UNDERSTANDING ADHERENCE TO COGNITIVE BEHAVIORAL THERAPY (CBT) IN CLINICIANS WHO TREAT EATING DISORDERS: A SELF-DETERMINATION THEORY APPROACH

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by

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DEDICATION

This dissertation is dedicated to my person, Gator, for supporting and encouraging me at every step of this process.

ABSTRACT

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Despite ample empirical support for Cognitive Behavioral Therapy in the treatment of eating disorders (CBT-ED), research indicates clinicians demonstrate poor adherence to CBT-ED. Several internal factors contribute to the lack of adherence, such as clinicians' anxiety and negative attitudes towards ESTs. Deci and Ryan's Self-Determination Theory (SDT) posits satisfaction of competency, autonomy, and relatedness is associated with increased motivation and reduced anxiety. Due to the notable lack of adherence to CBT-ED, the current study assessed the extent to which clinicians' perceived competence, autonomy, and relatedness, along with their anxiety and attitudes towards ESTs are associated with adherence to specific core CBT-ED skills. Clinicians' adherence to CBT-ED was measured through frequency (percentage of patients with whom they used each of 15 skills) and quality (the degree to which they used the skill). Factor analyses revealed 3 factors in Frequency of Adherence and Quality of Adherence: cognitive skills (FAcog/QAcog), behavioral skills (FAbx/QAbx), and collaborative skills (FAcollab/QAcollab). Clinicians also completed the Basic Psychological Needs Satisfaction at Work Scale to assess satisfaction of the three SDT factors, Intolerance of Uncertainty Scale – Short Form for clinicians' anxiety, and Evidence-Based Practice Attitude Scale for clinicians' attitudes to ESTs. The sample included 221 master's level clinicians (n = 162) and licensed psychologists (n = 59) recruited online who self-identified as having treated >4 patients with EDs in the past year. After preliminary analyses, Model 3 in PROCESS for SPSS was used to conduct 12

moderated moderation analyses, with FAcog, FAbx, QAcog and QAbx as the outcome variables. Results indicated none of the 12 moderated moderation analyses revealed significant three-way interactions. However, anxiety was negatively associated with FAcog and FAbx, while competency and autonomy were positively associated with QAcog. Positive attitudes toward ESTs were associated with increased adherence in every model and successfully moderated the negative relation between anxiety and adherence, such that the association between anxiety and adherence weakened as attitudes toward ESTs became more positive. Consistent with previous research, the findings demonstrated strong associations between clinicians' attitudes toward ESTs and adherence to CBT-ED. As such, addressing SDT factors in the workplace would not be as beneficial in increasing adherence to ESTs as targeting negative attitudes toward ESTs.

KEY WORDS: CBT, Eating disorders, Implementation, Empirically supported treatments, Self-Determination Theory.

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CHAPTER I

Introduction

Research demonstrates numerous empirically supported treatments (ESTs) that are effective for the treatment of eating disorders (EDs). In recent years, Cognitive Behavioral Therapy for EDs (CBT-ED) has evolved from traditional CBT to directly address core ED psychopathology, including dysfunctional thoughts (*e.g.,* an overevaluation of shape and weight), weight-control behaviors, body checking/avoidance, and preoccupation with shape, weight, and eating using well-defined cognitive and behavioral strategies (e.g., cognitive restructuring, exposure, self-monitoring, homework, collaborative weighing).

Efficacy of CBT-ED

Throughout the years, research has consistently demonstrated that CBT-ED is more effective than other ESTs for EDs in decreasing distorted cognitions, binging, and purging in individuals with bulimia nervosa (BN; Agras at al., 2000; Fairburn et al., 1991; Linardon et al., 2017; Rose & Waller, 2017; Slade et al., 2018). Indeed, CBT-ED exhibits sustained recovery rates for BN, with recent meta-analyses finding significant pre- to post-treatment reductions in binge eating episodes, compensatory behaviors, and overall ED pathology (Svaldi et al., 2019). CBT-ED results in similar long-term effects on the reduction of binge episodes in individuals with binge eating disorder (BED), with abstinence rates ranging from approximately 50 – 66% in randomized control trials (RCTs; de Zwaan et al., 2017; Grilo et al., 2011). Enhanced CBT (CBT-E), a form of CBT-ED developed by Fairburn et al. (2003), is often cited as an effective treatment across ED diagnostic categories, with BN and BED in particular. Indeed, one study found

approximately 66% of a sample of patients with any form of ED experienced remission at CBT-E post-treatment, compared to the 33.3% remission of Interpersonal Therapy (IPT) participants at post-treatment (Fairburn et al., 2015). Furthermore, recent reviews of CBT-E literature found significant reductions in a variety of ED psychopathology across diagnoses, which were maintained at follow-up (Atwood & Friedman, 2020; Dahlenburg et al., 2019).

Regarding CBT-ED for individuals with anorexia nervosa (AN), several early RCTs found statistically and clinically significant improvements in treatment outcomes for individuals with AN who received CBT-ED compared to nutritional counseling (Pike et al., 2003) and behavioral family therapy (Ball & Mitchell, 2004). Dalle Grave et al. (2019) and Hormoz et al. (2019) both found CBT-ED to be effective at reducing ED symptoms in adolescents and adults with AN, respectively. However, a recent RCT that compared CBT-E to two other AN treatments (Specialist Supportive Clinical Management and Maudsley Model Anorexia Nervosa Treatment for Adults) indicated all three treatments resulted in reductions in ED pathology and increased weight, although there were no significant differences between the treatments (Byrne et al., 2017). Similarly, a meta-analysis by Linardon et al. (2017) found no statistically significant differences between CBT-ED and other ESTs for EDs, suggesting CBT-ED demonstrates encouraging and comparable outcomes compared to other ESTs for EDs in the treatment of AN.

Adherence

According to the most current guidelines on ED treatment, CBT-ED is cited as a first choice EST in the treatment of BN, BED, and AN (National Institute for Health and

Care Excellence NICE, 2017). By adhering to CBT-ED, clinicians implement an evidence-based treatment in clinical settings that has demonstrated efficacy for the reduction of ED symptoms, which in turn, improves clinical outcomes for patients (Brownley et al., 2016; Fairburn et al., 2015; Folke et al., 2017, Linardon et al., 2018).

However, there are numerous studies demonstrating poor adherence to ESTs in the ED field (Cooper & Bailey, 2015; Couturier et al., 2014; Fairburn & Wilson, 2013; Fursland & Watson, 2014; Kazdin et al., 2017; Lilienfeld et al., 2013). Although many clinicians report using an EST manual when treating individuals with EDs (50-83.2%; Mulkens et al., 2018; Waller et al., 2012), as little as 6% of clinicians indicate close adherence to the complete manualized treatment (Tobin et al., 2007). Instead, many clinicians report using an eclectic mixture of empirically supported techniques and non-empirically supported techniques (e.g., a blend of cognitive-behavioral and psychodynamic, supplemented with mindfulness; Kosmerly et al., 2015; Wallace & von Ranson, 2012).

Regarding CBT-ED in particular, many clinicians fail to consistently utilize core CBT techniques. Indeed, Waller et al. (2012) discovered no essential CBT-ED skill (e.g., cognitive restructuring, food diaries, exposure, routine weighing) was utilized by 50% or more of a sample of ED clinicians. von Ranson et al. (2013) found many clinicians did not report consistent use of core CBT techniques despite endorsing CBT as their primary treatment approach when treating EDs; specifically, only 50-60% of participants endorsed “always” using self-monitoring and cognitive restructuring, and less than half reported “always” using written homework assignments, relapse prevention strategies, and formal problem-solving. Mulkens et al. conducted a similar study in 2018 to assess

improvement in ED clinicians' adherence to CBT-ED and found disappointing results. Although 61.7% of participants reported using structured eating, other core CBT-ED techniques (*e.g.*, cognitive restructuring, food diaries, exposure, and routine weighing) were consistently used by less than 45% of clinicians. Furthermore, Mulkens et al. (2018) found only 10% of participants indicated use of the four core CBT-ED strategies (cognitive restructuring, food diaries, exposure, and structured eating) in the majority of their patients, despite the majority of participants reported using the CBT-ED manual with their patients.

Barriers to Adherence. Throughout the years, research has identified many obstacles that impact adherence to ESTs. General logistical challenges were noted as barriers in the implementation of evidence-based practices in real-world settings, including third-party payer coverage, cost of manuals, lack of time necessary for learning new manualized treatments, and limited training/supervision opportunities (Nelson et al., 2006; Pagoto et al., 2007). Other factors, such as older age and more years in the ED field, are associated with less adherence to ESTs among ED clinicians in particular. Indeed, Waller et al. (2012) discovered clinicians who were older and more experienced with treating EDs were less likely to appropriately implement empirically based CBT-ED skills, such as cognitive restructuring, exposure, structured eating, or routine weighing.

Anxiety. Furthermore, clinician anxiety can negatively impact their adherence to ESTs generally and essential CBT-ED components specifically. For example, Last et al. (2021) sought to identify themes influencing clinician utilization of trauma narratives in Trauma-Focused CBT and discovered clinicians' affective experience, specifically anxiety and feeling overwhelmed, was associated with reduced adherence to treatment.

Clinicians who reported more anxiety were less likely to engage in core components of CBT-ED, such as exposure or behavioral experiments, structured eating, weighing, and food diaries (Kosmerly et al., 2015; Mulkens et al., 2018; Waller et al., 2012). Turner et al. (2014) utilized the Intolerance of Uncertainty Scale (IUS) to examine specific anxiety factors that contribute to the reduced adherence to CBT-ED. Results indicated that clinicians who reported higher levels of anxiety concerning future events (*Perspective Anxiety*) experienced worry regarding the implementation of CBT-ED methods that require patients to actively change behaviors, such as collaborative weighing, exposures, structured eating, and dietary change. In contrast, clinicians who reported higher levels of anxiety that typically inhibit their actions (*Inhibitory Anxiety*) experienced worry concerning the implementation of CBT-ED methods that are process-related, such as discussing motivation and ending treatment (Turner et al., 2014). In other words, the type of anxiety experienced by the clinician can further influence the adherence to certain CBT-ED methods.

Attitudes. Clinicians' attitudes towards ESTs can additionally impact adherence. In 1954, Meehl proposed that professionals in the mental health field make treatment decisions based on clinical judgement or empirical data. McHugh's 1994 paper used Meehl's decision-making framework to explain the divide between research and clinical practice, by proposing two contrasting attitudes: "romanticism", where individuals value and rely on intuition, and "empiricism", where individuals value and rely on scientific evidence. Numerous studies have cited negative attitudes towards ESTs in conjunction with a prioritization of clinical intuition (i.e., "romanticism") as a factor in decreased adherence to ESTs. Indeed, results from Pagoto et al. (2007) indicated a frequent barrier

to EST implementation was negative attitudes towards ESTs, including the perceptions that ESTs devalue important concepts in the psychological field (*e.g.,* empathy, respect, warmth, and creativity) and are not relevant to clinical practice. The perception that ESTs for EDs are inflexible, rigid, and unable to be individualized is another prominent factor affecting adherence (Addis & Krasnow, 2000; Becker et al., 2004; Simmons et al., 2008; Tobin et al., 2007; von Ranson et al., 2013), with some clinicians reporting the belief that ESTs discount notable therapeutic processes, such as the therapeutic alliance or individualized case conceptualizations (Waller et al., 2013). Clinicians who perceive ESTs to be inconsistent with their own theoretical orientation, clinical style, or intuition are also less likely to implement ESTs, which is also demonstrated in ED clinicians with CBT-ED (Lilienfeld et al., 2013). Indeed, von Ranson et al. (2013) indicated 83.3% of ED clinicians perceived CBT-ED as incompatible with their own style. Thus, in addition to logistical obstacles, there are internal factors (*i.e.,* clinicians' anxiety and attitudes towards ESTs) that contribute to low adherence to ESTs, where increased anxiety interferes with adherence and clinicians with negative attitudes towards ESTs may not adhere to ESTs due to prioritization of clinical judgement over empirical data.

Additional factors. However, results from Becker et al. (2004) suggest the previously discussed factors do not fully explain the continued lack of adherence to ESTs exhibited in the mental health field. In the study, Becker et al. (2004) measured attitudes towards and adherence to imaginal exposure (IE) in a sample of behaviorally trained clinicians recruited from Disaster and Trauma Special Interest Group (D&T SIG) of the Association for Advancement of Behavior Therapy (AABT). Approximately 86% of the participants stated they were very familiar with IE and 72% stated they were very

comfortable with IE. However, despite the sample's specialization, familiarity, and comfortability with IE, only a little over half of the clinicians reported they utilized IE in 50% or more of their patients seeking treatment for trauma. Furthermore, 34.5% of the participants reported never using IE with any patients being treatment for trauma. The results from this study demonstrate that even in a sample of clinicians who are assumed to have favorable attitude towards ESTs, adherence was still low, suggesting that there are other factors that affect adherence beyond clinicians' attitudes. As such, the current study applied a theory-based framework as a way of further understanding the factors that might have influence on clinicians' motivation to adhere to ESTs, specifically CBT–ED.

Self-Determination Theory

Though previous research has identified several internal clinician factors associated with adherence to ESTs, a theory-based examination of internal factors that influence clinicians' adherence to ESTs has not been examined. Deci and Ryan's Self-Determination Theory (SDT; 2000) provides a framework for understanding human motivation as being driven by internal factors. First, SDT posits that autonomous motivation (i.e., engaging in an activity by one's own choice) is essential in sustaining behaviors that encourage wellness and high-quality performance, whereas controlled motivation (i.e., engaging in an activity for contingent rewards or power dynamics) leads to decreases in motivation, wellbeing, and work performance and engagement (Deci et al., 2017; Ryan & Deci, 2020). Second, SDT holds that autonomous motivation is a result of the satisfaction of three psychological needs: competence (i.e., a sense of mastery), autonomy (i.e., an internal feeling of responsibility for one's own actions), and relatedness (i.e., a perception of belonging and connectedness). In summary, satisfaction

of competency, autonomy, and relatedness is critical to the strength and development of an individual's autonomous motivation, which in turn is critical to carrying out sustained behaviors related to wellness and/or work performance.

SDT in the Workplace. Since SDT's development, various studies have applied the model's framework to examine the associations between sustainable autonomous motivation, performance, and wellness in workplace environments. Overall, thwarting (the perception that the satisfaction of needs is being obstructed; Bartholomew et al., 2011b) of the three psychological needs is associated with maladaptive outcomes in the workplace. Specifically, when employees perceive that fulfillment of their competency, autonomy, and relatedness is impeded, they exhibit poorer work-related well-being and greater exhaustion (Gillet et al., 2012; Van den Broek et al., 2008; Vander Elst et al., 2012), depression and negative affect (Bartholomew et al., 2011a), somatic complaints (Bartholomew et al., 2011a), compromised relational functioning (Costa et al., 2015), and burnout (Bartholomew et al., 2014). This is important to note, as burnout and decreased job satisfaction in clinicians are associated with poorer patient outcomes (Delgadillo et al., 2018).

Alternatively, when the three psychological needs are fulfilled, employees experience an increase of autonomous motivation, which results in enhanced performance and adjustment (Deci et al., 2017). Research has demonstrated that satisfaction of these three psychological needs enhances enjoyment of work (Andreassen et al., 2010), decreases employee organizational deviance (*e.g.,* neglecting instructions, arriving late, taking property, etc.; Lian et al., 2012), encourages internal motivation, and results in high-quality performance (Deci & Ryan, 2000). Additionally, Van den Broek et

al. (2008) found that employees who experienced resourceful job characteristics (supervisory support, autonomy support, positive feedback, and skill utilization) demonstrated increased competency, autonomy, and relatedness, which was associated with less exhaustion in the workplace. Gillet et al. (2012) examined the effects of psychological need satisfaction in employees on both hedonic (work satisfaction and positive affect) and eudaimonic (living well and self-realization of one's potential) well-being. Results indicated satisfaction of autonomy, competency, and relatedness generated higher levels of both types of well-being. Thus, the fulfillment, rather than the thwarting, of the three psychological needs is associated with increased performance, effectiveness, wellness, and positive affect in employees.

Additionally, SDT has been used to understand ways to reduce anxiety among employees (Sicilia et al., 2014; Sicilia et al., 2016; Yli-Piipari et al., 2009). For example, Sebire et al. (2009) demonstrated that competence, autonomy, and relatedness in local government employees negatively predicted employees' anxiety regarding their own health behaviors and positively predicted employees' self-worth and wellbeing. Similarly, Durmaz et al. (2016) discovered satisfaction of the three needs was associated with decreased anxiety and increased motivation in high school mathematics students. Although clinician anxiety has not previously been examined through the SDT perspective, anxious therapists are perceived as less competent than therapists with low anxiety (Bandura, 1956; Kelly et al., 1989; Larson et al., 1998; Sharmoon et al., 2017; Zahm et al., 2015) and are less likely to adhere to ESTs, including CBT-ED (Kosmerly et al., 2015; Mulkens et al., 2018; Waller et al., 2012). Thus, ED clinicians' fulfillment of these three psychological needs may be related to lower anxiety and greater autonomous

motivation to adhere to CBT-ED, both of which may contribute to greater adherence to CBT-ED.

SDT's Application in Clinician Adherence. Limited research has applied SDT to clinicians as a way of conceptualizing motivation to adhere to ESTs. Kosmala-Anderson et al. (2010) utilized the SDT framework to identify factors that facilitate health-care clinicians' engagement in Support for Self-Management (SMS; *i.e.,* clinicians supporting patients in goal setting, problem solving, and exploration of self) when working with patients with long-term health conditions. The most crucial factors determining effective delivery of SMS were feeling competent in SMS and perceiving autonomy to engage in SMS. Despite this promising evidence, the majority of the SDT research in the mental health field concentrated its efforts on the conceptualization and improvement of *patient* motivation to engage in ESTs (e.g., Bégin et al., 2018; Breitborde et al., 2021; Britton et al., 2011; Jochems et al., 2017; Keeler et al., 2019; Moore & Hardy, 2020; Vansteenkiste et al., 2005; Zuroff et al., 2007) rather than clinicians' motivation to adhere to ESTs.

Indeed, Lynch et al. (2005), examined the impact of employees' basic psychological needs satisfaction at an inpatient psychiatric setting. Similar to other research (Andreassen et al., 2010; Deci & Ryan, 2000; Gillet et al., 2012), employees of the inpatient psychiatric unit who experienced satisfaction of their need for competency, autonomy, and relatedness reported more job satisfaction, greater overall well-being, and positive attitudes towards treatment programs, and patients reported increased internalized motivation and positive interactions with the unit staff. Although the Lynch et al. (2005) study identified increased positive attitude towards treatment programs as a

correlate of clinicians' psychological needs satisfaction, it did not examine how satisfaction of these needs relates to the clinicians' adherence to those treatment programs.

However, research has demonstrated some associations between clinicians' competence (one of the psychological needs highlighted in the SDT) and clinician adherence. Aarons & Palinkas (2007) reviewed motivations that impacted clinicians' implementation of ESTs and discovered enhanced clinician competence was associated with the motivation to learn and utilize new ESTs (Aarons & Palinkas, 2007). This is important to note, as more competent therapists are historically more likely to achieve reliable and substantial clinical change, with their patients experiencing significantly lower levels of symptoms at the end of treatment (Brown et al., 2013; Davidson et al., 2004; Ginzburg et al., 2012; Strunk et al., 2010; Trepka et al., 2004). Overall, SDT research demonstrates that satisfaction of the three SDT needs is essential in improving internal motivation and well-being, while also decreasing anxiety; all factors that may impact a clinician's adherence to CBT-ED.

Present Study

Recent research has noted the scarcity of studies examining the relations between the three psychological needs purported by the SDT to facilitate autonomous motivation (i.e., competency, autonomy, and relatedness) and clinicians' implementation of ESTs (Smith & Williams, 2017; Williams & Bedias, 2019). Indeed, Williams and colleagues call for SDT's broader application in treatment implementation. Their call to apply SDT to clinician adherence to ESTs is consistent with previous research, considering:

(1) There are established associations between adherence to ESTs and improved patient outcomes.

(2) Numerous studies have demonstrated poor adherence to ESTs in the mental health field, particularly concerning CBT-ED.

(3) Anxiety and clinicians' attitudes toward ESTs impact adherence, but they do not fully account for the lack of adherence.

(4) SDT research identified correlations between satisfaction of the three psychological needs (competency, autonomy, and relatedness) and enhanced employee performance, motivation, and openness to experience.

However, no studies have endeavored to conceptualize the association of ED clinician anxiety, attitudes toward ESTs, and satisfaction of psychological needs with clinicians' adherence to CBT-ED. As such, the current study addressed the gaps in the literature by applying a moderated moderation model (see Figure 1), which examined the direct association of 1) anxiety, 2) SDT factors, and 3) attitudes toward ESTs with adherence to CBT-ED techniques; examined the moderating effect of 4) SDT factors and 5) attitudes toward ESTs on the association of anxiety with adherence to CBT-ED techniques; 6) examined the moderating effect of attitudes toward ESTs on the association between SDT factors and adherence with CBT-ED techniques; and finally 7) examined the three-way interaction effect of anxiety, SDT factors, and attitudes toward ESTs on adherence to CBT-ED techniques.

Insert Figure 1 about here

The specific hypotheses are as follows:

1. Clinicians' anxiety will be negatively associated with adherence to CBT-ED.

2. Competency, autonomy, and relatedness will be positively associated with adherence to CBT-ED.

3. More favorable attitudes towards ESTs will be positively associated with adherence to CBT-ED.

4. Competency, autonomy, and relatedness will moderate the association between clinician anxiety and adherence to CBT-ED, where the association between clinician anxiety and adherence will become less negative with increased levels of competency, autonomy, and relatedness (i.e., satisfaction of psychological needs will buffer the negative effect of anxiety on adherence).

5. Clinicians' attitudes towards ESTs will moderate the association between clinician anxiety and adherence to CBT-ED, where the association between clinician anxiety and adherence will become less negative with more favorable attitudes towards ESTs (i.e., favorable attitudes towards ESTs will buffer the negative effect of anxiety on adherence).

6. Clinicians' attitudes towards ESTs will moderate the association between competency, autonomy, and relatedness and adherence to CBT-ED, where the associations of competency, autonomy, and relatedness with adherence will become more positive with more favorable attitudes towards ESTs (i.e., for clinicians with favorable attitudes towards ESTs, increased levels of competency, autonomy, and relatedness will be associated with greater adherence to CBT-ED; whereas with clinicians with less

favorable attitudes toward ESTs, adherence to CBT-ED will be lower, regardless of reported level of competency, autonomy, or relatedness).

7. Clinicians' attitudes towards ESTs will moderate the moderating effect of competency, autonomy, and relatedness on the relationship between clinician anxiety and adherence to CBT-ED. Specifically, for clinicians with favorable attitudes towards ESTs, the association between anxiety and adherence will become less negative as competency, autonomy, and relatedness increase (i.e., satisfaction of SDT factors will facilitate adherence at all levels of anxiety). For clinicians with unfavorable attitudes toward ESTs, the association between anxiety and adherence will become more negative as competency, autonomy, and relatedness increase (i.e., satisfaction of SDT factors will facilitate adherence to ESTs at low levels of anxiety). See Figure 2 for hypothesized results.

Insert Figure 2 about here

CHAPTER II

Methods

Participants

After receiving approval from the Institutional Review Board (IRB; See Appendix A), participation was solicited from ED clinicians through treatment listservs, social media posts, emails, and snowball recruiting. Due to this type of recruitment, it is impossible to determine the amount of people contacted and therefore, the response rate cannot be calculated. Participants were eligible if they were 18 years or older, spoke English, had a master's degree or doctorate in psychology or a related field, and identified as a counselor, therapist, or psychologist with a license to practice in the United States and who provided therapy services to five or more patients with EDs in the past 12 months. The total sample (N = 221) consisted of primarily White females (Female: 95.5%, and White: 91.9%) with a wide range of ages (26 – 75 years old, M_{age} = 40.63, *SD* = 10.13). Participants held degrees in counseling/counselor education (48%), clinical psychology (26.7%), social work (15.8%), and marriage and family therapy (9.5%). The majority of participants identified as master's level clinicians (*n* = 162, 73.3%) rather than licensed psychologists (*n* = 59, 26.7%). The sample comprised of clinicians who primarily worked in private practice (87.3%), did not have a boss or supervisor (74.2%), and worked with 0 to 10 coworkers (90.4%). The majority of participants had worked with patients with EDs for approximately 9 years (1 – 40 years, *M* = 8.76, *SD* = 7.244), with over half of the sample indicating they provided therapy services to 20 or more patients with EDs in the past 12 years (57.1%). Due to master's level clinicians and licensed psychologists having some differences in outcome variables (described in

Preliminary Analyses section), demographics are reported separately by license level in Table 1.

Insert Table 1 about here

Measures

Demographics. The demographics questionnaire assessed essential demographic information (age, gender, ethnicity, highest degree, license, and profession), as well as information relevant to their clinical experience (duration of clinical work, duration of working with patients with EDs, and previous CBT training). Additionally, participants were asked about their current clinical setting, typical mode of therapy, and if they have coworkers or supervisors. See Appendix B for the comprehensive demographic questionnaire.

Adherence. Adherence was measured in two ways to ensure a comprehensive assessment: frequency of adherence and quality of adherence. To assess frequency of adherence to CBT, participants were asked to estimate the percentage of ED patients with whom they implemented 15 CBT skills using a scale ranging from 0 to 100% with 10-point increments (*e.g.,* "Across the course of therapy in the past 12 months, with what percentage of patients with eating disorders did you provide assignments for patients to engage in between sessions?" with answer choices of 0-10%, 11-20%, etc.). These items were aimed at assessing the number of patients with whom a participant used each CBT skill in the past 12 months. These skills were derived from "Widely Supported Practice" techniques in Waller et al. (2012) and specific techniques from Fairburn's manual on

CBT-E (2008). Scores were truncated to increase normality of distribution, where participants who indicated using a skill with 0-10% of their patients were scored as 1, 11-30% scored as 2, 31-50% as 3, 51-70% as 4, 71-91% as 5, and 91-100% as 6. Thus, responses on each FA item ranged from 1 to 6. A factor analysis was used to determine the factor structure (described in Factor Analyses section). The 15 items loaded onto three subscales: six items on Frequency of Adherence to Cognitive techniques (FAcog), four items on Frequency of Adherence to Behavioral techniques (FAbx), and four items on Frequency of Adherence to Collaborative actions (FAcollab). The subscale averages were used in subsequent analyses. The scales were tested for internal consistency using Cronbach's alpha, with FAcog at .80, FAbx at .71, and FAcollab at .52. See Appendix B for the comprehensive Frequency of Adherence questionnaire broken down into subscales.

If participants endorsed using a CBT skill with 11% or more of their patients, supplemental questions were displayed to assess the quality of their adherence. These questions were adapted from the CBT Treatment Protocol Adherence Scale (Folke et al., 2017; Loeb et al., 2005) and assessed the degree to which a participant used that particular CBT skill on a seven-point Likert scale ranging from 1 (slightly) to 7 (extensively). Sample items include, "To what extent did you or the patient develop specific assignments for the patient to engage in between session?" and "To what extent did you review previously assigned homework with the patient?". Scores were truncated to increase normality of distribution. Specifically, participants who did not endorse a specific FA question (and therefore did not receive the corresponding QA question) were scored 1 as "Did Not Endorse" and participants who responded on the Likert scale with 1

(slightly) and 2 were scored 2, Likert scale rating 3 (some) and 4 were scored 3, Likert scale rating of 5 (considerably) as 4, Likert scale rating of 6 was scored 5, and Likert scale rating of 7 was scored 6. Thus, responses on each QA item ranged from 1 to 6. Each frequency of adherence question corresponded to at least one quality of adherence question, with 18 quality of adherence questions in all. A factor analysis was used to determine the factor structure (described in Factor Analyses section). The 18 items loaded onto three subscales: six items on Quality of Adherence to Cognitive actions (QAcog), five items on Quality of Adherence to Behavioral actions (QAbx), and seven items on Quality of Adherence to Collaborative actions (QAcollab). The subscale averages were used in subsequent analyses. The scales were tested for internal consistency using Cronbach's alpha, with QAcog at .77, QAbx at .70, and QAcollab at .70. See Appendix B for the comprehensive Quality of Adherence questionnaire broken down into subscales.

Basic Psychological Need Satisfaction at Work Scale. (BPNS-W; Deci et al., 2001; Ilardi et al., 1993; Kasser et al., 1992). The BPNS-W is a 21-item scale with three subscales that assess levels of Autonomy ("I feel like I can make a lot of inputs to deciding how my job gets done"), Competency ("People at work tell me I am good at what I do" (referring to peers rather than patients)), and Relatedness to coworkers at the participant's place of employment ("I really like the people I work with" (referring to peers rather than patients)). Specifically, it examines concerns regarding work during the past year on a seven-point Likert scale ranging from 1 (not true at all) to 7 (very true). To account for the clinicians that work in private practice and may not have direct co-workers, researchers included a statement that clarifies the term "people at work" to

exclude patients and include administrative staff, colleagues at other work sites, dietitians, medical staff, and other professionals that they coordinate or interact with in a typical week. Coefficient alphas reported by Brien et al. (2012) were adequate, specifically, .89 (Competence), .86 (Autonomy), and .88 (Relatedness). For this study, the Cronbach's alpha for Competency was .60, Autonomy was .68, and Relatedness was .76. See Appendix B for the complete BPNS-W with additional clarifying statement.

Intolerance of Uncertainty Scale – Short Form. (IUS-S; Carleton et al., 2007) The IUS-S is a shortened version of the IUS (Freeston et al., 1994), which was developed to assess reactions to ambiguous situations, uncertainty, and future events. Using the original 27 items, Carleton et al. (2007) conducted confirmatory factor analyses to extract 12 items to measure the same domain. The resulting scale has 12 items on a five-point Likert Scale ranging from 1 (not at all characteristic of me) to 5 (entirely characteristic of me), with the total score representing a general intolerance of uncertainty. Furthermore, according to Carleton et al. (2012), the 12 items are factor loaded into two groups, seven items loading onto anxiety regarding future events (Prospective Anxiety; *i.e.,* "Unforeseen events upset me greatly") and five items loading on anxiety hindering experiences or actions (Inhibitory Anxiety; *i.e.,* "Uncertainty keeps me from living a full life"). However, for the current study, the total score was used for the confirmatory hypotheses. The Cronbach's alphas reported by Carleton et al. (2007) on the IUS-S were adequate (.91), which is consistent with others who reported on the factor loadings (Prospective Anxiety: .85 and Inhibitory Anxiety: .88; Roma & Hope, 2017). For this study, the Cronbach's alpha for the IUS total score was .88. See Appendix B for the complete IUS-S.

Evidence-Based Practice Attitude Scale. (EBPAS; Aarons, 2004). The EBPAS measures attitudes toward the adoption of evidence-based practices (EBPs) in mental health clinicians. The scale has 15 items on a five-point Likert Scale ranging from 0 (not at all) to 4 (to a very great extent), with the total score representing the clinician's attitudes to EBPs. Furthermore, Aarons (2004) found the 15 items load into four domains that measure the extent to which the clinician: would adopt an EBP if it was intuitively appealing (Appeal), would adopt a new EBP if it was required (Requirements), is open to trying new EBPs (openness), and perceives EBPs are not clinically useful (Divergence). However, for the current study, the total score was used for confirmatory hypotheses. Subscale Cronbach's alphas ranged from .66 to .93, with a total scale alpha of .79 (Aarons et al., 2007). For this study, the Cronbach's alpha for the EBPAS was .83. See Appendix B for the complete EBPAS.

Procedure

IRB approval was sought and granted from the IRB at Sam Houston State University. The recruitment message, consisting of a brief summary of the study, a link to the online Qualtrics survey, and a request to forward the message to any colleagues who might be interested in participating, was disseminated through private and public treatment listservs, social media posts, and emails, which were obtained through public websites. The survey asked for no identifying information and the IP address tracker was disabled on Qualtrics to ensure anonymity. By clicking the Qualtrics link, individuals were presented with the initial informed consent form, complete with necessary information for voluntary participation. If an individual chose to participate in the survey, they were asked to electronically consent by clicking the button at the bottom of the page.

Participants were then administered the survey consisting of the six questionnaires described above in the following order: demographics, FA, QA, BPNS-W, IUS-S, and EBPAS. After completing the survey, participants were thanked for their participation.

Data Analysis Plan

Data was cleaned and two factor analyses were conducted for the outcome variables, frequency of adherence and quality of adherence. Next, preliminary analyses were conducted to test assumptions and assess for covariates. For the primary analyses, moderated moderation models were utilized, which tested three main effects (Hypothesis 1, 2, and 3), three 2-way interactions (Hypothesis 4, 5, and 6), and one 3-way interaction (Hypothesis 7). See Figure 3 for the statistical diagram.

Insert Figure 3 about here

The moderated moderation models were conducted using the PROCESS Macro (Hayes, 2022) for SPSSv.27, with License Level, Number of patients with EDs, and Duration of ED clinical work as covariates (see information about covariates in the Results section), IUS total score (clinicians' anxiety) as the predictor variable, and EBPAS total score (clinicians' attitudes towards ESTs) as the secondary moderator for every model. Competency, Relatedness, and Autonomy total scores cycled as the primary moderators and FAcog, FAbx, QAcog, and QAbx were entered as outcome variables. Given that FAcollab and QAcollab referred to therapeutic techniques not specific to CBT-ED (*e.g.,* involving patient in session, encouraging independence) and given that FAcollab has low internal consistency (Cronbach's alpha = .52), only the cognitive and

behavioral adherence scales were included as outcome variables. This decision was also made to reduce the number of analyses. As such, 12 moderated moderation analyses were conducted.

CHAPTER III

Results

Power analysis calculations conducted through G*Power (Faul et al., 2007) indicated 186 participants would allow a small-to-moderate effect size ($f^2 = .06$) to be detected as statistically significant at $p < .05$ level with 80% power. This size of effect was anticipated, as previous studies have found that the association of individual factors in clinicians (e.g., anxiety) with EST adherence are associated with small-to-moderate effect sizes (Waller et al., 2012). At the proposal of this study, 215 participants were proposed in all, as up to 15% of participants were anticipated to be excluded for careless responding (Oppenheimer et al., 2009). During data collection, many of the responses were incomplete, causing data collection to extend beyond the expected participant amount. The final respondent number was 330; however, 71 participants were removed for providing incomplete responses, one participant was removed for not having a master's degree or doctorate, 24 participants were removed for not indicating psychologist, therapist, or counselor as their occupation, two participants were removed for not having a license to practice in the United States, and 11 participants were removed for having less than five patients with EDs in the past 12 months. The resulting data set included 221 participants in all. However, the primary analyses included 211 participants after an additional 10 participants were excluded from the PROCESS analyses for incomplete measures.

Preliminary Data

For frequency of adherence and quality of adherence variables, two exploratory factor analyses were utilized to determine the factor structure and reduce the number of

outcome variables. Principal Component Analysis was utilized for the extraction method and Varimax with Kaiser Normalization for the rotation method. The frequency of adherence factor analysis revealed the three factors discussed in the Methods section: Cognitive actions (FAcog; eigenvalue 4.8), Behavioral actions (FAbx; eigenvalue 1.8), and Collaborative actions (FAcollab; eigenvalue 1.5). FAcog had factor loadings of .83 to .48, FAbx had factor loadings of .91 to .44, and FAcollab had factor loadings of .74 to .52. It should be noted that the frequency of adherence item regarding weighing loaded onto a separate, fourth factor. However, since the quality of adherence weighing item loaded into QAbx and due to the behavioral nature of the action, the frequency of adherence weighing item was placed in FAbx. For quality of adherence, the factor analysis revealed the three factors discussed in the Methods section: Cognitive actions (QAcog; eigenvalue 4.6), Behavioral actions (QAbx; eigenvalue 2.4), and Collaborative actions (QAcollab; eigenvalue 1.5). QAcog had factor loadings of .75 to .45, QAbx had factor loadings of .88 to .34, and QAcollab had factor loadings of .75 to .5. It should be noted that the quality of adherence items regarding encouraging independence and eliciting feedback loaded into separate factors. However, since the corresponding frequency of adherence items loaded into FAcollab and due to the collaborative nature of the actions, these quality of adherence items were placed in QAcollab.

Tests of assumptions were conducted with standard methods in all main variables (FA total score and subscales, QA total score and subscales, BPNS-W Competency, Autonomy, and Relatedness, EBPAS total score, IUS total score). First, normality of errors was assessed via Q-Q plots, which were analyzed for any evidence of substantial deviations in the residual distributions. There was no evidence of any irregularities and

normality was assumed. Boxplots were then utilized to identify outliers. In accordance with the SPSS interquartile ranges, there were no extreme outliers in any of the main variables. Skewness and kurtosis were also examined. Skewness values for the main variables fell between an acceptable range of -1 and 1 (Mishra et al., 2019; FAbx: -0.66, Facollab: -1.01, Qacog: -0.67, Qabx: 0.04, Qacollab: -0.4, Competency: -0.9, Autonomy: -0.92, Relatedness: -0.61, EBPAS: -0.59, IUS: 0.84), except for Facog (-1.7). Kurtosis values for the main variables fell between an acceptable range of -1 and 1 (Mishra et al., 2019; Fabx: 0.09, Facollab: 0.26, Qacog: 0.58, Qabx: -0.01, Qacollab: 0.73, Competency: 0.97, Autonomy: 0.67, Relatedness: -0.06, EBPAS: 1.17, IUS: 0.64), except Facog (3.57). As such, normality of distribution was established for all variables, except Facog, which exhibited a negative skew and relatively heavy tails. However, given some have suggested kurtosis of +/- 4 (Hair et al., 2010), +/- 7 (Curran et al., 1996), or even +/-10 (Klein et al, 2011) is acceptable, and Tabachnick and Fidell (2013) have suggested skewness and kurtosis do not make substantive differences if N >200, FAcog was examined using planned regressions. Next, scatterplots were examined, and there was no indication of heteroscedasticity or non-linearity. Multicollinearity was then assessed via Variable Inflation Factor (VIF), where values are ideally under 10 (Robinson & Schumacker, 2009). All VIFs in the dataset were under 1.6, indicating the assumption was met.

Covariates

One-way analysis of variances (ANOVAs) and bivariate correlations were utilized to determine covariates. Demographic variables were considered as covariates if they were significantly associated ($p < .05$) with measures of adherence (i.e., FAcog,

FAbx, QAcog, or QAbx). ANOVAs revealed Gender, Degree Type, and amount of CBT training were not significantly associated with adherence. Ethnicity, Profession (licensed psychologist vs. master's-level provider), License Level (doctoral vs. MA), and Number of patients with EDs were significantly associated with adherence. Specifically, ethnicity was associated with FAcog $F_{(4, 216)} = 3.32$, $p = .012$; however, based on the limited variability and uneven group sizes (see Table 1), Ethnicity was not included as a covariate. Participants who were licensed psychologists reported higher levels of adherence to QAbx ($M = 3.94$, $SD = 0.99$; $M = 3.96$, $SD = 0.99$), compared to those who were a master's level therapist/counselor ($M = 3.64$, $SD = 0.93$, $F_{(1, 219)} = 4.49$, $p = .035$; $M = 3.63$, $SD = 0.93$, $F_{(1, 219)} = 5.\ 21$, $p = .023$). Due to the conceptual similarities between Profession and License Level, only License Level was included as a covariate.

Number of patients with EDs in the past 12 months was associated with FAcog $F_{(4, 216)} = 3.34$, $p = .011$, Fabx $F_{(4, 216)} = 4.26$, $p = .002$, and Qabx $F_{(4, 216)} = 6.22$, $p < .001$. Post hoc analyses using Tukey's HSD found participants reporting 5-9 patients with EDs had significantly lower scores compared to participants reported 30+ patients with EDs on FAcog ($M_{difference} = -.49$, $SE = .14$, $p = .008$), FAbx ($M_{difference} = -.82$, $SE = .20$, $p < .001$), and QAbx ($M_{difference} = -.85$, $SE = .19$, $p < .001$). Additionally, results demonstrated participants reporting 5-9 patients with EDs had significantly lower scores compared to participants who reported 20-29 patients with EDs on QAbx ($M_{difference} = -.66$, $SE = .22$, $p = .02$). For participants reporting 10-14 patients with EDs, they reported significantly lower scores compared to participants with 30+ patients with EDs on QAbx ($M_{difference} = -.53$, $SE = .18$, $p = .027$).

For continuous demographic variables, bivariate correlations revealed Duration of ED Clinical Work was correlated with FAbx (r = .18, p = .008) and QAbx (r = .24, p < .001). In all, License Level, Number of patients with EDs in the past year, and Duration of ED clinical work were included as covariates.

Descriptive Statistics

Participants' IUS total scores ranged from 12 to 48 (M = 22.41, SD = 6.45), with greater scores indicating more clinician-reported anxiety. Means for the three SDT factors demonstrated average competency, autonomy, and relatedness near the maximum score of 7 for each scale ($M_{competency}$ = 6.10, SD = 0.73; $M_{autonomy}$ = 6.00, SD = 0.78; $M_{relatedness}$ = 5.65, SD = 0.85). The range for the EBPAS total scores was 23 to 73 (M = 55.6, SD = 8.11) and the mean of all EBPAS items was 3.71 (SD = 0.54), with higher scores indicating more favorable attitudes toward ESTs.

For outcome variables, FAcog had a range of 2.17 (i.e., using that skill with 11-30% of patients) to 6 (i.e., using that skill with 91-100% of patients) *(*M = 5.4 (i.e., using that skill with 71-91% of patients), SD = 0.71) and FAbx ranged from 1 (i.e., using that skill from 0-10% of patients) to 5.8 (i.e., using that skill with using that skill with 91-100% of patients) (M = 4.02 (i.e., using that skill with 51-70% of patients, SD = 1.01). All of the FAcog skills were reported to be used with majority of patients (91%+) by over half of the sample. However, all of the five behavioral skills were routinely used by less than half of the sample; specifically, only 17.6% of participants indicated they utilize food self-monitoring records, 42.1% established a pattern of regular eating, 40.3% provided assignments for patients to engage in between sessions, and 48% reported use of homework with 91% or more of their patients. Regarding weighing, 62.4% of

participants (N = 138) stated they do not weigh their patients at all. Out of the 36.7% (N = 81) that endorsed weighing, only 9.1% of clinicians (N = 20) indicated they weighed 81% or more of their patients. See Table 2 for the full percentage of each CBT-ED skill. QAcog ranged from 1.83 (i.e., did not endorse use/"slight" use) to 6 (i.e., "extensive" use) (M = 4.79 (i.e., "considerable" use), SD = 0.78) and QAbx ranged from 1 (i.e., did not endorse use) to 6 (i.e., "extensive" use) (M = 3.72 (i.e., "some" use), SD = 0.96). The means for individual QAcog items ranged from 4.50 (SD = 1.25; "To what extend did you address relapse prevention?") to 5.11 (SD = 1.09; "To what extent did you provide information about one or more relevant topics?"). However, the means for individual QAbx items were noticeably lower, with a range from 2.13 (SD = 1.74; Weighing patient) to 4.59 (SD = 1.27; "To what extent did you collaboratively discuss and establish a pattern of regular eating with patients?").

Insert Table 2 about here

Bivariate correlations were conducted to assess basic correlations between predictor and outcome variables. Significant correlations were observed between IUS and two SDT factors ($r_{competency}$ = -.35; $r_{autonomy}$ = -.26), FA (r_{cog} = -.17; r_{bx} = -.21), and QA (r_{cog} = -.16; r_{bx} = -.19). Regarding EBPAS, there were significant correlations with FA (r_{cog} = .18; r_{bx} = .31) and QA (r_{cog} = .21; r_{bx} = .27). Competency was significantly related to both cognitive and behavioral adherence in FA (r_{cog} = .21; r_{bx} = .15) and QA (r_{cog} = .28; r_{bx} = .19). Alternatively, autonomy was significantly correlated to QAcog (r = .17)

alone and relatedness to FAcog (r = .14) and QAcog (r = .15). See Table 3 for full descriptive statistics and bivariate correlations.

Insert Table 3 about here

Hypothesis 1: Anxiety and Adherence

All hypothesized results report unstandardized regression coefficients, as is typical of PROCESS macro output for mediational models (see Tables 4 and 5 for a summary of results for both cognitive and behavioral outcome variables). Regarding the associations between clinicians' anxiety and adherence to CBT-ED, IUS was significantly associated with FAcog in the Autonomy model, where higher IUS scores were related to lower scores in FAcog (B = -.02, 95% CI [-0.03, 0], p = .048). The association between IUS and FAcog also approached significance in the Relatedness model (B = -.01, 95% CI [0, 0.02], p = .081), but not the Competency model. IUS was not significantly associated with QAcog in any model.

IUS was significantly associated with FAbx in the Autonomy model, where higher IUS scores were related to lower scores in FAbx (B = -.02, 95% CI [-0.04, 0], p = .035). Additionally, the association between IUS and FAbx approached significance in the Competency model (B = -.02, 95% CI [-0.04, 0], p = .055) and Relatedness model (B = -.02, 95% CI [-0.04, 0], p = .062). IUS had no significant associations with QAbx, regardless of model. Thus, results revealed a weak, not robust association between anxiety and adherence.

Hypothesis 2: SDT Factors and Adherence

Results indicated two significant associations between the SDT factors and adherence to CBT-ED. Specifically, Competency and Autonomy scores were positively associated QAcog (B = .22, 95% CI [0.07, 0.37], p = .005; B = .16, 95% CI [0.03, 0.3], p = .019, respectively). Relatedness was not associated with QAcog. There were no significant associations between any of the SDT factors and FAcog, FAbx, or QAbx. Thus, competency and autonomy, but not relatedness, were associated with quality of adherence to cognitive techniques.

Hypothesis 3: Attitudes Toward ESTs and Adherence

EBPAS scores were significantly associated with, or approached significance, in all 12 models. Specifically, EBPAS scores (*i.e.,* higher scores indicating more favorable attitudes) were positively associated with QAcog, regardless of model (B's = .02, 95% CI's [0, 0.03], p's $\leq$ .007;). EBPAS and FAcog were also positively associated in the Autonomy model (B = .02, 95% CI [-0.03, 0] p = .014) and Relatedness model (B = .01, 95% CI [0, 0.02], p = .052), and approached significance in the Competency model (B = .01, 95% CI [0, 0.02], p = .061). In behavioral outcomes, EBPAS scores were positively associated with FAbx and QAbx scores, regardless of model (B's = .04, 95% CI's [0.02, 0.06], p's < .001). Thus, attitudes toward ESTs were strongly and robustly associated with adherence.

Hypothesis 4: SDT Factors Moderating Anxiety and Adherence

The interactions between clinicians' anxiety and SDT factors were non-significant, regardless of the outcome variable.

Hypothesis 5: Attitudes Toward ESTs Moderating Anxiety and Adherence

Results indicated significant moderating effects of EBPAS on the association of IUS with adherence to CBT-ED in the 4 models that included Autonomy (p's $\leq$ .03), such that as EBPAS increased, the association between IUS and adherence became less negative (Figure 4).

Insert Figure 4 about here

There was a similar IUS x EBPAS effect on FAbx (p = .048) and QAbx (p = .062) when Competency was entered in the model, such that as EBPAS increased, the association between IUS and adherence became less negative. However, when Relatedness was entered in the model, there were no significant IUS x EBPAS effects on adherence.

Hypothesis 6: Attitudes Moderating SDT Factors and Adherence

The interactions between satisfaction of the SDT factors (competence, relatedness, and autonomy) and clinicians' attitudes towards ESTs predicting adherence were non-significant, regardless of the outcome variable.

Hypothesis 7: Full Model

None of the 12 moderated moderation analyses conducted revealed any significant three-way interactions (See Figure 5).

Insert Tables 4 and 5 about here

Insert Figure 5 about here

CHAPTER IV

Discussion

This study aimed to examine the direct associations of 1) anxiety, 2) SDT factors, and 3) attitudes toward ESTs with adherence to CBT-ED techniques; examine the moderating effect of 4) SDT factors and 5) attitudes toward ESTs on the association between anxiety and adherence to CBT-ED techniques; 6) examine the moderating effect of attitudes toward ESTs on the association between SDT factors and adherence with CBT-ED techniques; and 7) examined the three-way interaction effect of anxiety, SDT factors, and attitudes toward ESTs on adherence to CBT-ED techniques.

Descriptive statistics suggested the current study's participants had low overall anxiety. Indeed, IUS total score for the sample (22.41) was below the reported means for nonclinical samples (e.g., 29.53 and 25.85; Carleton et al., 2012; Carleton et al., 2007), but very similar to recent studies that examined anxiety in ED clinicians (e.g., 21.55 and 25.8; Daglish & Waller, 2019; Turner et al., 2014). This indicates that although the current study reported IUS scores lower than the normative sample means, they appear typical in a sample of ED clinicians. Additionally, the sample reported more favorable attitudes toward ESTs compared to the normed population of mental health service providers for the EBPAS (3.71 vs. 2.73; Aarons et al., 2010). Thus, the participants in this study reported relatively low anxiety and favorable attitudes toward ESTs.

Participants reported high perceived satisfaction of competency, autonomy, and relatedness. Indeed, the calculated means for the three SDT factors ($M_{competency}$ = 6.10, $M_{autonomy}$ = 6.00, $M_{relatedness}$ = 5.65) indicated that participants were much higher compared to other studies using community employees ($M_{Competency}$ = 3.74, $M_{Autonomy}$ = 3.15,

$M_{Relatedness}$ = 3.89 (Deci et al., 2001) and $M_{Competency}$ = 3.52, $M_{Autonomy}$ = 3.12, $M_{Relatedness}$ = 3.15 (Brien et al., 2012)) and university students ($M_{Competency}$ = 5.42, $M_{Autonomy}$ = 4.74, $M_{Relatedness}$ = 5.69; Eriksson & Boman, 2018). There are several possible reasons for the observed differences. First, many of the participants reported they worked in a private practice and did not have a boss or supervisor, which most likely affected their perceived level of responsibility of their own actions (autonomy). Furthermore, approximately 80% of the sample indicated they interacted with a small group of coworkers, which could foster a sense of belonging and provide an opportunity for the clinicians to connect with their coworkers on an individual level (relatedness). Regarding competency, the majority of the clinicians reported substantial clinical experience overall and in the ED field, indicating a possible higher level of perceived confidence or sense of mastery (competency) in their clinical abilities. The high levels of reported competency, autonomy, and relatedness may have caused a ceiling effect, rendering these variables inefficient at explaining variance in adherence in the subsequent models.

Overall, participants reported slightly higher adherence to certain CBT-ED techniques compared to previous research. Waller et al. (2012) reported no individual CBT-ED skill was utilized with 91-100% of patients by over half of their participants. However, in the current study, over half of the sample endorsed using all six cognitive items with 91-100% of patients. Specifically, 87.3% of clinicians indicated that they address event- or mood-triggered changes in eating, 71% provided psychoeducation, 68.8% identified barriers to change, 58.8% addressed dietary changes/restrictions, 57.0% addressed over-evaluation of shape/weight, and 55.2% discussed a maintenance/relapse prevention plan in 91-100% of their patients. However, routine use was not demonstrated

in the five behavioral items, with no behavioral skills utilized with 91-100% of patients by over half of the sample. Specifically, only 6.8% of clinicians indicated that they use weighing, 17.6% assign food self-monitoring, 34.3% review and incorporate homework while in session, 40.3% provide assignments for patients to engage in between sessions, and 42.1% establish a pattern of regular eating in 91-100% of their patients. Thus, clinicians tended to report using cognitive skills with greater frequency than behavioral skills.

Similarly, although there are no studies with which to directly compare the QAcog and QAbx means, participants reported higher quality of adherence to cognitive skills compared to behavioral skills. Indeed, on the QA questionnaire Likert scale, the QAcog mean corresponded with the answer choice of using the skill "considerable" extent, whereas the QAbx mean corresponded with the answer choice of using the skill to "some" extent. Thus, although adherence to cognitive skills was greater in the current study than previous studies, clinicians in the present study endorsed poor adherence to behavioral techniques, consistent with previous research.

Some theorize that clinicians often avoid using CBT-ED behavioral techniques in an effort to reduce their own anxiety in implementing a skill that could potentially increase a patient's anxiety (Waller, 2009; 2016). Indeed, Waller et al. (2012) found more anxious clinicians were less likely to utilize core behavioral components, such as food diaries, structured eating, or behavioral experiments, in the treatment of eating disorders. Meehl (1973) refers to this phenomenon as the "spun glass theory of the mind", which posits that clinicians may view their patients as fragile organisms who will experience serious trauma as a result of slight stressors. However, recent articles have emphasized

the necessity of behavioral components (Waller & Raykos, 2019), indicating that when clinicians refrain from using CBT-ED behavioral skills, they neglect a crucial portion of the treatment that is necessary for symptom reduction. Indeed, Dimidjian et al. (2006) randomized a sample of depressed individuals to cognitive therapy, antidepressant medication, behavioral activation, or pill placebo. At post-treatment, the participants in the behavioral activation group improved significantly more than the cognitive therapy group in two depressive symptoms measures. Additional research suggests behavioral components, such as establishing a pattern a regular eating (Zendegui et al., 2014) and homework compliance (Mausbach et al., 2010), are predictive of improved CBT treatment outcomes and may account for the rapid treatment effects of CBT-ED (Wilson et al., 2002). These articles suggest behavioral techniques are an essential part of symptoms reduction in CBT-ED and highlight the importance of adhering to behavioral components, despite the anxiety some clinicians may experience.

Results partially supported the first hypothesis, as there was a weak negative association between clinicians' anxiety and some indices of adherence. Specifically, clinicians who reported higher rates of anxiety endorsed reduced frequency of adherence to cognitive and behavioral techniques. These results indicate that clinicians' anxiety may affect the percentage of patients with which clinicians engage in CBT-ED cognitive and behavioral techniques (FAcog and FAbx), which is consistent with previous research (Kosmerly et al., 2015; Mulkens et al., 2018; Turner et al., 2014; Waller et al., 2012). However, a negative association between clinician anxiety and frequency of adherence to cognitive and behavioral techniques was not observed in all models. Specifically, this association reached statistical significance when autonomy or relatedness was entered in

the model but did not reach significance when competency was in the model. When examining the bivariate correlations (Table 3) autonomy was not significantly correlated with FAcog or FAbx and relatedness was not correlated with FAbx and only weakly correlated with FAcog (r = .14). Conversely, competency was correlated with both FAcog and FAbx. Thus, competency was likely explaining more of the variance in the FA outcome variables than autonomy or relatedness, making anxiety no longer a significant predictor of frequency of adherence. However, due to the high reported means in the three SDT factors, interpretations of results related to the SDT factors should be made with caution. Additionally, the present study's results suggest that clinician anxiety may not impact the extent that clinicians used specific CBT-ED techniques with individual patients (*i.e.*, the quality of their adherence). This may be because, if a clinician can get over the initial hurdle of introducing cognitive or behavioral techniques (*i.e.*, frequency of adherence), they may be comfortable enough to deliver these techniques with high quality (*i.e.*, quality of adherence). However, the main effects of anxiety on adherence should be interpreted with caution, as the association of anxiety with adherence depended on clinicians' attitudes toward ESTs, as is elaborated below in the discussion of hypothesis 5.

Hypothesis 2 was partially supported, as two SDT factors (competency and autonomy) were positively related to some indices of adherence. Specifically, higher levels of competency and autonomy were associated with greater quality of adherence in CBT-ED cognitive techniques, with no other significance found. This suggests that, although satisfaction of the psychological needs posited by SDT may not affect the percentage of patients with which a clinician utilizes core CBT-ED skills, increased sense

of mastery of clinical skills (*i.e.,* competency) and a sense of responsibility for their own actions (*i.e.,* autonomy) are weakly associated with higher quality of cognitive skills use in individual patients (QAcog). Although no research previously examined the associations between SDT factors and adherence to CBT-ED, these findings are similar to Kosmala-Anderson et al. (2010), who found competency and autonomy were the most crucial factors in clinicians' delivery and adherence to Support for Self-Management practices.

Results provided ample support for the third hypothesis, as clinicians' attitudes toward ESTs were strongly and positively associated with all indices of adherence. Specifically, clinicians reporting favorable attitudes towards ESTs used core CBT-ED techniques with a higher percentage of patients (FAcog and FAbx) and demonstrated better quality of skill use with individual patients (QAcog and QAbx). Conversely, clinicians reporting less favorable attitudes towards ESTs utilized CBT-ED techniques with a lower percentage of patients and demonstrated worse quality of use in specific CBT-ED skills. These findings are consistent with previous research demonstrating robust relations between negative attitudes toward ESTs and reduced adherence to CBT-ED (Lilienfeld et al., 2013; Pagoto et al., 2007; von Ranson et al., 2013; Waller et al., 2013), and highlight the importance of addressing clinicians' attitudes toward ESTs in any effort to increase use and adherence to any EST, including CBT-ED.

Hypothesis 4 was not supported by the results. The SDT factors of competency, autonomy, and relatedness did not moderate the association between anxiety and adherence. These findings suggest that the three SDT factors do not affect the strength or

direction of the negative relationship between clinicians' anxiety and adherence to CBT-ED. This may be due to the ceiling effect demonstrated by the three SDT factors.

The fifth hypothesis received ample support through the results, as clinicians' attitudes toward ESTs moderated the relationship between clinicians' anxiety and all adherence outcome variables. Indeed, in clinicians who reported more favorable attitudes toward ESTs, increased anxiety was less likely to be associated with reduced frequency and quality of adherence in cognitive and behavioral techniques. In clinicians who reported more negative attitudes toward ESTs, however, the relationship between clinicians' anxiety and adherence to CBT-ED was strong, with higher anxiety associated with reduced adherence. These findings suggest that possessing positive beliefs about ESTs buffer the negative effect of clinicians' anxiety on their adherence. Interestingly, it also suggests that clinicians with low anxiety are likely to report relatively high frequency and quality of adherence to *cognitive* skills, regardless of their attitudes toward ESTs. Thus, reducing clinician anxiety may be another way to increased use of CBT-ED skills, even if altering clinicians' attitude toward ESTs is not possible. However, frequency and quality of adherence to *behavioral* skills appears to be more greatly impacted by clinicians' attitudes toward ESTs even at low levels of anxiety. For example, low anxiety clinicians who endorsed a negative attitude toward ESTs reported lower frequency and quality of adherence of behavioral skills compared to their low anxiety counterparts who endorsed a positive attitude toward ESTs. Thus, clinicians' attitudes toward ESTs appear to be particularly essential for incorporating core behavioral CBT-ED skills, such as assigning self-monitoring records and homework, routine weighing, and establishing a pattern of regular eating.

Unsurprisingly, considering the weak associations between the SDT factors and adherence, in addition to the strong associations between attitudes toward ESTs and adherence, results did not support the sixth or seventh hypotheses. For hypothesis 6, attitudes toward ESTs did not moderate the relationship between SDT factors and adherence. In other words, clinicians' attitudes toward ESTs did not enhance or weaken the SDT factors' association with adherence to CBT-ED core skills. Likewise, hypothesis 7, which reflected the overall hypothesized model, was not supported. Irrespective of clinicians' attitudes toward ESTs, increased SDT factors did not affect the negative association between anxiety and adherence.

Since no previous study examined the SDT factors and adherence to CBT-ED, the lack of significant SDT interactions is novel in itself. In contrast to previous studies indicating that the three SDT factors are related to increased internal motivation and increased work performance (Deci et al., 2017; Deci & Ryan, 2000), the results of the present study indicate that perceived level of competency, autonomy, and relatedness is not strongly associated with adherence to CBT-ED in mental health clinicians. Even though competency, and to a lesser extent, autonomy and relatedness, have slight correlations with frequency and quality of adherence, the lack of direct associations suggest that the correlations are not independent of the other factors in the model, such as anxiety and attitudes toward ESTs. The three SDT factors additionally do not impact the negative relationship between anxiety and adherence, regardless of a clinician's beliefs toward ESTs. Because of the absence of SDT research regarding adherence to ESTs, there is no explicit answer on why the SDT factors were not significant in this study. However, there are several elements to consider, including the low reliability in the

BPNS-W subscales (Competency, Autonomy, Relatedness), strong predictive power of attitudes toward ESTs in adherence to CBT-ED, and possible inapplicability to adherence to ESTs in the mental health field.

The results of this study provided ample evidence that a clinician's attitude towards ESTs is a strong predictor of their adherence to CBT-ED, as clinicians with more favorable attitudes toward ESTs reported greater adherence to CBT-ED skills compared to clinicians with negative attitudes toward ESTs. Furthermore, this study identified attitudes toward ESTs as a successful moderator between the negative relationship of anxiety and adherence. This is important to note, as previous research called for the identification of moderators in treatment development and delivery (Hayes et al., 2013; Kraemer et al., 2002), with a recent study acknowledging the necessity of understanding the moderating factors between anxiety and CBT-ED implementation (Waller et al., 2012). Thus, the discovery that clinicians' beliefs regarding use of ESTs reduce the strength of the negative relation between anxiety and adherence is essential in the movement toward increasing manualized treatment implementation.

Overall, the findings of this study suggest that the implementation of workplace interventions aimed at improving the three SDT factors may not benefit clinicians' adherence to CBT-ED. Instead, shifting negative attitudes toward ESTs to a more favorable perspective would likely increase adherence to CBT-ED, in addition to reducing the negative effect of clinician anxiety on adherence. Recent studies have examined approaches in improving clinicians' attitudes towards ESTs, with many identifying a promising option through supervision. Indeed, Ryba et al. (2021) assessed oncology mental health therapists' implementation of an EST during and after a 6-month

external implementation support program that focused on increasing the therapist's knowledge and skills in the EST. Results found supervisors' attitudes toward ESTs predicted implementation during the 6-month program and sustained use of the EST at 12 months (6 months post-intervention). Williams et al. (2020) examined the associations between organizational factors and EBP use in mental health clinicians in an outpatient setting over a 5-year period. During that time, the organizations that reported an increase in direct supervisors supporting the knowledge and use of EBPs reported growth in how the overall organization valued and encouraged EBP use, including improvements in EBP education and recognition of EBP practices. Furthermore, the increase in EBP-supportive supervisors was associated with increases in clinicians' use of EBPs. These results indicate that a supervisor's support of ESTs/EBPs is imperative in providing a climate that encourages and supports EST adherence in clinical settings.

Additionally, even among clinicians with relatively unfavorable attitudes toward ESTs, reducing clinicians' anxiety, in particular clinicians' tolerance of uncertainty, may increase clinicians' use of cognitive skills. However, it seems that reducing clinician anxiety may not greatly impact use of behavioral skills among clinicians with unfavorable attitude toward ESTs.

These studies, along with the current study, highlight the importance and practicality of addressing clinicians' attitudes toward ESTs. In the ED field specifically, it is essential to increase the delivery of CBT-ED in clinical settings, as CBT-ED is cited as an effective EST across ED diagnostic categories (National Institute for Health and Care Excellence NICE, 2017) and has ample evidence of its efficacy in reducing ED

symptoms and improving clinical outcomes (Brownley et al., 2016; Fairburn et al., 2015; Folke et al., 2017, Linardon et al., 2018).

Limitations and Future Directions

There are several limitations that should be noted. First, the sample for the study was homogeneous, as majority of participants reported identifying as White females. With many recent articles identifying continued inequalities in ED diagnosis and treatment in racial/ethnic minorities, males, and gender minorities (Mikhail & Klump, 2021; Nagata et al., 2020; Rodgers et al., 2018; Sonneville & Lipson, 2018), the lack of diversity in clinicians viewed in this study is concerning. Furthermore, participants in the sample reported very high levels of competency, relatedness, and autonomy, along with more favorable attitudes toward ESTs than previously studies and lower anxiety than nonclinical samples (though similar anxiety to ED clinicians). Any generalizations of the results to the overall population of clinicians who treat EDs should be done with caution. Future studies should endeavor to recruit a more diverse sample of clinicians.

Additionally, the subscales in the BPNS-W subscales in the current study had low internal reliability. Another study found similar reliability in the subscales and questioned the imbalance of items in each subscale (Eriksson and Boman; 2018), ultimately calling for further development of the scale. Indeed, they also highlighted the variety of ways the original BPNS and BPNS-W has been altered, specifically that they include "…different numbers of items and have been adapted for different settings and applied to different populations." Since the SDT had not previously been applied in the ED field regarding adherence to ESTs, the current study left the BPNS-W unaltered. However, future

research should endeavor to use other, more tailored approaches in measuring the three SDT factors in mental health clinicians.

Finally, since the current study used self-report measures, some caution should be used when examining the data. With self-reported information, participants may provide more socially acceptable responses or lack insight into their practices. Future research should strive to obtain data regarding adherence to ESTs from multiple sources. Also, gathering additional data from participants supervisors would be particularly helpful, considering supervisors' attitudes toward ESTs are associated with supervisees' attitudes.

Conclusion

The current study examined the associations between the three SDT factors (competency, autonomy, and relatedness) and adherence to CBT-ED, and if satisfaction of the SDT factors reduced the negative relationship between anxiety and adherence in clinicians with favorable attitudes toward ESTs. Results indicated that even in clinicians with positive attitudes toward ESTs, increased satisfaction of SDT factors did not moderate the relationship between anxiety and adherence. However, results were consistent with previous research regarding the robust association between clinicians' attitudes toward ESTs and their adherence to ESTs. Furthermore, the current study provided a novel finding that attitudes toward ESTs moderate the negative relation between anxiety and adherence. These results contribute essential information to the research investigating adherence in clinicians who treat EDs and provide promising directions for future studies. Indeed, future studies may examine the relation of the SDT with supervisors of clinicians to investigate the associations with increased adherence to

CBT-ED. Alternatively, future studies could focus on attitudes toward ESTs in clinicians and assess additional methods in shifting negative beliefs to more favorable attitudes.

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Table 1

Demographics

Variable	Licensed Psychologist	Master's Level License
N	59	162
Age *M (SD)*	42.5 (9.2)	40 (10.4)
Range in years	30 – 72	26 – 75
Gender *N (%)*		
Female	57 (96.6)	154 (95.1)
Male	2 (3.4)	5 (3.1)
Non-binary	-	3 (1.9)
Ethnicity *N (%)*		
Black/African American	-	1 (.6)
Hispanic/Latinx	2 (3.4)	6 (3.7)
White	52 (88.1)	151 (93.2)
Prefer not to say	1 (1.7)	1 (.6)
Multiethnic	4 (6.8)	3 (1.9)
Degree *N (%)*		
Counseling/Counselor Ed.	9 (15.3)	97 (59.9)
Marriage and Family Therapy	1 (1.7)	20 (12.3)
Social Work	-	35 (21.6)
Clinical Psychology	49 (83.1)	10 (6.2)
Years working with patients with eating disorders *M (SD)*	11.1 (8.6)	7.9 (6.5)
Range in years	1 – 40	1 – 30
Number of patients with EDs in the past 12 months *N (%)*		
5 – 9	14 (23.7)	18 (11.1)
10 – 14	12 (20.3)	26 (16.0)
15 – 19	6 (10.2)	19 (11.7)
20 – 29	13 (22.0)	28 (17.3)
30+	14 (23.7)	71 (43.8)
Amount of CBT Training *N (%)*		
Low (0 – 1 setting)	10 (16.9)	36 (22.2)
Medium (2 – 3 settings)	24 (40.7)	110 (67.9)
High (4 – 6 settings)	25 (42.2)	16 (9.9)
Clinical Setting *N (%)*		
Inpatient/residential	-	6 (3.7)
Medical Hospital	1 (1.7)	1 (.6)
Partial Hospital. Program	-	6 (3.7)
Intensive Outpatient Program	-	3 (1.9)
Outpatient Treatment Program	5 (8.5)	6 (3.7)
Outpatient Private Practice	53 (89.8)	140 (86.4)

Table 2

Frequency of Adherence to CBT-ED Skills

Technique	0-10%	11-20%	21-30%	31-40%	41-50%	51-60%	61-70%	71-80%	81-90%	91-100%
Cognitive Skills										
Provide psychoeducation	0	0	0	1.4	1.8	3.6	1.8	8.1	12.2	71
Identify barriers to change	0.5	0	0	0.5	0.9	3.2	3.6	6.8	15.8	68.8
Discuss relapse prevention plan	3.2	1.4	4.1	0.9	2.7	4.1	4.1	10.4	14	55.2
Address over-evaluation of shape/weight	2.3	0.9	2.7	0.5	2.3	4.5	4.1	10	15.8	57
Address dietary changes/restriction	0.9	0.9	3.2	0.9	3.6	0.9	6.8	7.7	16.3	58.8
Address event- or mood-triggered changes in eating	0	0.5	0.5	0.5	0	0.9	4.5	5.9	13.1	74.2
Behavioral Skills										
Assign self-monitoring records	9.5	7.2	8.1	5	9.5	8.1	9	10.4	15.4	17.6
Establish a pattern of regular eating	2.3	1.8	4.5	0.5	3.6	7.2	9.5	12.7	15.8	42.1
Provide in-between session assignments	3.6	3.2	3.2	0.9	5.9	5.9	9.5	10.9	16.7	40.3
Review and incorporate homework	5	4.1	4.1	2.7	4.1	10.4	10.4	11.3	13.6	34.4
Utilize weekly weighing	67.4	4.1	3.2	2.3	3.2	4.1	2.7	4.1	2.3	6.8

Note: Percentage of clinicians that endorsed use of the skill, by the skill and percentage of patients with whom they used the skill.

Table 3

Descriptive Statistics and Correlations for Study Variables

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9
IUS	22.41	6.45	-								
EBPAS	3.71	0.54	-0.09	-							
Competency	6.10	0.73	-.35**	0.07	-						
Autonomy	6.00	0.78	-.26**	-0.13	.49**	-					
Relatedness	5.65	0.85	-0.12	0.02	.41**	.31**	-				
Frequency of Adherence to Cognitive Skills	5.4	0.71	-.17*	.18**	.21**	0.05	.14*	-			
Frequency of Adherence to Behavioral Skills	4.02	1.01	-.21**	.31**	.15*	-0.01	0.07	.52**	-		
Quality of Adherence to Cognitive Skills	4.79	0.78	-.16*	.21**	.28**	.17*	.15*	.6**	.29**	-	
Quality of Adherence to Behavioral Skills	3.72	0.96	-.2**	.27**	.19**	0.02	0.07	.38**	.77**	.4**	-

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

Table 4

Summary of Results for Cognitive Outcome Variables

Variable	Frequency of Adherence			Quality of Adherence		
	B	*SE*	*p*	B	*SE*	*p*
IUS	-0.01[†]	0.01	.154	-0.01	0.01	.542
Competency	0.08	0.07	.248	0.22	0.08	.005
EBPAS	0.01	0.01	.062	0.02	0.01	.007
IUS x Competency	0.01	0.01	.585	0.01	0.01	.182
IUS x EBPAS	0	0	.290	0	0	.104
Competency x EBPAS	0	0.01	.890	0.01	0.01	.451
IUS x Competency x EBPAS	0	0	.254	0	0	.849
IUS	-0.02	0.01	.048	-0.01	0.01	.256
Autonomy	0.04	0.07	.551	0.16	0.07	.019
EBPAS	0.02	0.01	.014	0.02	0.01	.002
IUS x Autonomy	0	0.01	.743	0	0.01	.714
IUS x EBPAS	0	0	.003	0	0	.005
Autonomy x EBPAS	0.01	0.01	.309	0.01	0.01	.311
IUS x Autonomy x EBPAS	0	0	.897	0	0	.459
IUS	-0.01	0.01	.081	-0.01	0.01	.130
Relatedness	0.05	0.06	.350	0.07	0.06	.221
EBPAS	0.01	0.01	.052	0.02	0.01	.005
IUS x Relatedness	0	0.01	.831	-0.01	0.01	.231
IUS x EBPAS	0	0	.292	0	0	.100
Relatedness x EBPAS	-0.01	0.01	.202	0	0.01	.818
IUS x Relatedness x EBPAS	0	0	.154	0	0	.180

Note. [†]unstandardized regression coefficients

Table 5

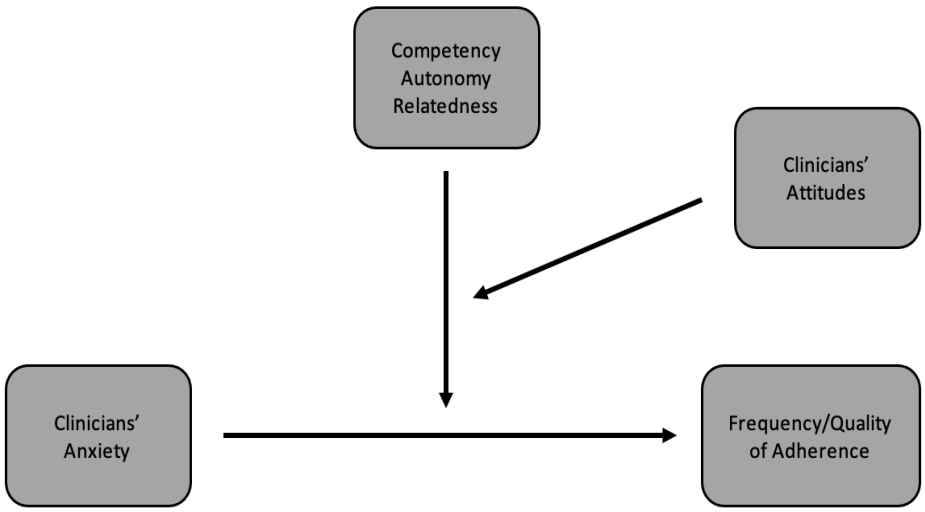
Summary of Results for Behavioral Outcome Variables

Variable	Frequency of Adherence			Quality of Adherence		
	B	*SE*	*p*	B	*SE*	*p*
IUS	-0.02†	0.01	.055	-0.01	0.01	.319
Competency	0	0.1	.979	0.07	0.09	.402
EBPAS	0.04	0.01	< .001	0.03	0.01	< .001
IUS x Competency	0	0.01	.962	0.01	0.01	.490
IUS x EBPAS	0	0	.048	0	0	.062
Competency x EBPAS	0	0.01	.905	0	0.01	.939
IUS x Competency x EBPAS	0	0	.754	0	0	.417
IUS	-0.02	0.01	.035	-0.01	0.01	.191
Autonomy	-0.06	0.09	.453	-0.04	0.08	.623
EBPAS	0.04	0.01	< .001	0.03	0.01	< .001
IUS x Autonomy	0	0.01	.873	0	0.01	.940
IUS x EBPAS	0	0	.012	0	0	.033
Autonomy x EBPAS	0.01	0.01	.375	0	0.01	.872
IUS x Autonomy x EBPAS	0	0	.234	0	0	.315
IUS	-0.02	0.01	.062	-0.01	0.01	.215
Relatedness	-0.07	0.08	.374	-0.06	0.07	.379
EBPAS	0.04	0.01	< .001	0.03	0.01	< .001
IUS x Relatedness	0.01	0.01	.455	0.01	0	.603
IUS x EBPAS	0	0	.111	0	0	.098
Relatedness x EBPAS	0	0.01	.905	0	0.01	.972
IUS x Relatedness x EBPAS	0	0	.876	0	0	.902

Note. †unstandardized regression coefficients

Figure 1

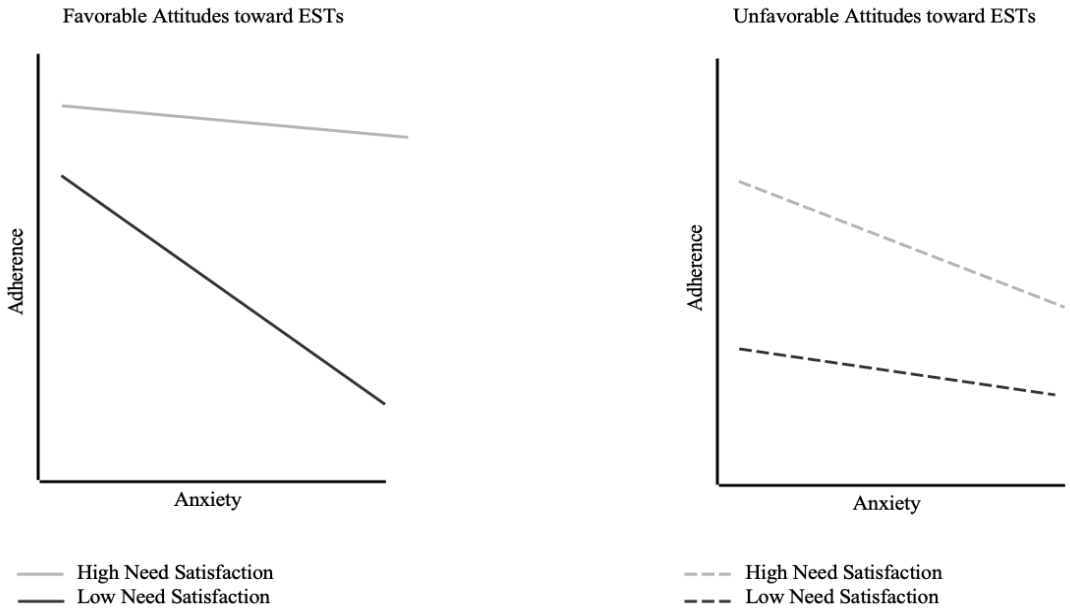
Current Study's Moderated Moderation Model



Note. Conceptual diagram of the current study's moderated moderation using Model Template 3 for PROCESS for SPSS (Hayes, 2022).

Figure 2

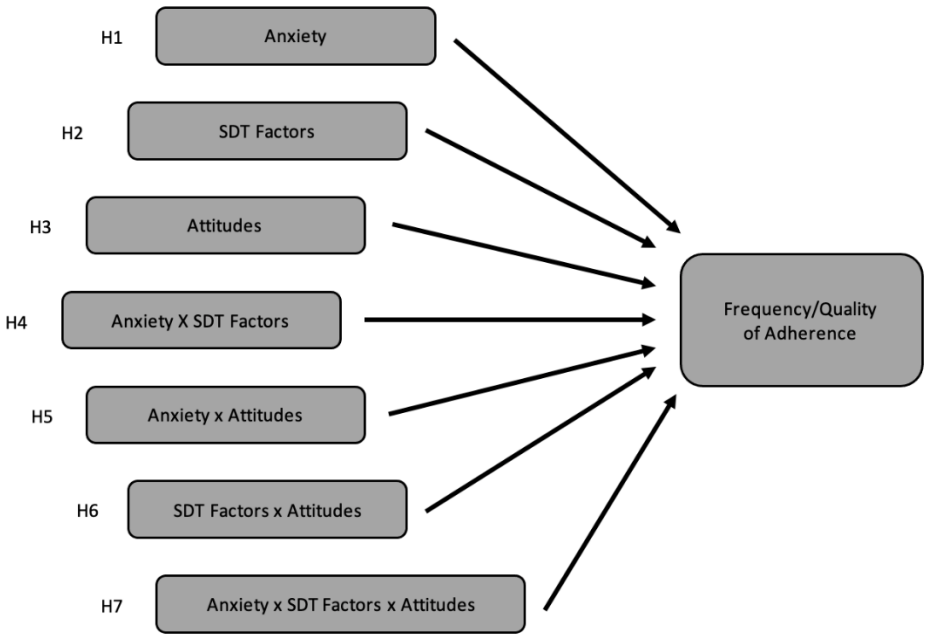
Hypothesized results for Hypothesis 7



Note. Hypothesized comparison of the relationship between clinician anxiety and adherence in clinicians with favorable versus unfavorable attitudes toward ESTs.

Figure 3

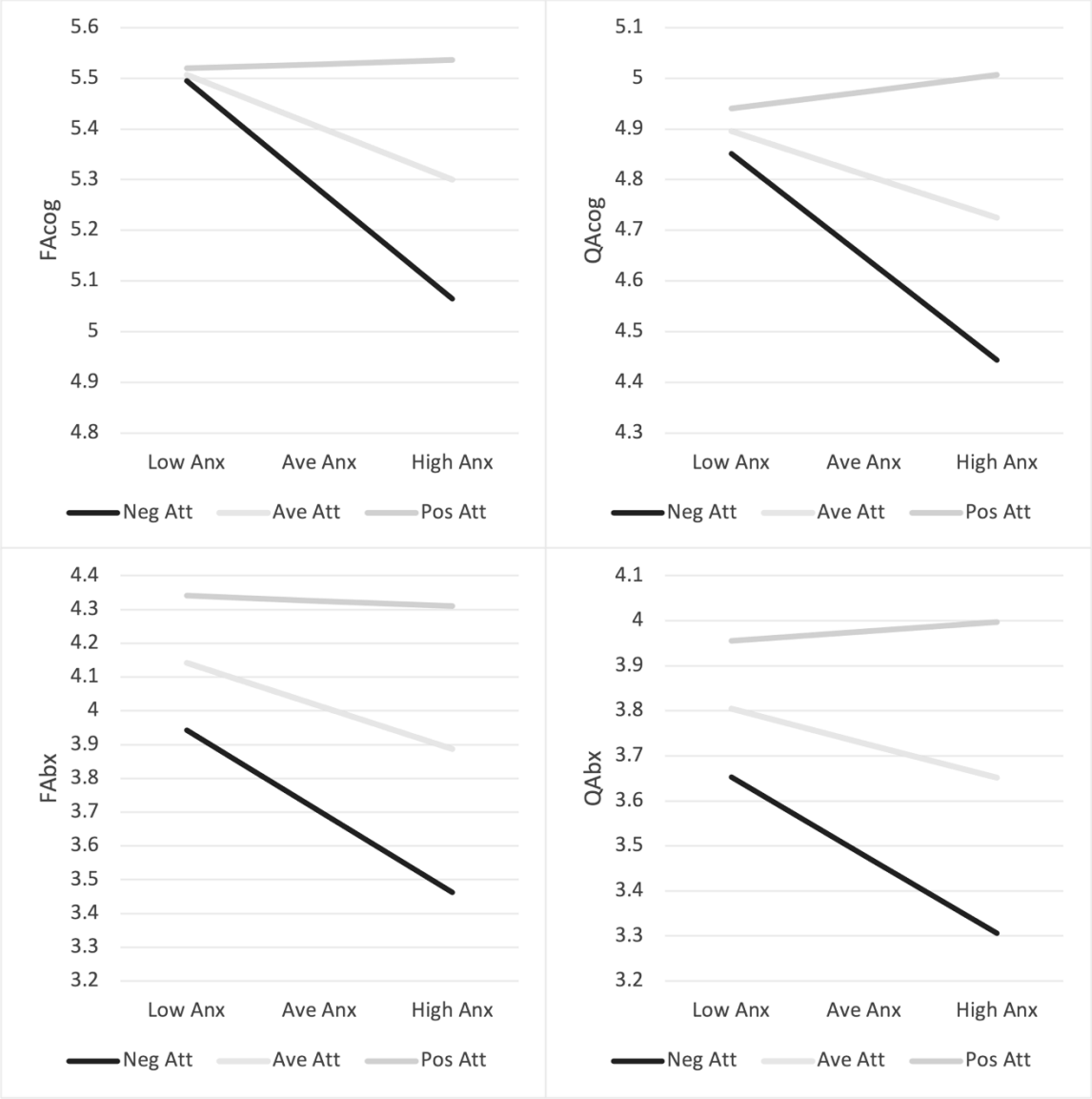
Current Study's Statistical Diagram



Note. Statistical diagram of the current study's moderated moderation using Model Template 3 for PROCESS for SPSS (Hayes, 2022).

Figure 4

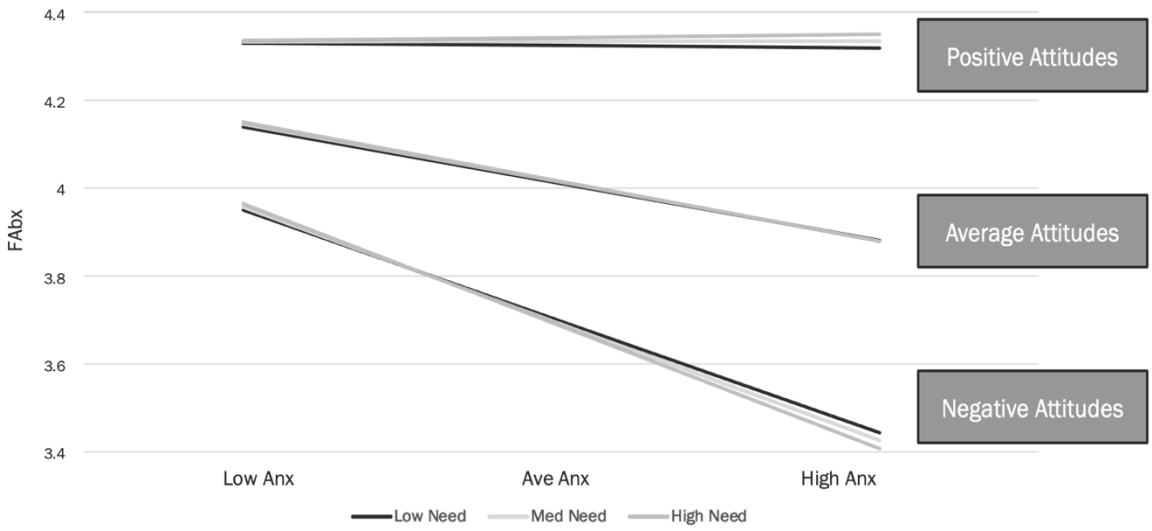
Results of Hypothesis 5 Autonomy Models



Note. The relation between anxiety and adherence depended on clinicians' attitudes toward ESTs; *Abbreviations*: FAcog: Frequency of Adherence to Cognitive Skills, FAbx: Frequency of Adherence to Behavioral Skills, QAcog: Quality of Adherence to Cognitive Skills, QAbx: Quality of Adherence to Behavioral Skills.

Figure 5

Results of Hypothesis 7 Competency Model



Note. There were no three-way interactions between anxiety, Competency, and attitudes toward ESTs on adherence,; *Abbreviations*: FAbx: Frequency of Adherence to Behavioral Skills.

APPENDIX A

IRB Approval

Date: 6-8-2021

IRB #: IRB-2021-156
Title: Understanding Adherence in Clinicians who Treat Eating Disorders
Creation Date: 4-30-2021
End Date:
Status: Approved
Principal Investigator: Emalee Kiser
Review Board: SHSU IRB
Sponsor:

Study History

Submission Type Initial	Review Type Exempt	Decision Exempt

Key Study Contacts

Member Chelsea Ratcliff	Role Co-Principal Investigator	Contact [redacted]
Member Emalee Kiser	Role Principal Investigator	Contact [redacted]
Member Emalee Kiser	Role Primary Contact	Contact [redacted]

APPENDIX B

Demographics Questionnaire

1. What is your age in years? _____
2. What gender do you identify as?
    - Male
    - Female
    - Non-binary
    - Not listed (Please describe)
    - Prefer not to say
3. How would you describe yourself? (Please check all that apply)
    - American Indian or Alaska Native
    - Asian
    - Black or African American
    - Hispanic or Latinx
    - Native Hawaiian or Other Pacific Islander
    - White
    - Not Listed (Please describe)
    - Prefer not to say
4. *What is the highest degree you have completed?
    - Some high school or high school diploma
    - Associate degree
    - Bachelor's degree
    - Master's degree
    - Doctorate degree
5. What is your degree in?
    - School Psychology
    - Counseling
    - Counselor Education
    - Marriage and Family Therapy
    - Social Work
    - Applied Behavior Analysis
    - Clinical Psychology
    - Other (Please describe)
6. **Profession:
    - Psychologist
    - Therapist/counselor
    - Social Worker
    - Psychiatrist
    - Dietitian
    - Physician
    - Nurse/Nurse Practitioner/Physician Assistant
7. ***Do you have a license to practice psychology/counseling in the United States?
    - Yes
    - No

8. What is your license?
    - Licensed Psychologist
    - Master's level license in Mental Health (Please describe) (Example: Licensed Psychological Associate, Licensed Professional Counselor, Licensed Specialist in School Psychology, etc)
    - Other (Please describe)
9. What state(s) do you practice in? If you are able to practice in multiple states, please list them and separate them using commas (i.e., Texas, Connecticut, California)

Clinical Experience:

10. Duration of licensed clinical work in years
11. Duration of licensed clinical work with patients with eating disorders in years
12. ****How many patients with eating disorders have you provided therapy/counseling to over the past 12 months?
    - 0-4
    - 5-9
    - 10-14
    - 15-19
    - 20-29
    - 30+
13. Indicate the psychotherapeutic approach(es) you have provided to your patients in the past 12 months for each ED (check all that apply)

	Did not use	Anorexia Nervosa	Bulimia Nervosa	Binge Eating Disorder	ED Not Otherwise Specified
Acceptance (ACT)					
Behavioral Therapy					
Cognitive Behavioral Therapy (CBT)					
Dialectical Behavioral Therapy (DBT)					
Family-based therapy					
Maudsley					
Humanistic/existential					
Interpersonal Psychotherapy (IPT)					
Mindfulness					
Motivational Therapy					
Narrative					
Psychodynamic					

13a. Did you use any additional psychotherapies not listed above to treat patients with eating disorders?

- Yes (Please describe)
- No, I did not use any additional psychotherapies.

14. Please indicate where you have received training in Cognitive Behavioral Therapy (CBT): (Check all that apply)

- Undergraduate education
- Graduate school
- Internship
- Formal/informal postdoctoral fellowship
- Continuing education workshops
- Other: (Please describe)
- I have not received training

Clinical Setting:

15. What clinical setting do you primarily practice in?
    - Inpatient/residential
    - Medical hospital
    - Partial hospitalization program
    - Intensive outpatient program
    - Outpatient – treatment program
    - Outpatient – private practice
    - Other: (Please describe)
16. What is your primary mode of therapy? (Check all that apply)
    - Individual
    - Group
    - Family
    - Other: (Please describe)
17. In the past 12 months, what platform have you typically used to provide therapy?
    - In-person/Face-to-face
    - Remote/Telehealth
    - Other: (Please describe)
18. What coworkers do you interact with on a daily basis? Check all that apply. (Coworkers are professional colleagues, typically someone in a similar role, that you interact with in a typical week)
    - Licensed psychologists
    - Therapists/counselors
    - Psychiatrists
    - Administrative staff
    - Dietitians
    - Medical staff
    - Others: (Please describe)
    - I do not have anyone that works with or near me
19. Approximately how many coworkers do you see/interact with each week?
20. Do you have a boss or supervisor?
    - Yes, at my present job site
    - Yes, but they are located at a separate site
    - No, I don't have a boss or supervisor

*For demographic item number 4, if participants choose any answer choice other than "Master's degree" or "Doctorate degree", the logic on Qualtrics will end the survey.

**For demographic item number 6, if participants choose any answer choice other than "Licensed psychologist" or "Therapist/counselor", the logic on Qualtrics will end the survey.

***For demographic item number 7, if participants indicate they do not have a license to practice in the United States, the logic on Qualtrics will end the survey.

****For demographic item number 12, if participants choose the "0-4" answer choice, the logic on Qualtrics will end the survey.

Frequency of Adherence

Across the course of therapy in the past 12 months, with what percentage of patients with eating disorders (EDs) did you:

Cognitive Actions (6 items)

- Provide psychoeducation?
- Identify barriers to change?
- Discuss a maintenance/relapse prevention plan at the end of treatment?
- Address over-evaluation of shape/weight (i.e., use of pie charts, addressing body checking/avoidance, mirror use, comparison-making)?
- Address dietary changes/restriction (i.e., identifying/addressing dietary rules, implementing structured eating, or using food exposures)?
- Address event- or mood-triggered changes in eating (i.e., identifying problem-solving techniques, analysis of mood and events that precede changes in eating, and educating patients on mood intolerance and coping skills)?

Behavioral Actions (5 items)

- Assign food self-monitoring records to encourage patients to self-monitor food intake, behavior, thoughts, feelings, and events?
- Establish a pattern of regular eating?
- Provide assignments for patients to engage in between sessions?
- Review and incorporate homework while in session?
- Utilize weekly weighing?

Collaborative Actions (4 items)

- Formulate an agenda with the patient?
- Involve the client in the session?
- Encourage independence?
- Elicit feedback from the patient?

Quality of Adherence

If participants indicate they utilized a specific skill with 11% or more of their patients, they were presented the associated Quality of Adherence question(s) via Qualtrics logic.

To what extent did you:

Cognitive Actions (6 items)

- Provide information about one or more relevant topics?
- Identify barriers to change with the patient?
- Address relapse prevention, covering one or more of the following: distinction between a lapse and a relapse, distinction between overeating and binge eating, expectation of occasional setbacks, or review of maintenance plan?
- Address the over-evaluation of shape and weight by using pie charts, addressing body checking/avoidance, mirror use, comparison-making)?
- Address dietary restriction by identifying/addressing dietary rules, implementing structured eating, or using food exposure to new/usually-avoided foods?
- Address event- or mood-triggered changes in eating by identifying problem-solving techniques, analysis of mood and events that precede changes in eating, and educating patients regarding mood intolerance and coping skills?

Behavioral Actions (5 items)

- Encourage the patient to self-monitor?
- Collaboratively discuss and establish a pattern of regular eating with patients?
- Or the patient develop specific assignments for the patient to engage in between session?
- Review previously assigned homework with the patient?
- Quality of Adherence weight (variable based on Frequency of Adherence weight answer)

Collaborative Actions (7 items)

- Work collaboratively with the patient to formulate and follow a specific agenda for the session?
- Focus the session on specific topics in an orderly fashion?
- Actively attempt to engage the patient in working together in the session?
- Explain to the patient your reasons for pursuing a particular topic in session?
- Encourage the patient's independence from the therapist in managing their problems?
- Guide the patient to arrive at their own interpretations and conclusions?
- Elicit feedback from the patient to determine whether the patient understood the main points of the session?

Basic Need Satisfaction at Work

The following questions concern your feelings about your job during the last year. (If you have been on this job for less than a year, this concerns the entire time you have been at this job.) Please indicate how true each of the following statement is for you given your experiences on this job. Remember that your supervisor will never know how you responded to the questions. Please use the following scale in responding to the items.

*Please note that, in this questionnaire, the phrase **"people at work" is not meant to refer to patients or clients, but rather coworkers**. If you work in a setting where you do not have direct co-workers, please include "people at work" to include administrative staff, colleagues at other work sites, dietitians, medical staff, and other professionals that you coordinate or interact with (by phone, virtual, in-person, etc) in a typical week.

1	2	3	4	5	6	7
not at all true			somewhat true			very true

1. I feel like I can make a lot of inputs to deciding how my job gets done.
2. I really like the people I work with.
3. I do not feel very competent when I am at work.
4. People at work tell me I am good at what I do.
5. I feel pressured at work.
6. I get along with people at work.
7. I pretty much keep to myself when I am at work.
8. I am free to express my ideas and opinions on the job.
9. I consider the people I work with to be my friends.
10. I have been able to learn interesting new skills on my job.
11. When I am at work, I have to do what I am told.
12. Most days I feel a sense of accomplishment from working.
13. My feelings are taken into consideration at work.
14. On my job I do not get much of a chance to show how capable I am.
15. People at work care about me.
16. There are not many people at work that I am close to.
17. I feel like I can pretty much be myself at work.
18. The people I work with do not seem to like me much.
19. When I am working I often do not feel very capable.
20. There is not much opportunity for me to decide for myself how to go about my work.

People at work are pretty friendly towards me.

Intolerance of Uncertainty Scale – Short Form

Please circle the number that best corresponds to how much you agree with eac

	Not at all characteristic of me	A little characteristic of me	Somewhat characteristic of me	Very characteristic of me	Entirely characteristic of me
1. Unforeseen events upset me greatly.	1	2	3	4	5
2. It frustrates me not having all the information I need.	1	2	3	4	5
3. Uncertainty keeps me from living a full life.	1	2	3	4	5
4. One should always look ahead so as to avoid surprises.	1	2	3	4	5
5. A small unforeseen event can spoil everything, even with the best of planning.	1	2	3	4	5
6. When it's time to act, uncertainty paralyses me.	1	2	3	4	5
7. When I am uncertain I can't function very well.	1	2	3	4	5
8. I always want to know what the future has in store for me.	1	2	3	4	5
9. I can't stand being taken by surprise.	1	2	3	4	5
10. The smallest doubt can stop me from acting.	1	2	3	4	5
11. I should be able to organize everything in advance.	1	2	3	4	5
12. I must get away from all uncertain situations.	1	2	3	4	5

Score:_____

Other Information:

Scoring:

Prospective Anxiety Subscale: sum of items 1,2,4,5,8,9,11

Inhibitory Anxiety Subscale: sum of items 3,6,7,10,12

Total Score: sum of all items

Evidence-Based Practice Attitude Scale - 15 items

Instructions:

The following questions ask about your feelings about using new types of therapy, interventions, or treatments. Manualized therapy, treatment, or intervention refers to any intervention that has specific guidelines and/or components that are outlined in a manual and/or that are to be followed in a structured or predetermined way. Indicate the extent to which you agree with each item using the following scale.

Item	Subscale	Question
1.	3	I like to use new types of therapy/interventions to help my clients.
2.	3	I am willing to try new types of therapy/interventions even if I have to follow a treatment manual.
3.	4	I know better than academic researchers how to care for my clients.
4.	3	I am willing to use new and different types of therapy/interventions developed by researchers.
5.	4	Research based treatments/interventions are not clinically useful.
6.	4	Clinical experience is more important than using manualized therapy/interventions.
7.	4	I would not use manualized therapy/interventions.
8.	3	I would try a new therapy/intervention even if it were very different from what I am used to doing.

For questions 9–15: If you received training in a therapy or intervention that was new to you, how likely would you be to adopt it if:

9.	2	it was intuitively appealing?
10.	2	it "made sense" to you?
11.	1	it was required by your supervisor?
12.	1	it was required by your agency?
13.	1	it was required by your state?
14.	2	it was being used by colleagues who were happy with it?
15.	2	you felt you had enough training to use it correctly?

Note: Subscale 1 = Requirements; 2 = Appeal; 3 = Openness; 4 = Divergence.

Scoring:

0	1	2	3	4
Not at All	To a Slight Extent	To a Moderate Extent	To a Great Extent	To a Very Great Extent

Scoring the Subscales

The score for each subscale is created by computing a total or mean score for the items that load on a given subscale. For example, Items 11, 12, and 13 constitute subscale 1.

Computing the Total Scale Score

For the total score, all items from the Divergence subscale (Sub-scale 4) must be reverse scored before being used in computing the EBPAS total score.

VITA

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EDUCATION

Doctor of Philosophy (Clinical Psychology)
Sam Houston State University, **Current**
Dissertation: Understanding Adherence to Cognitive Behavioral Therapy (CBT) in Clinicians who Treat Eating Disorders: A Self-Determination Theory Approach
(Proposed: April 2021)

Master of Arts (Clinical Psychology)
Sam Houston State University, **May 2017**
Thesis: The Implementation of Eating Disorder Education and Prevention Programs in High School

Bachelor of Arts, Psychology *(Summa Cum Laude)*
Texas A&M University – Kingsville, **December 2014**
Honors Thesis: The Effect of Diet and Exercise Frequency on Respiratory Sinus Arrhythmia during the Tower of London Task

RESEARCH EXPERIENCE

Graduate Research Assistant (August 2018 – Present)
Integrative Health Lab, Sam Houston State University
Supervisor: Chelsea Ratcliff, Ph.D.
Responsibilities:

- Graduate lab mentor
- Principal Investigator: *Understanding Adherence to Cognitive Behavioral Therapy (CBT) in Clinicians who Treat Eating Disorders: A Self-Determination Theory Approach* (Dissertation)
- Co-Investigator (2018-2019): *Body Focused Repetitive Behaviors in College Students*
- Project Coordinator (2018-2019): *Behavioral Intervention for Wellness and Engaged Living (Be-WEL)*

Graduate Research Assistant (December 2015 – May 2017)
Youth & Family Studies Lab, Sam Houston State University
Supervisor: Amanda Venta, Ph.D.
Responsibilities:

- Graduate lab mentor
- Principal Investigator: *The Implementation of Eating Disorder Education and Prevention Programs in High Schools* (Thesis)

Undergraduate Research Assistant (August 2013 – May 2015)
Cognitive Psychophysiological Lab, Texas A&M University - Kingsville
Supervisor: Dana Byrd, Ph.D.
Responsibilities:

- Provided research support (literature review, data entry)
- Assisted in data collection with electrocardiograms/electroencephalograms
- Principal Investigator: *The Effect of Diet and Exercise Frequency on Respiratory Sinus Arrhythmia during the Tower of London Task* (Honors Undergraduate Thesis)

PUBLICATIONS

*Previously published under Green.

Sinclair, K. L., **Kiser, E.**, Ratcliff, C. G., Chaoul, A., Hall, M. H., Rinpoche, T. W., & Cohen, L. (2022). Sleep moderates the effects of Tibetan yoga for women with breast cancer undergoing chemotherapy. *Supportive Care in Cancer,* 1-8.

Green, E., & Venta, A. (2018) Lack of implementation of eating disorder education and prevention programs in high schools: Data from incoming college freshmen. *Eating Disorders*, 26(5), 430-447.

CONFERENCE PRESENTATIONS

*Previously published under Green.

Kiser, E. & Ratcliff, C. (2022) *Understanding Adherence to Cognitive Behavioral Therapy (CBT) in Clinicians who Treat Eating Disorders: A Self-Determination Theory Approach*. Accepted at the International Conference on Eating Disorders (ICED) Meeting of the Academy for Eating Disorders (AED), Monterrey, Mexico.

Kiser, E., Sinclair, K., & Ratcliff, C. (2020, August) *Associations between Disordered Eating and Body Focused Repetitive Behaviors in College Students*. Poster presented at the Annual Meeting of the American Psychological Association, Washington, D.C. *Awarded the APA Division 1 Raymond Corsini Student Poster Award.

Kiser, E., Ratcliff, C., Chaoul, A., Hall, M., & Cohen, L. (2019, March) *The Association Between Body Mass Index (BMI), Quality of Life, and Cancer Symptoms in Women with Breast Cancer*. Paper presented at the Annual Meeting of the American Psychosomatic Society (APS), Vancouver, BC.

Green, E. & Venta, A. (2017, August) *The Implementation of Eating Disorder Education and Prevention Programs in High School*. Poster presented at the 2017 American Psychological Association Annual Conference, Washington, D.C.