyadic approach to measuring interpersonal ER strategies may have greater ecologically validity than retrospective self-report (Lougheed & Hollenstein, 2016). Further supporting this approach, Ryan, La Guardia, Solky-Butzel, Chirkov, & Kim (2005) investigated the interaction between the quality and

intimacy of a relationship and interpersonal ER strategies among college students. Results supported that college students were most likely to implement interpersonal ER strategies with best friends, romantic partners, and supportive parents. Therefore, a future study could more deeply explore interpersonal ER strategies among college students by investigating interpersonal ER among college student dyads using either best friends, romantic partners, and parents. Another method to address the limitation of retrospective self-report would be to assess interpersonal ER strategies using an ecological momentary assessment approach. A past investigation of interpersonal ER strategies among parents and adolescents with symptoms of separation anxiety, social phobia, and generalized anxiety implemented 14 reports of emotion regulation across a five-day span to capture in the moment use of these strategies. Results supported the validity and reliability of using ecological momentary assessment to explore the relationship between interpersonal ER and anxiety symptoms (Stone et al., 2019). Considering other methodologies in the investigation of interpersonal ER strategies and psychological functioning, the current study could be strengthened through caregiver/partner/friend report as they are the providers of interpersonal support and those who assist in the ER process could give more insight on the frequency and severity of different strategies.

A third limitation to the current study was the exploration of interpersonal ER strategies among predominately White females. One empirical study supported that interpersonal ER strategies are shaped by an individual's gender, age, and cultural identity (López-Pérez & Pacella, 2019). The study examined how interpersonal ER strategies vary in children across cultures through an online simulation game where children were asked to select interpersonal ER strategies for others' experiences of sadness, anger, and fear. The results of the study indicated that boys were more likely than girls to choose maladaptive strategies across different negative

emotions and age groups. In future studies, it is critical to consider how interpersonal ER strategies choice changes in a sample that is representative of both men and women.

Overall, the results of the current study contribute to the small but growing body of literature supporting the interaction between the transdiagnostic nature of interpersonal ER strategies and psychological disorders. SAD is a common psychological disorder among college student with rates of SAD highest among the college age group between the ages of 18 to 24 years old impacting approximately 12.7% women and 13.1% in men (Fehm et al., 2008), and social relationships and interpersonal functioning are critical to this period of time (Ghaedi, Tavoli, Bakhtiari, Melyani, & Sahragard, 2010). Given that one of the most impairing hallmarks of SAD is interpersonal dysfunction (Alden & Taylor, 2004), identifying effective interventions to improve social functioning for college students is important. Although interpersonal dysfunction is targeted in other psychological disorders, impairment due to poor interpersonal functioning has remained relatively unexplored in the SAD literature. In a meta-analysis, traditional SAD treatments were estimated to have a moderate effect on SAD symptoms compared to a placebo treatment (Heimberg, 2002), suggesting treatments could be further improved. Additional research is necessary to determine the potential benefit of targeting interpersonal ER strategies (e.g., interpersonal effectiveness skills) to address interpersonal functioning among those with SAD. Although the results did not indicate the use of interpersonal ER strategies among elevated SA symptoms, additional research is needed to further explore the association between SAD and interpersonal ER. In particular, studies are needed to address the limitations of the current study by expanding on the methodology and increasing the representativeness of the sample to gain deeper insight on how interpersonal ER may contribute to our understanding of factors that maintain SA symptoms and interpersonal dysfunction.

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LIST OF APPENDICES

APPENDIX A: SOCIODEMOGRAPHIC QUESTIONNAIRE

Sociodemographic Questionnaire

1. What gender do you identify?
    a. Male
    b. Female
    c. Non-binary
    d. Other

2. What was your sex at birth?
    a. Male
    b. Female

3. Age: _____

4. With which ethnicity/race do you identify with?
    a. Native American
    b. Asian/Pacific
    c. Black/African American
    d. Hispanic/Latino
    e. White Caucasian
    f. Other
    g. Prefer no answer

5. Year in college
    a. Freshman (1st year)
    b. Sophomore (2nd year)
    c. Junior (3rd year)
    d. Senior (4th year)
    e. Other _____

6. Number of credits enrolled in this semester _____

7. Current GPA _____

8. Major _____

9. Living situation for 2019-2020

    a. On campus dormitory
    b. Greek affiliated housing
    c. Off campus apartment/house
    d. Living with parents/family
    e. Other _____

10. Previous significant medical or psychiatric history

APPENDIX B: DEPRESSION, ANXIETY, STRESS SCALES-21

DASS-21

INSTRUCTIONS: Please read each statement and choose the number which indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any statement. The rating scale is as follows:

0 = Did not apply to me at all
1 = Applied to me some degree, or some of the time
2 = Applied to me a considerable degree, or a good part of the time
3 = Applied to me very much, or most of the time

_____1. I found it hard to wind down.
_____2. I was aware of dryness in my mouth.
_____3. I couldn't seem to experience any positive feeling at all.
_____4. I experience breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion).
_____5. I found it difficult to work up the initiative to do things.
_____6. I tended to over-react to situations.
_____7. I experienced trembling (e.g., in the hands).
_____8. I felt that I was using a lot of nervous energy.
_____9. I was worried about situations in which I might panic and make a fool of myself.
_____10. I felt that I had nothing to look forward to.
_____11. I found myself getting agitated.
_____12. I found it difficult to relax.
_____13. I felt down-hearted and blue.
_____14. I was intolerant of anything that kept me from getting on with what I was doing.
_____15. I felt I was close to panic.
_____16. I was unable to become enthusiastic about anything.
_____17. I felt I wasn't worth much as a person.
_____18. I felt that I was rather touchy.
_____19. I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat).
_____20. I felt scared without any good reason.
_____ 21. I felt that life was meaningless.

APPENDIX C: DIFFICULTIES WITH INTERPERSONAL EMOTION REGULATION

DIRE

A series of scenarios are presented below. First please tell us how you would respond to each scenario. Then, please indicate on a scale from 1 (very unlikely) to 5 (very likely) the likelihood that you would respond in each of the ways listed. Please provide an answer to each response.

1 **You are feeling upset by a project you need to complete for school or work. The deadline is tomorrow and you're worried that there is no way that you will be able to get all the work finished.**

A. In this situation, you would feel:

0----------50----------100

Not at all distressed Extremely distressed

B. In order to feel better, how likely is it that you would:

a. Raise your voice or complain to the person in charge

1 2 3 4 5

Very unlikely Very likely

b. Distract yourself from how you are feeling

1 2 3 4 5

Very unlikely Very likely

c. Complain to your coworkers or classmates about how it is unfair the situation is

1 2 3 4 5

Very unlikely Very likely

d. Simply notice your feelings

1 2 3 4 5

Very unlikely Very likely

e. Avoiding feeling or showing your distress

1 2 3 4 5

Very unlikely Very likely

f. Keep contacting (texting, calling, etc.) friends and loved ones

1 2 3 4 5

Very unlikely Very likely

g. Keep asking for reassurance

1 2 3 4 5

Very unlikely Very likely

2) **You and your significant other have been fighting a lot. You really care about the relationship and want things to work out. You've just had another fight.**

A. In this situation, you would feel:

0----------50----------100

Not at all distressed Extremely distressed

B. In order to feel better, how likely is it that you would:

a. Raise your voice or criticize your significant other to express how you feel

1 2 3 4 5

Very unlikely Very likely

b. Distract yourself from how you are feeling

1 2 3 4 5

Very unlikely Very likely

c. Complain to your friends or acquaintances about your significant other

1 2 3 4 5

Very unlikely Very likely

d. Simply notice your feelings

1 2 3 4 5

Very unlikely Very likely

e. Avoiding feeling or showing your distress

1 2 3 4 5

Very unlikely Very likely

f. Keep contacting (texting, calling, etc.) friends and loved ones

1 2 3 4 5

Very unlikely Very likely

g. Keep asking for reassurance

1 2 3 4 5

Very unlikely Very likely

3. **You feel like your friends have been avoiding you. Every time you call one of them, they are busy. You want to have a social life and be liked. One day you hear that a bunch of your friends went out to dinner without you.**

A. In this situation, you would feel:

0----------50----------100

Not at all distressed Extremely distressed

B. In order to feel better, how likely is it that you would:

a. Raise your voice or criticize your friends to express how you feel

1 2 3 4 5

Very unlikely Very likely

b. Distract yourself from how you are feeling

1 2 3 4 5

Very unlikely Very likely

c. Complain to mutual acquaintances about your friends.

1 2 3 4 5

Very unlikely Very likely

APPENDIX D: SOCIAL PHOBIA SCALE

Social Phobia Scale

Instructions: For each item, please circle the number to indicate the degree to which you feel the statement is characteristic or true for you. The rating scale is as follows:

0 = Not at all characteristic or true of me
1= Slightly characteristic or true of me
2= Moderately characteristic or true of me
3= Very characteristic or true of me
4= Extremely characteristic or true of me

Characteristic	Not at all	Slightly	Moderately	Very	Extremely
1. I become anxious if I have to write in front of people	0	1	2	3	4
2. I become self-conscious when using public toilets.	0	1	2	3	4
3. I can suddenly become aware of my own voice and others listening to me.	0	1	2	3	4
4. I get nervous that people are staring at me as I walk down the street.	0	1	2	3	4
5. I fear I may blush when I am with others.	0	1	2	3	4
6. I feel self-conscious if I have to enter a room where others are already seated.	0	1	2	3	4
7. I worry about shaking or trembling when I'm watched by other people.	0	1	2	3	4

8. I would get tense if I had to sit facing other people on a bus or a train.	0	1	2	3	4
9. I get panicky that others might see me faint or be sick or ill.	0	1	2	3	4
10. I would find it difficult to drink something if in a group of people.	0	1	2	3	4
11. It would make me feel self-conscious to eat in front of a stranger at a restaurant.	0	1	2	3	4
12. I am worried people will think my behavior is odd.	0	1	2	3	4
13. I would get tense if I had to carry a tray across a crowded cafeteria.	0	1	2	3	4
14. I worry I'll lose control of myself in front of other people.	0	1	2	3	4
15. I worry I might do something to attract the attention of other people.	0	1	2	3	4
16. When in an elevator, I am tense if people look at me.	0	1	2	3	4

17. I can feel conspicuous standing in a line.	0	1	2	3	4
18. I can get tense when I speak in front of other people.	0	1	2	3	4
19. I worry my head will shake or nod in front of others.	0	1	2	3	4
20. I feel awkward and tense if I know people are watching me.	0	1	2	3	4

APPENDIX E: SOCIAL INTERACTTION ANXIETY SCALE

Social Interaction Anxiety Scale

Instructions: For each item, please circle the number to indicate the degree to which you feel the statement is characteristic or true for you. The rating scale is as follows:

0 = Not at all characteristic or true of me
1= Slightly characteristic or true of me
2= Moderately characteristic or true of me
3= Very characteristic or true of me
4= Extremely characteristic or true of me

Characteristic	Not at all	Slightly	Moderately	Very	Extremely
1. I get nervous if I have to speak with someone in authority (teacher, boss, etc.).	0	1	2	3	4
2. I have difficulty making eye contact with others.	0	1	2	3	4
3. I become tense if I have to talk about myself or my feelings.	0	1	2	3	4
4. I find it difficult to mix comfortably with the people I work with.	0	1	2	3	4
5. I find it easy to make friends my own age.	0	1	2	3	4
6. I tense up if I meet an acquaintance in the street.	0	1	2	3	4
7. When mixing socially, I am uncomfortable.	0	1	2	3	4
8. I feel tense if I am alone with	0	1	2	3	4

just one other person.					
9. I am at ease meeting people at parties, etc.	0	1	2	3	4
10. I have difficulty talking with other people.	0	1	2	3	4
11. I find it easy to think of things to talk about.	0	1	2	3	4
12. I worry about expressing myself in case I appear awkward.	0	1	2	3	4
13. I find it difficult to disagree with another's point of view.	0	1	2	3	4
14. I have difficulty to talking to attractive persons of the opposite sex.	0	1	2	3	4
15. I find myself worrying that I won't know what to say in social situations.	0	1	2	3	4
16. I am nervous mixing with people I don't know well.	0	1	2	3	4
17. I feel I'll say something embarrassing when talking.	0	1	2	3	4
18. When mixing in a group, I find myself	0	1	2	3	4

worrying I will be ignored.					
19. I am tense mixing in a group.	0	1	2	3	4
20. I am unsure whether to greet someone I know slightly.	0	1	2	3	4

APPENDIX F: SOCIAL PHOBIA INVENTORY

Social Phobia Inventory

Instructions: Please read each statement and circle in the column that indicates how much the statement applied to you **over the past week.**

Characteristic	Not at all	A Little Bit	Somewhat	Very Much	Extremely
1. am afraid of people in authority.	0	1	2	3	4
2. I am bothered by blushing in front of people.	0	1	2	3	4
3. Parties and social events scare me.	0	1	2	3	4
4. I avoid talking to people I don't know.	0	1	2	3	4
5. Being criticized scares me a lot.	0	1	2	3	4
6. I avoid doing things or speaking to people for fear of embarrassment.	0	1	2	3	4
7. Sweating in front of people causes me distress.	0	1	2	3	4
8. I avoid going to parties.	0	1	2	3	4
9. I avoid activities in which I am the center of attention.	0	1	2	3	4
10. Talking to strangers scares me.	0	1	2	3	4

11. avoid having to give speeches.	0	1	2	3	4
12. I would do anything to avoid being criticized	0	1	2	3	4
13. Heart palpitations bother me when I am around people.	0	1	2	3	4
14. I am afraid of doing things when people might be watching.	0	1	2	3	4
15. Being embarrassed or looking stupid are among my worst fears.	0	1	2	3	4
16. I avoid speaking to anyone in authority.	0	1	2	3	4
17. Trembling or shaking in front of others is distressing to me.	0	1	2	3	4

LIST OF TABLES

Table 1. *Summary of Correlational Analysis*

Variable	1	2	3	4	5	6	7
1. DASS-21-D	—						
2. DIRE-Accept	-.152*	—					
3. DIRE-Avoid	.214**	.100	—				
4. DIRE-Vent	.003	.125*	.169**	—			
5. DIRE-ER	.010	.234**	.125*	.454**	—		
6. SIAS	.516**	-.079	.136*	-.068	.047	—	
7. SPS	.459**	-.071	.129*	.068	.048	.665**	—
M	12.58	9.29	17.74	14.70	18.50	35.59	26.23
SD	4.87	3.00	4.71	4.48	5.57	14.07	16.16
N	268	294	294	294	294	292	294

Note. DASS-21-D= Depression, Anxiety, and Stress Scale-21-Depression Scale= DASS-21-D; DIRE-Accept = Difficulties in Interpersonal Regulation of Emotions- Acceptance subscale; DIRE-Avoid = Difficulties in Interpersonal Regulation of Emotions- Avoidance subscale; DIRE-ER = Difficulties in Interpersonal Regulation of Emotions- Excessive Reassurance Seeking subscale; DIRE-Vent = Difficulties in Interpersonal Regulation of Emotions- Venting subscale; SIAS= Social Interaction Anxiety Scale; SPS= Social Phobia Scale.
*$p < .05$, **$p < .01$, *** $p < .001$

Table 2. *Results of a Hierarchical Regression Model Examining Predictors of Interaction Social Anxiety*

Variable	*B*	*SE*	*T*	*P*	R_2	ΔR_2
Step 1					.267	.267
Constant	34.61	2.79	12.41	.000		
Female	-.757	1.88	-0.40	.296		
Depression	1.48	.17	8.81	.000		
Step 2					.270	.003
Constant	30.85	4.68	6.60	.000		
Female	-.829	1.92	-.432	.666		
Depression	1. 47	.176	8.36	.000		
Accept	.157	.30	.532	.595		
Avoid	.140	.182	.766	.444		
Step 3					. 277	.007
Constant	30. 58	5.15	5.94	.000		
Female	-.754	1.96	-.39	.700		
Depression	1.45	.18	8.24	.000		
Accept	.11	.30	.36	.721		
Avoid	.15	.19	.81	.414		
Venting	-.23	.21	-1.08	.282		
ERS	.22	.17	1.27	.207		

Note. Female = Sociodemographic Questionnaire; Depression= Depression, Anxiety, and Stress Scale-21-Depression Scale; Acceptance = Difficulties in Interpersonal Regulation of Emotions-Accept subscale; Avoidance = Difficulties in Interpersonal Regulation of Emotions- Avoid subscale; Venting = Difficulties in Interpersonal Regulation of Emotions- Venting subscale; ERS = Difficulties in Interpersonal Regulation of Emotions- Excessive Reassurance Seeking subscale.

Table 3. *Results of a Hierarchical Regression Model Examining Predictors of Performance-Based Social Anxiety*

Variable	*B*	*SE*	*T*	*P*	R_2	ΔR_2
Step 1					.217	.217
Constant	23.94	3.07	7.80	.000		
Female	3.07	2.07	1.49	.139		
Depression	1.57	.18	8.53	.000		
Step 2					.220	.003
Constant	23.34	4.93	4.74	.000		
Female	3.33	2.10	1.59	.115		
Depression	1.52	.19	7.94	.000		
Accept	-.199	.31	-.64	.522		
Avoid	.16	.19	.84	.401		
Step 3					.222	.002
Constant	22.03	5.47	4.03	.000		
Female	3.12	2.14	1.46	.146		
Depression	1.52	.19	7.93	.000		
Accept	-.21	.32	-.67	.502		
Avoid	.14	.20	.70	.482		
Venting	.19	.22	.84	.405		
ERS	-.04	.19	-.21	.833		

Note. Female = Sociodemographic Questionnaire; Depression= Depression, Anxiety, and Stress Scale-21-Depression Scale; Accept = Difficulties in Interpersonal Regulation of Emotions-Acceptance subscale; Avoid = Difficulties in Interpersonal Regulation of Emotions- Avoidance subscale; Venting = Difficulties in Interpersonal Regulation of Emotions- Venting subscale; ERS = Difficulties in Interpersonal Regulation of Emotions- Excessive Reassurance Seeking subscale.

Table 4. *Results of One-Step Hierarchical Regression Models Examining Intrapersonal and Interpersonal Emotion Regulation Strategies on Interaction Social Anxiety Symptoms*

	B	*SE*	*t*	*P*
Model 1: Intrapersonal Emotion Regulation Strategies				
Constant	48.39	4.32	11.18	.000
Avoidance	-.45	.30	-1.48	.140
Acceptance	-.45	.20	-2.29	.023
Model 2: Interpersonal Emotion Regulation Strategies				
Constant	53.06	3.68	14.41	.000
Venting	-.35	.23	-1.53	.128
ERS	.24	.18	1.32	.189

Note. Acceptance = Difficulties in Interpersonal Regulation of Emotions- Acceptance subscale; Avoidance = Difficulties in Interpersonal Regulation of Emotions- Avoidance subscale; Venting = Difficulties in Interpersonal Regulation of Emotions- Venting subscale; ERS = Difficulties in Interpersonal Regulation of Emotions- Excessive Reassurance Seeking subscale.

Table 5. *Results of One-Step Hierarchical Regression Models Examining Intrapersonal and Interpersonal Emotion Regulation Strategies on Performance-Based Social Anxiety Symptoms*

	B	*SE*	*t*	*P*
Model 1: Intrapersonal Emotion Regulation Strategies				
Constant	42.11	4.49	9.38	.000
Avoidance	.47	.20	2.34	.020
Acceptance	-.45	.32	-1.43	.154
Model 2: Interpersonal Emotion Regulation Strategies				
Constant	41.98	3.79	11.07	.000
Venting	.21	.24	.83	.378
ERS	-.06	.19	.33	.743

Note. Acceptance = Difficulties in Interpersonal Regulation of Emotions- Acceptance subscale; Avoidance = Difficulties in Interpersonal Regulation of Emotions- Avoidance subscale; Venting = Difficulties in Interpersonal Regulation of Emotions- Venting subscale; ERS = Difficulties in Interpersonal Regulation of Emotions- Excessive Reassurance Seeking subscale.

VITA

Megan M. Perry

EDUCATION

UNIVERSITY of MISSISSIPPI *Oxford, MS*
Doctoral Program, Clinical Psychology — 2017-Present

UNIVERSITY of MISSISSIPPI *Oxford,* MS
Masters of Arts, Psychology
Thesis Title: *Understanding Social Anxiety Symptoms through Interpersonal Emotion Regulation Strategies* — May 2020
Chair: *Dr. Laura Dixon, Ph.D.*

MIAMI UNIVERSITY *Oxford, OH* — May 2017
Bachelor of Arts, Cum Laude
Major: Psychology
Minors: Neuroscience, Management/Leadership, and General Business
Honors Thesis Title: *The role of fearful temperament and maternal control behavior on the development of self--consciousness in toddlerhood* Chair: *Dr. Elizabeth Kiel, Ph.D.*

HONORS & AWARDS

ACADEMIC AWARDS

Graduate Honors Fellowship — 2017-2021
University of Mississippi

RESEARCH AWARDS

Hematology/Oncology/BMT SIG Poster Award — 2020

CLINICAL EXPERIENCES

Graduate Therapist August 2017- Present
Psychological Services Center, University of Mississippi
Supervisors: Laura Dixon, Ph.D. (2017-2018; 2019-2020), Scott Gustafson (Summer 2018), John Young, Ph.D. (2018-2019)

- Implement evidence- based practices within individual therapy while receiving group supervision. Emphasis on working with the childhood and adolescent populations
- Experiences with clients struggling with a range of psychological issues such as emotion dysregulation, social anxiety, problematic anger, generalized anxiety, and autism spectrum disorder
- Coordinate DBT treatment team across mental health care providers
- Administer the following measures based on client's needs: RCADS, RCADS-P, BASC 3, and OQ
- Implement the following structured clinical interviews during intake appointments: MINI 5.0, CHIPS, PCHIPS
- Direct observation of Dr. Dixon and co-therapist leading the DBT Skills Training group therapy, and participation in Dr. Dixon's DBT consultation team

Graduate Intern September 2019- Present
North Mississippi Regional Center*,* Oxford, MS
Supervisors: Melinda Redding, Ph.D., Stefan Schulenberg, Ph.D.

- Administer comprehensive cognitive assessment batteries to children and young adults with genetic and neurodevelopmental abnormalities (i.e., fragile X, isovaleric acidemia, and ASD) in Diagnostic Services
- Provide weekly individual counseling to those with intellectual disability using modified evidence-based treatment approaches

Behavioral Consultant September 2019- Present
Headstart Preschool Centers*,* Coldwater, MS, Hickory Flatt, MS
Supervisor: Alan Gross, Ph.D.

- Create and implement behavior plans with students experiencing externalizing behavioral issues in the classroom
- Collaborate with teachers and center director to practice reinforcement strategies to foster enhanced classroom management skills

RESEARCH POSITIONS

Graduate Research Lab Assistant September 2018– Present
St. Jude Children's Research Hospital, Memphis, TN
PI: Dr. Victoria Willard

- Collaborated in the investigation of social functioning, neurocognitive late effects, and impact of the parent-child relationship in survivors of pediatric brain tumors
- Presented at the Society of Pediatric Psychology examining social functioning and facilitative parenting in survivors of pediatric brain tumors
- Presented at Psychology Rounds *An Investigation of Social Functioning and Facilitative Parenting among Survivors of Pediatric Brain Tumors*

Graduate Research Lab Assistant August 2017 – Present
Health and Anxiety Treatment Lab, University of Mississippi
PI: Dr. Laura Dixon

- Coordinate lab tasks with undergraduate research assistants to run the Examination of Social Anxiety Symptoms and Externalizing Behaviors Study
- Code and develop reliability with the Anxiety Disorders Interview Schedule for DSM-IV (ADIS-IV)

Research Lab Assistant August 2014 – August 2017
Behaviors, Emotions, and Relationships Research Lab, Miami University
PI: Dr. Elizabeth Kiel

- Assist in research visits with mothers and their toddlers exploring parenting attachment styles, dysregulated fear, and toddler behavioral inhibition, including running Fearful Temperament Battery and the Strange Situation episodes

Research Lab Assistant August 2015 – May 2016
Broadening Undergraduate Research Perspectives in Behavioral Neuroscience, Miami University
PI: Dr. Jennifer Quinn

- Collaborated in a research team to create a research proposal, design, and poster to explore the process of memory destabilization in the VTA specifically examining the dopamine pathway in the acquisition of contextual fear memory.

Research Lab Assistant May 2016 – May 2017
Behavioral Neuroscience Lab, Miami University
PI: Dr. Jennifer Quinn

- Explore the role of NMDA and D1 receptors in the retrieval, destabilization, and reconsolidation of contextual discrimination fear memory in the amygdala.

PUBLICATIONS

1) Dixon, L. J., Witcraft, S. M**.**, & **Perry, M. M.** (2019). How does anxiety affect adults with skin disease? Examining the indirect effect of anxiety symptoms on impairment through anxiety sensitivity. *Cognitive Therapy and Research. 43*(1), 14-23.

2) Boullion, G.Q., Witcraft, S.M., Schadegg, M.J., **Perry, M.M.**, Dixon, L.J. (2019). Emotion regulation difficulties and depression among individuals with dermatological and body dysmorphic concerns. *Manuscript in preparation.*

3) Kochli, D.E., Campbell, T.L., Hollingsworth, E.H., Lab, R.S., Postle, A.F., **Perry, M.M**., Mordzinski, V.M., & Quinn J.J. (2018). Combined administration of MK-801 and cycloheximide produces a delayed potentiation of fear discrimination memory extinction*. Behavioral Neuroscience*, *132*(2), 99-105.

PROFESSIONAL RESEARCH PRESENTATIONS

21. **Perry, M.M.**, Means, B., Goode, K., Flynn, J.S., & Willard, V.W. (2019, March). *Parent-reported social functioning amongst pre-school-aged survivors of solid and brain tumors.* Poster presented at the 51st Society of Pediatric Psychology Annual Conference, Dallas, TX. ***Hem/Onc/BMT SIG Poster Award**

20. **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 Association for Behavioral and Cognitive Therapies Annual Convention, Atlanta, GA.

19. Boullion, G.Q**, Perry, M.M.**, 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 Association for Behavioral and Cognitive Therapies Annual Convention, Atlanta, GA.

18. 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 misphonia on facets of aggression.* Poster presented at the 53rd Association for Behavioral and Cognitive Therapies Annual Convention, Atlanta, GA.

17. Witcraft, S.M., Schadegg, M.J., Boullion, G.Q., **Perry, M.M.** (2019, November). *What sensitivities matter in dental anxiety? Investigating sensitivity to anxiety, pain, and disgust.* Poster presented at the 53rd Association for Behavioral and Cognitive Therapies Annual Convention, Atlanta, GA.

16. Dixon, L.J., Schadegg, M.J., Bouillion, G.Q., Witcraft, S.M., **Perry, M.M.** (2019, November). Obsessive-compulsive related disorders, emotion-regulation, and quality of life in adults with skin disease. In J. McCann (Chair), *Change that Matters: What, Why, and How Meaningful Change Happens in CBT for Anxiety-Related Disorders*. Symposium presented at the Association for Behavioral and Cognitive Therapies 53rd Annual Convention, Atlanta, GA.

15. Young, G.K., Harris, M.A., **Perry, M.M.**, & Dixon, L.J. (2019, April). *Examination of communication and social media usage among socially anxious individuals.* Poster presented at the 6th annual University of Mississippi Psychology Research Day, Oxford, MS.

14. **Perry, M.M.**, Flynn, J.S., Means, B., Goode, K., & Willard, V.W. (2019, April). *Associations between facilitative parenting and social functioning in survivors of pediatric brain tumors.* Poster presentation at the 50th Society of Pediatric Psychology Annual Conference, New Orleans, LA.

13. **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 presentation at the 52nd Association for Behavioral and Cognitive Therapies Annual Convention, Washington, D.C.

12. Boullion, G. Q., Dixon, L. J., **Perry, M. M.**, & Witcraft, S. M. (2018, November). Emotion regulation difficulties and depression among individuals with dermatological and body dysmorphic concerns. In B. Mathes and B. Summers (Chairs), *Recent advances in OC Spectrum disorders: A transdiagnostic and translational perspective.* Symposium presented at the Association for Behavioral and Cognitive Therapies 52nd Annual Convention, Washington, DC.

11. 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 presentation at the 52nd Association for Behavioral and Cognitive Therapies Annual Convention, Washington, D.C.

10. **Perry, M.M** & Dixon, L. J. (2018, April). *The significance of access to emotion regulation strategies on maternal postpartum quality of life and parenting.* Data Blitz presented at the 5th annual University of Mississippi Psychology Research Day, Oxford, MS.

9. Long, M., Ellison, L., **Perry, M.M**, & Dixon, L.J., (2018, April) *Examining Racial Differences in Prenatal Depression, Anxiety, and Stressful Life Events.* Poster presented at the 5th annual University of Mississippi Psychology Research Day, Oxford, MS.

8. Witcraft, S. M., Dixon, L. J**., Perry, M.M**., Gratz, K. L., & Tull, M. T. (2017, October). *Correlates of nonmedical use of prescription drugs among patients with co-occurring anxiety and substance use disorders*. Poster presentation at the 51st Association for Behavioral and Cognitive Therapies Annual Convention, San Diego, CA.

7. **Perry, M.M.** (2017, September). Symposium Chair. *The age of anxiety: Exploring and assessing anxiety and its problematic health correlates.* Symposium presented at the Mississippi Psychological Association's 68th Annual Convention; Biloxi, MS.

6. Byrket, K., Kalomiris, A.E., **Perry, M.M**., Thomas, R., Kiel-Luebbe, E. (2017, May) *Error-related negativity and social anxiety in kindergarteners: The moderating role of the student-teacher relationship quality.* Poster presentation at the Undergraduate Research Forum, Miami University.

5. Campbell, T.L., Lab, R.S., Hollingsworth E.W., Mordzinski, V.M., **Perry, M.M**., Postle, A.F., Kochli, D.E., Quinn, J.J. (2017, May) *The role of NMDA receptors in the retrieval and reconsolidation of context fear discrimination*. Poster presentation at the Undergraduate Research Forum, Miami University.

4. **Perry, M.M.,** Kiel-Luebbe, E. (2017, April) *Anxiety risk and self-consciousness in boys and girls.* Poster presentation at the Society for Research in Child Development, Austin, TX.

3. **Perry, M.M**., Kiel-Luebbe, E. (2017, April) *Anxiety risk and self-consciousness in boys and girls.* Poster presentation at the Undergraduate Research Forum, Miami University.

2. **Perry, M.M**., Genaro, J.L., Lindner, H.E., Dye, C.N., Kochli, D.E., Floyd, R.J., Quinn, J.J. (2016, November). *Role of inhibition of the VTA with a GABA agonist in disrupting fear memories.* Poster presented at the Society for Neuroscience, San Diego, CA.

1. **Perry, M.M**., Genaro, J.L., Lindner, H.E., Dye, C.N., Kochli, D.E., Floyd, R.J., Quinn, J.J. (2016, April). *Role of inhibition of the VTA with a GABA agonist in disrupting fear memories.* Poster presented at the 15th annual Stephen Hinkle Memorial Poster session, Miami Department of Psychology.

TEACHING & MENTORING

Teaching Assistant January 2020-May 2020
University of Mississippi
Course: Introduction to Psychology
Instructor: Dr. Melissa Redding

Undergraduate Honors Thesis Mentor August 2018-May 2019
University of Mississippi
Examination of Communication and Social Media Usage among Socially Anxious Individuals
Greyson Young, Defense: Spring 2019

Teaching Assistant January 2019- May 2019
University of Mississippi
Course: Applied Behavior Analysis
Instructor: Dr. Kate Kellum

Teaching Assistant August 2018-December 2018
University of Mississippi
Course: Developmental Psychology
Instructor: Dr. Kurt Streeter

Teaching Assistant August 2017-December-2017
University of Mississippi
Course: Introduction to Psychology
Guest Lecture: Current Diagnosis and Treatment of
Anxiety Disorders Instructor: Dr. Kurt Streeter

Undergraduate Research Assistant Supervisor 2017-Present
Health and Anxiety Research and Treatment Lab
University of Mississippi

AD HOC REVIEWING & EXPERIENCES

Anxiety, Stress & Coping
Behavior Therapy

RELEVANT TRAINING & WORKSHOPS ATTENDED

1. Alvord, M.K. (2020, April) *Telepsychology with Children and Teens in the Age of COVID-19.* Workshop conducted at the National Register of Health Service Psychologists Webinar Series.

2. Maheu, M. (2020, March). *Telepsychology Best Practices 101.* Workshop conducted at the American Psychological Association Webinar Series.

3. Hoffman, S.G., & Hayes, S.C. (2019, November). *Functional analysis in process- based CBT.* Workshop conducted at the 53rd Association for Behavioral and Cognitive Therapies Annual Convention, Atlanta, GA.

4. Weber, M.C., Liberto, A.K., Polk, A.N., Boullion, G.Q., & Pineau, D.J. (2019, September).

Administration & scoring of the Woodcock Johnson-Fourth Edition (WJ-IV) Tests of Achievement, Cognitive Abilities, and Oral Language. Workshop conducted at the University of Mississippi at Oxford, MS.

5. Young, J. (2018, August-December). *Evidence-based services seminar.* Seminar conducted at the University of Mississippi at Oxford, MS.

AFFILATIONS

Society of Pediatric Psychology
Association of Behavioral and Cognitive Therapies
Mississippi Psychological Association
Society for Research in Child Development
Society for Neuroscience