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TELEHEALTH ACCEPTANCE AND COMMITMENT THERAPY FOR  
ADOLESCENTS WITH TRANSDIAGNOSTIC HEALTH-RELATED  
ANXIETY: A RANDOMIZED CONTROLLED TRIAL

by

Julie M. Petersen

A dissertation submitted in partial fulfillment

of the requirements for the degree

of

DOCTOR OF PHILOSOPHY

in

Psychology

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Logan, Utah

2023

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## ABSTRACT

Telehealth Acceptance and Commitment Therapy for Adolescents with Transdiagnostic  
Health-Related Anxiety: A Randomized Controlled Trial

By

Julie M. Petersen, M.S.

Utah State University, 2023

Major Professor: Michael P. Twohig, PhD

Department: Psychology

Health-related anxiety is an underresearched and pressing issue to understand in adolescents, particularly given the COVID-19 pandemic. Pilot research suggests that forms of cognitive behavioral therapy (CBT) such as acceptance and commitment therapy (ACT) may be beneficial for health anxiety in adults, but there is a need for greater research with youth. The present study is a randomized, waitlist-controlled trial of a transdiagnostic ACT intervention delivered via telehealth targeting health-related anxiety in adolescents. A sample of 30 adolescents (ages 12-17), plus one caretaker each ( $N = 60$ ), living in Utah and currently struggling with clinical levels of health-related anxiety were enrolled. The majority of caretakers and adolescents were White, non-Hispanic/Latine, and female. Participants in the treatment condition received ten weekly, 50-minute sessions of telehealth ACT. Data were analyzed using multilevel modeling across pre-, mid-, post-treatment, and one-month follow-up. Adolescents reported small, significant decreases in health-related anxiety as compared to the waitlist ( $p < .05$ , between-group Hedges'  $g$ s ranging from 0.22 to 0.28). No other significant differences were found between groups for adolescent-rated general anxiety, depression,

psychological inflexibility, or anxiety sensitivity. Caretakers reported small to medium significant decreases in child general anxiety ( $p < .05$ , between Hedges'  $g$ s ranging from -0.42 to -0.64) and small to medium improvements in parental psychological inflexibility ( $p < .05$ , between Hedges'  $g$ s ranging from -0.44 to -0.56). No significant differences were found between groups for caretaker-rated familial accommodation and accommodation-related child distress. Both adolescents and caretakers reported positive acceptability of the treatment. Limitations of this study include a small, homogenous sample, a lack of an active comparison group, and a shortened period of intervention and measurement. However, this study is the first randomized controlled trial examining ACT as a potential treatment for health-related anxiety in adolescents, and thereby adds to the growing literature supporting the use of ACT as a potential treatment option for youth.

(152 pages)

## PUBLIC ABSTRACT

Telehealth Acceptance and Commitment Therapy for Adolescents with Transdiagnostic  
Health-Related Anxiety: A Randomized Controlled Trial

Julie M. Petersen

Health-related anxiety is a growing issue to understand how to treat, particularly following the COVID-19 pandemic. Some studies show that a specific type of therapy, acceptance and commitment therapy (ACT), may be beneficial for health anxiety in adults, but this has not yet been tested with adolescents. The present study is a randomized, waitlist-controlled trial of ACT delivered via Zoom for adolescents struggling with health-related anxiety. A total of 30 adolescents (ages 12-17), plus one caretaker each (N = 60), living in Utah and currently struggling with health-related anxiety were enrolled. The majority of caretakers and adolescents were White, non-Hispanic/Latine, and female. Participants in the treatment condition received ten weekly, 50-minute sessions of ACT delivered via Zoom. Overall, adolescents who received ACT reported small, significant decreases in health-related anxiety as compared to the waitlist. No differences were found between groups for adolescent-rated general anxiety, depression, psychological inflexibility, or anxiety sensitivity. Caretakers reported decreases in child general anxiety and improvements in parental psychological inflexibility. No significant differences were found between groups for caretaker-rated familial accommodation and accommodation-related child distress. Overall, adolescents and caretakers rated the treatment positively. Future studies should test ACT with more diverse groups of adolescents as well as compare it to other available therapy options.

However, this study is the first to examine ACT as a potential treatment for health-related anxiety in adolescents, and thereby adds to the growing literature supporting the use of ACT as a potential treatment option for youth.

## DEDICATION

For my grandmother, Ann Sharko. Fond memories of you brought me great strength, comfort, and happiness during the trials and celebrations of graduate school. Gaga, I love and miss you.

Julie M. Petersen



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Julie M. Petersen

## CONTENTS

	Page
Abstract .....	iii
Public Abstract.....	v
Dedication .....	vii
Acknowledgments.....	viii
List of Tables .....	xii
List of Figures .....	xiii
Chapter I Introduction.....	1
Chapter II Review of the Literature .....	4
Health-Related Anxiety .....	4
Health-Related Anxiety as a Transdiagnostic Process .....	5
Health-Related Anxiety in Youth.....	8
COVID-19 and Health-Related Anxiety .....	12
Treatment of Health-Related Anxiety .....	14
ACT for Health-Related Anxiety .....	15
ACT for Adolescents with Health-Related Anxiety.....	17
Telehealth for Health-Related Anxiety .....	21
Conclusion.....	23
Chapter III Methods .....	24
Participants.....	24
Recruitment.....	24
Procedures .....	24
Adolescent Measures .....	26
Caretaker Measures.....	29
Treatment Acceptability.....	30
Predictions.....	31
Adolescent Outcomes .....	31
Process of Change Outcomes.....	32
Caretaker Outcomes.....	32
Data Analysis .....	32
Between Group Comparisons .....	32
Treatment Acceptability.....	33

Treatment Fidelity.....	33
Chapter IV Results.....	35
Adolescent Outcomes .....	36
Caretaker Outcomes.....	37
Treatment Acceptability.....	39
Treatment Fidelity.....	40
Chapter V Discussion .....	42
Treatment Acceptability.....	42
Treatment Efficacy by Adolescent Report.....	43
Treatment Efficacy by Caretaker Report .....	47
Limitations and Future Directions .....	50
Conclusion .....	52
References.....	53
Appendix: Measures .....	91
Curriculum Vitae .....	127

## LIST OF TABLES

	Page
Table 1 Demographic information about adolescents .....	71
Table 2 Demographic information about caretakers.....	73
Table 3 Means and standard deviations over time for adolescent outcomes .....	75
Table 4 Means and standard deviations over time for caretaker outcomes .....	76
Table 5 Estimated marginal means and 95% confidence intervals from best-fitting multilevel models for adolescent outcomes .....	77
Table 6 Estimated marginal means and 95% confidence intervals from best-fitting multilevel models for caretaker outcomes .....	78
Table 7 Hedges' g effect sizes within ACT condition and between groups across timepoints for adolescent outcomes.....	79
Table 8 Hedges' g effect sizes within ACT condition and between groups across timepoints for caretaker outcomes .....	80

## LIST OF FIGURES

	Page
Figure 1. CONSORT diagram for participant flow in the full sample .....	81
Figure 2. Estimated marginal means and standard error ribbons from best-fitting models for adolescent health-related and general anxiety at $p < .05$ .....	82
Figure 3. Estimated marginal means and standard error ribbons from best-fitting models for adolescent depression at $p < .05$ .....	83
Figure 4. Estimated marginal means and standard error ribbons from best-fitting models for process outcomes in adolescent participants at $p < .05$ .....	84
Figure 5. Estimated marginal means and standard error ribbons from best-fitting models for caretaker outcomes at $p < .05$ .....	85

# **CHAPTER I**

## **INTRODUCTION**

Health-related anxiety in adolescents is a highly under-researched area in need of greater research and clinical attention. Health-related anxiety involves fear or anxiety surrounding bodily sensations and the possibility of illness development in oneself and/or a loved one; it can be considered a transdiagnostic symptom of obsessive-compulsive disorder (OCD), illness anxiety disorder, generalized anxiety disorder (GAD), and additional related issues (Asmundson et al., 2010; Wright et al., 2016). Improving health-related anxiety in adolescents is imperative given its common prevalence across disorders (e.g., 8% prevalence of OCD in those diagnosed with illness anxiety; Shaw & DeMaso, 2010) and the suggested high levels of associated somatization and healthcare burden in youth (Mohapatra et al., 2014; Rask et al., 2016). Health-related anxiety also contributes to significantly impaired functioning and health-related quality of life in adolescents, as well as increased psychological distress later in life (Mohapatra et al., 2014; Raknes et al., 2017; Sirri et al., 2015). Moreover, there is evidence that health-related anxiety in youth is currently increasing given the current COVID-19 pandemic, making this issue more pressing (e.g., Tanir et al., 2020).

Little research exists on how to treat health-related anxiety in adolescents; health-related anxiety is often considered a highly neglected area of pediatric psychology and psychiatry (Mohapatra et al., 2014; Roberts-Collins, 2016). Modified forms of “third wave,” cognitive-behavioral therapy (e.g., mindfulness based cognitive therapy, acceptance and commitment therapy) are commonly utilized to treat health-related anxiety (e.g., OCD, GAD, and illness anxiety disorder) in adults (Asmundson et al.,

2010). However, there is little research on how to treat health-related anxiety in youth beyond one case study on CBT as a transdiagnostic approach for health-related anxiety in a 15-year-old female (Roberts-Collins, 2016). Research on the treatment of health-related anxiety in youth is imperative given the developmental differences in the presentation and trajectory of health-related anxiety in youth (Rask, 2019). Because of the differing symptoms (e.g., reliance on caretakers, increased somatization) of health-related anxiety in youth, a new approach for treatment, such as acceptance and commitment therapy (ACT), may be warranted.

ACT is a modern form of CBT that may be especially suitable for a transdiagnostic treatment approach to health-related anxiety in adolescents. ACT aims to increase psychological flexibility, the ability to remain in the present moment and act consistently with one's values without being swayed by internal experiences. ACT targets psychological flexibility using unique processes such as acceptance, mindfulness, cognitive defusion, and engagement with personal values. Psychological inflexibility is a transdiagnostic factor present in many disorders relevant to health-related anxiety (Bluett et al., 2014). ACT has demonstrated positive outcomes in treatment trials on youth with anxiety disorders (e.g., Hancock et al., 2018). Furthermore, ACT may be especially useful in working with adolescents because of its process-based approach which is easily implemented across diagnoses and the developmental spectrum of adolescence (Halliburton & Cooper, 2015).

The present study uses telehealth ACT as a transdiagnostic treatment approach for health-related anxiety in adolescents as compared to a waitlist control. The delivery of ACT online is an established method of disseminating treatment to adolescents (Twohig



et al., 2021). Telehealth allows therapists to provide services to underserved areas and populations, while reducing the cost of travel and personal stigma from in-person services (Maheu et al., 2012). Additionally, telehealth is a practical and necessary mode of treatment delivery due to the COVID-19 pandemic; previous research supports the use of telehealth with youth during public health emergencies (Moor et al., 2019). Overall, the study is aiming to test the effectiveness and feasibility of telehealth ACT for adolescents with health-related anxiety.

## CHAPTER II

### REVIEW OF THE LITERATURE

#### **Health-Related Anxiety**

Health-related anxiety (HA) involves fear or anxiety in response to bodily sensations and/or the possibility of illness development in oneself and/or a loved one. HA is often considered a transdiagnostic symptom of obsessive-compulsive disorder (OCD), illness anxiety disorder, generalized anxiety disorder (GAD), and additional related issues (Asmundson et al., 2010; Wright et al., 2016). HA includes hypersensitivity to and vigilance of bodily changes, accompanied by the thought the bodily changes are related to a serious illness (Asmundson et al., 2010). The development of HA often follows a stressful period (Asmundson et al., 2010) and can be in conjunction with actual illness (Tyrer, 2018) or public health concerns (e.g., radiation risks; Kashiwazaki et al., 2020). HA symptoms are paired with reassurance seeking from doctors and/or loved ones, body checking, avoidance, and compulsive online health research (i.e., cyberchondria); these behaviors provide short term relief from cognitive and emotional concerns but perpetuate HA in the long term (Asmundson et al., 2010; Brown et al., 2019).

HA is common in the general population, with 2.1-13.1% of adults affected across healthy and medical populations according to a large meta-analysis of 55 studies (Weck et al., 2014). However, more recent estimates find lifetime prevalence as high as 6% and 20% in general and medical populations respectively (Tyrer, 2018). HA has broad negative effects on well-being, functioning, and comes with a significant healthcare burden (Asmundson et al., 2010). However, some individuals with HA avoid medical attention; thus, the economic cost of HA cannot be attributed to healthcare burden alone

(Tyrer, 2018). For example, in one study, individuals with HA reported more frequent sick leave and premature retirement as compared to healthy individuals (Tyrer, 2018).

### **Health-Related Anxiety as a Transdiagnostic Process**

HA is common across diagnoses and may be better conceptualized for treatment as a transdiagnostic factor (Owens et al., 2019). While HA is often understood as illness anxiety disorder, there is clear overlap across obsessive-compulsive disorder (OCD), generalized anxiety disorder (GAD), and panic disorder (PD). Beyond the overlapping content of health-related fears across these disorders, there are also common underlying processes (e.g., intolerance to uncertainty, anxiety sensitivity) and behaviors (e.g., reassurance-seeking, cyberchondria; Bailer et al., 2016; Deacon & Abramowitz, 2008).

### ***Obsessive-Compulsive Disorder***

Although some research points to a distinction between HA and OCD (Hedman et al., 2017), there are functional similarities across OCD and HA (Villadsen et al., 2017). To begin with, the pattern of obsessions and compulsions in OCD is comparable to concerns, behaviors, and metacognition in HA (Deacon & Abramowitz, 2008; Solem et al., 2015). For example, OCD symptoms like obsessions related to contamination may directly overlap with HA about illness. Additionally, in recent research, illness anxiety symptoms have been associated with harm obsessions, checking rituals, overestimation of threat, and responsibility for harm in individuals with OCD (Reuman et al., 2017). In another study, 30.4% of a large clinical sample with OCD (N = 313) scored over the clinical cut-off for HA, bringing into question how useful it is to differentiate between HA and OCD for treatment (Solem et al., 2015).

### ***Generalized Anxiety Disorder***

Similar to OCD, GAD also has significant overlap with HA. GAD worries may often overlap with HA in their content; for example, GAD concerns related to the health of oneself, and family members can be understood as a form of HA. In one sample (N = 5118) of Chinese adults, HA in participants with GAD was common and related to an increased presence of depression, along with lower levels of income and education (S. Lee et al., 2014). In another study of Chinese adults with GAD, 78.9% reported worrying about their personal health; individuals with these elevated worries were more severe than individuals with GAD symptoms without HA (S. Lee et al., 2011).

### ***Panic Disorder***

PD is marked by interoceptive concerns and body vigilance, a clear overlap with HA. More specifically, the sensitivity to physical sensations (as paired with panic attacks) in PD is associated with HA fear of or sensitivity to bodily changes. Body vigilance is most common in PD, with significant overlap in GAD and hypochondria; this overlap is important because it may be a possible predictor of health concerns within other anxiety disorders and is associated with increased medical utilization and safety behaviors (Olatunji et al., 2007). While the content of these concerns may be different (e.g., fear of a panic attack vs. fear of serious illness), the underlying processes are comparable (i.e., anxiety sensitivity, fear of uncertainty). In this way, symptoms of PD are functionally similar, both in content and process, to a broader understanding of HA.

### ***Overlapping Processes***

With these similarities in mind, it is important to look beyond diagnoses and towards processes common across anxiety disorders and HA for a transdiagnostic approach. Anxiety sensitivity and intolerance to uncertainty are considered predisposing

factors for HA in adults (Gerolimatos & Edelstein, 2012). Anxiety sensitivity is the fear of and heightened sensitivity to bodily sensations typically associated with anxiety (e.g., heart racing, chest tightening; Asmundson et al., 2010). As previously noted, individuals with HA may have elevated response rates to bodily signs, attributing them to serious illness (e.g., heart attack, lung cancer). Research supports the association between anxiety sensitivity and HA (Fergus & Bardeen, 2013; Wright et al., 2016), along with OCD (Blakey et al., 2017) and anxiety disorders (Baek et al., 2019).

Intolerance to uncertainty, or the inability to sit with ambiguity related to a range of topics (e.g., what if the test the doctor gave me was wrong?) is also particularly common in HA and across the aforementioned diagnoses; for example, the individual may grapple with feeling 100% certain that they are healthy (Arnaez et al., 2020; Deacon & Abramowitz, 2008; Wheaton et al., 2010). Such intolerance is often paired with severe cognitive biases and/or dysfunctional beliefs regarding bodily sensations, contamination, or medical concerns broadly (e.g., If my body does not feel ‘just right,’ then I am sick). Intolerance to uncertainty is supported as a common underlying process in HA broadly (O’Bryan & McLeish, 2017), along with OCD and anxiety disorders (Gillett et al., 2018; Jacoby & Abramowitz, 2017).

### ***Overlapping Behaviors***

HA can also be used as an overarching categorization for the symptomatic behaviors signature to OCD, GAD, and PD. For example, healthcare usage is often elevated in clients with HA; it is common for individuals with HA to seek medical attention for physical symptoms of anxiety, at levels comparable to those with PD (Deacon & Abramowitz, 2008). In a study of Danish primary care settings, individuals

with severe HA used 41-78% more healthcare services per year as compared to individuals who are healthy or reporting mild levels of HA (Fink et al., 2010). In an Australian epidemiological study, individuals with HA were more likely use general medical and mental health services, as well as specialty medical care, as compared to people with other mental health problems or to people without HA (Bobevski et al., 2016). Elevated healthcare usage and cost is also frequently seen in individuals with symptoms of OCD (Sansone et al., 2003) and anxiety disorders (Horenstein & Heimberg, 2020).

Another overlapping behavior better captured by HA alone is cyberchondria, increased searching for medical information online (Fergus & Russell, 2016; McMullan et al., 2019). Indeed, health-related internet searching is associated with HA and, ironically, a greater likelihood for doctor visits (Singh & Brown, 2014). Cyberchondria is thought to be maintained through a reciprocal relationship between HA and information seeking in clinical samples (e.g., the more one learns about health conditions, the more likely one is to have increased vigilance and response to bodily sensations; Te Poel et al., 2016). Cyberchondria also is considered a symptom of OCD and anxiety disorders (Menon et al., 2020). However, when HA was controlled for in one study, the relationship between OCD and cyberchondria no longer existed, suggesting that HA may better capture the concerns manifesting in cyberchondria (Fergus & Russell, 2016).

### **Health-Related Anxiety in Youth**

In general, symptoms of HA are more common in youth than previously understood (Rask, 2019). HA is common in youth, with a high prevalence across disorders (e.g., 8% prevalence of OCD in those diagnosed with illness anxiety; Shaw &

DeMaso, 2010). In one retrospective medical record review, 18.6% and 16.1% of adults with HA reported their symptoms beginning in childhood and adolescence, respectively (Morina, 2015). In another study, 17.6% of Danish children (ages 5-7, N = 1,323) reported general symptoms of HA (Rask, Elberling, Skovgaard, Thomsen, & Fink, 2012). In a study of Scottish adolescents, over 50% of participants (N = 37), reported concerns related to illness; importantly, the majority of adolescents also reported that their schooling does not prepare them for these concerns (Reid & Hendry, 2001). Thus, HA in youth is a growing concern, despite nascent research.

There are also high levels of associated healthcare and functional burden in youth with HA (Mohapatra et al., 2014; Rask et al., 2016; Rimvall et al., 2020). Families with children (ages 11-12, N = 1,886) reporting elevated HA spend approximately 150 more Euros on healthcare per year than families whose children report low HA (Rask et al., 2016). Other estimates find that persistent HA in youth is associated with up to double the healthcare costs as compared to those with low HA (Rimvall et al., 2020). Beyond direct costs, HA also contributes to significantly impaired functioning and health-related quality of life in adolescents, as well as increased psychological distress later in life (Mohapatra et al., 2014; Sirri et al., 2015). As youth struggle to cope with symptoms, HA is in turn associated with unhealthy behaviors in adolescents such as disrupted sleep, smoking, reduced physical activity, and substance use (Sirri et al., 2015). Moreover, HA in youth is also associated with greater emotional disorders, somatic complaints, and even increased odds of experiencing psychotic symptoms (Rask et al., 2016; Rimvall et al., 2019).

### ***Developmental Considerations***

Most research on HA is in adult populations and thus not always scalable to younger populations. Current conceptualizations of HA in adults emphasize seeking medical care and the misattribution of physical sensations and/or symptoms (Rask, 2019). However, youth have less awareness about diseases and symptoms generally; similar concerns may therefore be subtle to spot and instead involve overt behaviors (e.g., seeking reassurance; Rask, 2019). Young people may also express anxiety through actual somatic experiences (e.g., coughing, tight chest) or worries about death and other serious consequences from illness in themselves or their loved ones (Haig-Ferguson et al., 2020). In turn, behaviors related to HA in youth might look like excessive handwashing, information seeking, and increased restrictions (e.g., only going to restaurants that are deemed “clean” enough). Additionally, frequency of medical care usage will depend on the youth’s caretakers; for example, if parents do not think the concern is serious enough, the child will likely not see a doctor (Rask, 2019). Alternatively, caretakers may contribute to a child’s HA and safety-seeking behaviors in how they respond to their child’s HA (e.g., repeatedly checking the child’s temperature; Haig-Ferguson et al., 2020).

With the difference in presentation between adult and child HA in mind, there is a need for a developmental approach to HA and its treatment in youth. Current developmental models of HA attribute the presentation of HA in youth to genetic vulnerability and predisposing factors (e.g., parental health anxiety, frequent medical appointments) alongside a stressful event (e.g., personal health scares, family stressors). Developmental models also emphasize the role of concerns around bodily sensations, maladaptive coping, and attachment difficulties (Rask, 2019). As previously noted, it is



likely that parents have an important role, particularly if they have their own difficulties with HA (Thorgaard et al., 2017). For example, caretakers with HA may continually struggle with the possibility that a doctor has missed something in their child's medical care—in one study, mothers with HA (N = 49) were less satisfied with child doctor visits than healthy mothers (N = 51; Thorgaard, Frostholm, Walker, et al., 2017). Furthermore, in the same study, child HA was positively correlated with parental HA and depression, underscoring the need to include parents collaboratively in treatment (Thorgaard et al., 2017).

### ***A Transdiagnostic Approach***

Considering HA as a transdiagnostic construct may be especially helpful in youth, similar to how intolerance to uncertainty in youth is explored as a transdiagnostic factor in OCD and GAD (Gillett et al., 2018). Depending on the developmental level, it might be challenging for youth with HA to provide the specifics necessary for accurately differentiating between diagnoses like OCD and GAD (Gillett et al., 2018). As one example, 30% of children diagnosed with OCD (N = 94) reported elevated HA (Villadsen et al., 2017), pointing towards the utility of developing treatments that can address concerns across diagnostic categories. If we have an understanding of how to address HA across diagnoses, it will streamline treatments and save time on diagnosis and treatment implementation (e.g., one treatment could address multiple diagnostic categories).

Previous research supports a transdiagnostic conceptualization of HA in youth. For example, HA is associated with anxiety sensitivity, intolerance to uncertainty, and general anxiety symptoms in youth (Reiser et al., 2019; Wright et al., 2016). Modern health-related worries (e.g., concerns about health in relation to technology, processed

foods, cleaning products) are also associated with “somatosensory amplification” (i.e., experiencing somatic changes as disturbing; anxiety sensitivity) in adolescents (Freyler et al., 2013). These results broadly suggest that established transdiagnostic processes related to HA in adults (e.g., anxiety sensitivity, intolerance to uncertainty) may translate to models of HA in youth, pointing to the need for more research on how to best conceptualize youth HA in a developmentally appropriate, transdiagnostic manner.

### **COVID-19 and Health-Related Anxiety**

COVID-19 is a novel form of the coronavirus infectious disease, marked by cough and fever, but can cause fatal complications; the spread of COVID-19 is considered an international emergency and pandemic (World Health Organization, 2021). In general, illness in popular media is understood as a trigger for HA in adult populations (Asmundson et al., 2010). Previous research has documented that global health crises and pandemics can provoke HA across groups, regardless of mental or physical health status (Blakey & Abramowitz, 2017; Wheaton et al., 2011). Thus, individuals with HA or general anxiety may overestimate the risk around COVID-19, going beyond the necessary precautions and negatively impacting their daily lives (Haig-Ferguson et al., 2020). Because individuals with HA are more likely to interpret regular bodily sensations and functions (e.g., coughing, sneezing) as signs of infection, it is likely that individuals may have increased or significantly decreased (i.e., avoidance of) medical care during the COVID-19 pandemic, which could add to existing burden on healthcare system (e.g., going to doctor when not necessary, excessive testing, stockpiling protective supplies, or avoiding the doctor to the point where emergency services are needed; Asmundson & Taylor, 2020). There is preliminary evidence that HA in adults has increased by

approximately 10% since the start of COVID-19 lockdowns—in one sample (N = 842 adults in the United Kingdom), 14.8% met a clinical cut-off for HA (Jungmann & Witthoft, 2020; Rettie & Daniels, 2020). As adults are increasingly affected, children and adolescents in the lives of these adults and/or caretakers are in turn impacted (Haig-Ferguson et al., 2020).

### ***COVID-19 and Youth***

Youth have been disproportionately affected by the COVID-19 pandemic and the complications it has brought (e.g., online schooling). Adolescents are less able to access mental health resources on their own with schools closed and/or abruptly changing in format (J. Lee, 2020). Additionally, increased isolation and decreased access to friends, school, and other forms of support due to COVID-19 restrictions are likely to negatively impact adolescent mental health (Fegert et al., 2020; Guessoum et al., 2020). For example, in one recent study, adolescents (N = 407) reported less support from their friends, along with increased depression, anxiety, and loneliness as compared to Fall 2019, prior to the start of the pandemic (Rogers et al., 2021). Youth may also be affected as the world shuts down and struggles with COVID-19, leaving youth with disrupted ideals about how safe and trustworthy global leaders and the world are (Haig-Ferguson et al., 2020).

Turning to HA specifically, up-to-date research and expert commentary on the effects of COVID-19 suggests that clinical and healthy groups of children and adolescents will likely experience elevated HA during the pandemic (Haig-Ferguson et al., 2020). For example, one sample of youth with OCD reported significant worsening of contamination and cleaning symptoms since the beginning of the pandemic (Tanir et al.,

2020). Additionally, COVID-19 presents a special concern for youth who already struggle with health concerns, anxiety-related or not. As one example, previous research indicates that HA is elevated in youth with congenital heart conditions as compared to a sample of healthy youth (Oliver et al., 2020). In the context of COVID-19, this study suggests that there may be further increases in HA in vulnerable youth and/or in youth who have had themselves or family members test positive for COVID-19 (Haig-Ferguson et al., 2020). Thus, COVID-19 makes the problem of HA in youth even more pressing.

### **Treatment of Health-Related Anxiety**

Little research exists on how to treat HA in adolescents—HA is often considered a highly neglected area of pediatric psychology and psychiatry (Mohapatra et al., 2014; Roberts-Collins, 2016). There is only one case study looking at cognitive behavioral therapy (CBT) as a transdiagnostic approach for HA in a 15-year-old female (Roberts-Collins, 2016). Following treatment, the adolescent's HA score fell below the clinical cut-off, and she reported clinically significant decreases in OCD, general anxiety, and depression. Beyond this study specifically, there are no studies on the treatment of health anxiety in youth. However, there is a large amount of research available on the conceptualization and treatment of HA in adults.

### ***Cognitive Behavioral Therapy for Health-Related Anxiety***

While other treatments (e.g., behavioral stress management, medication) are commonly utilized, successful treatments for adult HA (Tyrer, 2018), the most empirically supported treatment for HA in adults is CBT (Tyrer, 2018), particularly involving exposures (Walker & Furer, 2008). Several larger meta-analyses support the superiority of CBT to waitlists or other control conditions for HA with medium to large

effect sizes ( $g_s = .74-.94$  for between-group effects at post; Axelsson & Hedman-Lagerlof, 2019; Cooper et al., 2017; Olatunji et al., 2014). In one meta-analysis, the pooled response rate was 66%, with a remission rate of 48% (Axelsson & Hedman-Lagerlof, 2019).

Several larger randomized controlled trials (RCTs) highlight the support for CBT as a treatment for adult HA. In one study ( $N = 187$ ), primary care practices were randomized to provide patients with HA with individual CBT + physician consult ( $n = 102$ ) as compared to medical treatment as usual (TAU;  $n = 85$ ). At 6 and 12-month follow-ups, the CBT group reported significant lower levels of hypochondrial symptoms ( $r = .31$  and  $.27$ , respectively) and impairment in life activities ( $r = .23-.30$  at 12-month follow-up across domains), but not somatic symptoms (Barsky & Ahern, 2004). Another RCT found similar results when comparing 12 weeks of exposure-based CBT ( $n = 99$ ) to a no treatment control ( $n = 33$ ; Hedman-Lagerlof et al., 2017): moderate to large improvements in self-reported health ( $d = .64$ ), as compared to a control, that were mediated by HA symptoms. Lastly, a larger trial compared cognitive therapy (CT;  $n = 21$ ), exposure therapy (ET;  $n = 21$ ), and a waitlist ( $n = 42$ ), finding that both CT ( $g = 1.01-1.11$ ) and ET ( $g = 1.21-1.24$ ) were superior to waitlist on measures of hypochondriasis (Weck et al., 2015). However, ET was superior to CT in anxiety symptom reduction ( $g_s = .30$  and  $.22$  at posttreatment and follow-up) and in reduced safety behaviors ( $.44$  at posttreatment and follow-up). These selected RCTs, alongside the several large meta-analyses, provide ample support for the use of CBT in the treatment of adult HA.

### **ACT for Health-Related Anxiety**

Although the evidence for CBT for HA is promising, there is also a significant evidence base for ACT as a treatment for HA. Given that the effectiveness of CBT for HA in adults is at 66% (Axelsson & Hedman-Lagerlof, 2019), there is a need to explore alternative treatment options, making ACT an important new area of work in HA research. One narrative review established growing evidence supporting the use of ACT for HA in adults (Frostholm & Rask, 2019). Instead of targeting specific symptoms like CBT, ACT aims to increase psychological flexibility, the ability to remain in the present moment and act consistently with one's values without being swayed by internal experiences (S. C. Hayes et al., 2006). ACT targets psychological flexibility by enhancing a client's ability to remain aware (e.g., present moment awareness, self-as-context), open (e.g., acceptance, defusion), and active (e.g., engagement with person values). Psychological *inflexibility*, the opposite of psychological flexibility, is a transdiagnostic factor present in many disorders relevant to HA across age groups (Bluett et al., 2014). For example, undergraduates with high HA report higher experiential avoidance, an aspect of psychological inflexibility, than those with lower anxiety (Wheaton et al., 2010). Another study found that psychological inflexibility even acted as a mediator in the relationship between COVID-related HA and mental health outcomes (e.g., COVID-19 distress, general anxiety) in Italian adults (N = 944) during a mandatory national lockdown (Landi et al., 2020). This study suggests that building psychological flexibility may help alleviate negative effects of HA, particularly during the COVID-19 pandemic.

### ***Research Support***

A large body of research supports the use of ACT for HA in adults. In a case study, a 68-year-old Indigenous male with HA related to nuclear testing exposure reported 56% reductions in HA at the follow-up point after receiving ACT, along with normal levels of experiential avoidance and distress (Jourdain & Dulin, 2009). In another case study, a man in his early 40s with medically unexplained symptoms (e.g., chest pain, dizziness) after a stroke reported improved psychological flexibility and no chest pain at the end of 9 sessions of ACT, along with reductions of anxiety and stress (Graham et al., 2015).

Three trials have examined ACT as a treatment for HA in adults. First, one pilot trial ( $N = 34$ ) of adults with severe HA tested 10 sessions of ACT in a group format; participants collectively reported a 49% reduction in HA symptoms, 47% reduction in emotional distress, and 40% decrease in somatic symptoms (Eilenberg et al., 2013). Second, a larger RCT compared nine weekly, 3-hour sessions of group ACT ( $n = 63$ ) to a 10-month waitlist ( $n = 63$ ); effect sizes indicated large reductions in worry ( $d = .89$ ), along with improvements in emotional distress ( $d = .40$ ) and health-related quality of life ( $d = .61$ ; Eilenberg et al., 2016). Lastly, a three-arm RCT in Iran ( $N = 66$ ) compared ACT, medicinal treatment, or a waitlist control for patients with psychosomatic disorders. Mindfulness and psychosomatic symptoms improved by almost 50% in the ACT group, significantly surpassing the two control groups (Khesmakhi et al., 2019).

### **ACT for Adolescents with Health-Related Anxiety**

The aforementioned evidence indicates the potential for ACT as an effective treatment for HA in adults. However, no research currently examines the use of ACT as treatment for youth with forms of HA, an important and needed area of investigation

(Frostholm & Rask, 2019). ACT has some initial support as a treatment for anxiety (Hancock et al., 2018), stress and depression (Livheim et al., 2015), OCD (Shabani et al., 2019), and more (Swain et al., 2015) in youth. ACT is also considered useful for adolescents because of its process-based approach, which is easily implemented across diagnoses and personalized to the adolescent (Halliburton & Cooper, 2015). ACT has also been theorized as especially effective with youth because the experiential nature of ACT is similar to traditional education and can easily adapt therapy to a developmentally appropriate level (e.g., using stories, metaphors, experiential exercises; Rask, 2019). With this in mind, ACT may be especially suitable as a transdiagnostic treatment approach to HA in adolescents. While there is no current research available on the use of ACT for adolescents with HA, the six processes of ACT have clear support for targeting specific concerns related to HA.

### *Acceptance*

Acceptance is the active attempt to embrace internal experiences as they occur, non-judgmentally, without trying to change them (S. C. Hayes et al., 2006). Acceptance is established as a helpful therapeutic process in HA; one study of adults with HA found that increasing one's tolerance to uncertainty (a form of acceptance) mediated improvements in HA (Hedman et al., 2013). In adolescent HA, acceptance can be used as a coping mechanism for the uncertainties of what they know and do not know related to their health (Haig-Ferguson et al., 2020). For example, in the context of COVID-19, acceptance can be used for uncertainties related to exposure to the virus and/or false test results. Acceptance can also be used to make space for changing bodily sensations, without judgment or attempts to remove them (e.g., allowing the thought "I might have



COVID” and chest tightness to be there; Surawy et al., 2015). Overall, acceptance in ACT would help the adolescent practice allowing thoughts and/or bodily sensations to come and go.

### ***Cognitive Defusion***

Previous research on third wave treatments (e.g., ACT) indicates that treatment can help change one’s relationship with their thoughts, particularly through cognitive defusion. Cognitive defusion is the distancing between one’s thoughts and oneself (i.e., viewing thoughts as thoughts; S. C. Hayes et al., 2006). One small study (N = 20) found that adult participants, after 8 weeks of mindfulness-based cognitive therapy, reported a different and more compassionate relationship to their thoughts as compared to pre-treatment (McManus et al., 2015). In adolescent HA, cognitive fusion, the opposite of defusion, may look like distrust of doctors or caretakers (e.g., thinking the doctor is wrong or believing their doubt over parental reassurance) or over-reliance on one’s “gut” regarding medical conditions (e.g., it feels like I might be getting sick, so therefore I am sick; Hoffmann et al., 2019). Cognitive defusion aids the adolescent in separating their mind and HA from themselves, helping with the worries and concerns related to illness that may permeate their life.

### ***Self-as-Context***

The third ACT process, self-as-context, is the ability to view oneself as a container for life’s experience, rather than *the* experience itself, while taking the “observer” perspective (Hoffmann et al., 2019). The observer perspective is viewing one’s life experiences from a distance, rather than the first person; combined with cognitive defusion, self-as-context provides powerful abilities to re-conceptualize

concerns about health (e.g., I must have COVID because my chest is tight) to passing internal experiences (e.g., I am noticing that I am having the thought that my chest tightness is a symptom of COVID). This perspective allows an individual to experience bodily sensations, thoughts, and feelings as fleeting parts of their life, rather than the immediate context for their behavior. In youth HA, self-as-context exercises may help the adolescent resist buying into harmful beliefs (e.g., I will get sick if I do not restrict myself, my body cannot be trusted) and consider themselves as people beyond their health concerns. Broadly, the perspective that self-as-context brings to youth may also aid in development, as the adolescent begins to process what it means to be a growing person, with changing thoughts and feelings, in the world.

### ***Present Moment Awareness***

Present moment awareness (PMA) adds to the power of these three processes by helping increase the ability to remain in the present moment and notice internal and external experiences non-judgmentally. The rationale behind PMA in ACT for HA is to increase the adolescent's ability to experience bodily sensations and health concerns in the moment without relying on behaviors that take them away from what is meaningful or important to them (e.g., googling symptoms during class instead of paying attention; Kraemer et al., 2016). PMA and mindfulness have been repeatedly associated with HA, and psychological distress in adults (Kashiwazaki et al., 2020; O'Bryan & McLeish, 2017) and youth (Ciarrochi et al., 2011). Furthermore, in treatments involving mindfulness and PMA, adult participants reported helpful increases in mindful non-reactivity and other elements of PMA that in turn contribute to a reduction in HA symptoms (Hedman et al., 2017; McManus et al., 2012; Williams et al., 2011). In one

qualitative study, participants also reported that mindfulness practice improved their awareness and approach to life (Williams et al., 2011).

### ***Values and Committed Action***

The last two processes of ACT, values and committed action, help the adolescent orient to what they want their life to be about (values) and concrete steps they can take to move towards that direction (committed action). Many individuals with HA are more motivated by the need to be healthy and the need for certainty around their health, rather than meaningful qualities of living (e.g., compassion, adventure). This need for certainty may interfere in daily life, particularly as one engages in online searching, attending excessive doctor's appointments, seeking reassurance, and more. Thus, implementing values and committed action in the treatment of youth HA may involve identifying and orienting the adolescent to things they care about—things that may have fallen off the wayside in the face of HA symptoms. For example, an adolescent may practice choosing their value of being a good friend and subsequently work on listening to their friend's problems, resisting their urge to bring up their own health concerns. Beyond HA, adolescence is a developmental shift towards personal independence; values and committed action broadly help adolescents explore new ways of being that may be healthier in the long-term. Thus, values and committed action show potential not only for HA but for aiding healthy development.

### **Telehealth for Health-Related Anxiety**

During the COVID-19 pandemic, it is important to consider the best mode of treatment delivery in order to maximize reach for the treatment of HA in youth.

Telehealth, provision of therapy via video or phone service, allows therapists to provide

services to underserved areas and populations, while reducing the cost of travel and personal stigma common to in-person services (Maheu et al., 2012). For adults, online treatments for HA have positive results with superior outcomes to waitlists and control treatments ( $ds = .85-1.39$ ) on HA symptoms at posttreatment and follow-up (Newby et al., 2018; Owens et al., 2019). Moreover, a large trial ( $N = 204$ ) found that internet-delivered CBT was not inferior to face-to face CBT, with similar changes in HA but lower net cost for internet-delivered treatment (Axelsson et al., 2020). Additionally, a pilot study of internet-delivered ACT (clinician support + self-help materials) found large reductions in HA at posttreatment ( $d = 1.63$ ) and 1-month follow-up ( $SRM = 1.06$ ; Hoffmann et al., 2019). Considering adolescents, a recent systematic review found that telehealth is considered effective for the delivery of psychological treatments for youth (Grist et al., 2019). There is no research examining the online delivery of treatment for HA in youth.

COVID-19 has also presented significant complications for the pursuit of in-person psychological services. Individuals with increased HA and/or physical health concerns may be especially hesitant to seek out in-person care. There may also be shortages of mental health treatment providers because providers may be self-isolating, ill, or burdened with increased waitlists during this crisis period. Therefore, telehealth is a practical and necessary mode of treatment delivery in the COVID-19 pandemic. Telehealth and other online tools have been used successfully with youth during public health emergencies (e.g., earthquakes in New Zealand; Moor et al., 2019). Thus, telehealth presents a practical and cost-effective solution for delivering ACT for HA in adolescents.

**Conclusion**

HA in youth is a growing, under-researched, and urgent concern, particularly during the COVID-19 pandemic. HA can be conceptualized as a transdiagnostic concern, particularly due to the significant overlap in health-related processes (e.g., anxiety sensitivity) and content across anxiety disorders, OCD, and illness anxiety and somatic disorders. ACT delivered via telehealth may be an effective and acceptable solution to help adolescents with HA. To address the clinical concerns presented by a transdiagnostic understanding of HA, this study is pilot trial of a transdiagnostic treatment approach (ACT) via telehealth targeting HA in adolescents as compared to a waitlist control.

## **CHAPTER III**

### **METHODS**

#### **Participants**

Participants were adolescents ( $n = 30$ ; ages 12-17) and one caretaker per adolescent ( $N = 60$ ). Adolescents were living in Utah, seeking help for health-related anxiety, meeting a health-related anxiety clinical cut-off, and interested in participating in a research study. Psychological comorbidity was not an exclusion criterion, with the exception of a profound neurological impairment that would preclude someone from participating in the study, or a psychological condition that exceeds health-related anxiety as the primary presenting problem (e.g., active self-harm or psychosis based off of the MINI-Kid).

#### **Recruitment**

Participants were recruited from around Utah through a variety of channels with a special consideration for recruitment from self-isolating and/or quarantined samples (e.g., homeschooled adolescents). The study used provider/school referrals, online postings on relevant websites and social media, and social media advertisements.

#### **Procedures**

To determine eligibility, participants (adolescent and caretaker) initially completed an online consent, and the adolescent completed a screener of health anxiety symptom severity (Childhood Illness Attitude Scale; Wright & Asmundson, 2003). For enrollment, a cutoff of 50 was used, based on past studies (Rask et al., 2016; Wright et al., 2016). If adolescent participants met the clinical cut-off, they then took part in an online diagnostic interview with their caretaker present (Mini International

Neuropsychiatric Interview - Kid [MINI]; Sheehan et al., 2010). If eligible, participants were entered into the study and randomized to immediate treatment or a 14-week waitlist. Participants randomized to the waitlist received treatment following the 14-week waiting period and did not complete any measures beyond those completed during the 14-week waiting period. Treatment consisted of 10, fifty-minute weekly telehealth sessions. Adolescents and caretakers completed full assessment batteries at intake, post-treatment/waitlist, and one month following treatment. All treatment sessions took place on Zoom. The average time spent in the waitlist group from pre- to post-treatment measures was 10.81 weeks. The average time spent in the ACT group from pre- to post-treatment measures was 13.5 weeks.

Because there is evidence of the significant involvement of caretakers in the development of health-related anxiety (Wright et al., 2017), caretakers were invited to participate in the final 10 minutes of each session if appropriate and desired by the adolescent participant. This time allowed for the participant to review what they have learned and also allowed the caretaker to be involved in the fulfillment of treatment goals.

### ***Intervention***

Treatment was adapted from the following existing protocols: ACT for clinical perfectionism (Ong et al., 2019), ACT for OCD in adolescents (Armstrong et al., 2013), and ACT+ERP for OCD treatment protocols (Twohig et al., 2018). Developmental considerations for working with adolescents were taken into account through adaptations based on relevant ACT manuals for adolescents (e.g., L. L. Hayes & Ciarrochi, 2015;

Zurita Ona, 2019). The manual was also developed with considerations for enhancing participant motivation/engagement (e.g., Weisz & Bearman, 2020).

The first session focused on understanding the client's unique presentation and providing a treatment rationale. During session 2, we worked on stepping back from the fight against anxiety, obsessions, or related fears around germs, contamination, and/or illness by introducing creative hopelessness and/or control as the problem. In sessions 3-5, we focused on creating mental distance from health-related fear and anxiety via cognitive defusion and acceptance. We also practiced mindfully watching disturbing thoughts and not getting entangled with them via mindfulness and present moment awareness. In sessions 6-7, we had a discussion about personal values and engagement with meaningful actions in life (i.e., behavioral commitments). Throughout treatment we also engaged in approach exercises that share many similarities to exposure exercises. However, sessions 8-9 were specifically dedicated to practicing ACT skills using exposure exercises around health-related concerns. Session 10 consisted of a review and a focus on relapse prevention.

Intervention sessions were recorded via Zoom and stored on a secure and HIPAA compliant server for supervision purposes. A licensed psychologist (MPT) provided supervision for all cases. The same therapist (JMP) saw all 15 cases in the ACT condition. After recruitment was complete, 20% of recorded therapy sessions were reviewed and rated for fidelity to ACT and the six processes (see Treatment Fidelity section).

## **Adolescent Measures**

### ***Demographics***



At pre-treatment, adolescents completed information about the following demographics: race, ethnicity, age, gender, health conditions, and previous therapy experiences.

***Childhood Illness Attitude Scale (CIAS; Wright & Asmundson, 2003)***

The CIAS is a 35-item questionnaire of health-related anxiety symptoms and behaviors. Participants were asked to rate each item on a 3-point Likert scale (1 = *None of the time*, 2 = *Sometimes*, 3 = *A lot of the time*), with higher scores indicating higher health-related anxiety. As previously noted, a score of 50 was used as a clinical cut-off point (Rask et al., 2016; Wright et al., 2016). The CIAS is a developmentally appropriate measure of illness anxiety, adapted from the Illness Attitude Scale for adults (Kellner et al., 1987). Example items include “Do you worry about your health?” and “When your doctor tells you that you are not sick, do you not believe him/her?” Previous research has documented good construct validity and reliability of the CIAS (Wright & Asmundson, 2003). The CIAS was given at eligibility screening, pre-treatment, mid-treatment, post-treatment, and 1-month follow-up. In the present sample, the reliability of the CIAS was good ( $\alpha = .87$ ).

***Childhood Anxiety Sensitivity Index (CASI; Silverman et al., 1991)***

The CASI is an 18-item questionnaire assessing anxiety sensitivity and perceived negative consequences of anxiety symptoms in youth. Participants responded to each item on a 3-point Likert scale (1 = *None*, 3 = *A lot*)—higher scores indicate higher anxiety sensitivity. Example items include “It scares me when I feel ‘shaky’” and “When my stomach hurts, I worry that there might be something wrong with me.” Previous research supports good validity and reliability in clinical samples of youth (Silverman et

al., 1999). The CASI was given at pre-treatment, mid-treatment, post-treatment, and 1-month follow-up. In the present sample, the reliability of the CASI was good ( $\alpha = .82$ ).

***Avoidance and Fusion Questionnaire for Youth (AFQ-Y8; Greco et al., 2008)***

The AFQ-Y8 is a shortened measure of psychological inflexibility, particularly experiential avoidance and cognitive fusion, in youth. The AFQ-Y8 has eight items that are ranked on a 5-point Likert scale (0 = *Not at all true*, 4 = *Very true*), with higher scores signifying greater psychological inflexibility. Example items include “I am afraid of my feelings” and “I do worse in school when I have thoughts that make me feel sad.”

Research has demonstrated support for both reliability and validity of the AFQ-Y (the full version of AFQ-Y8) and the shortened AFQ-Y8 in youth (Greco et al., 2008). The AFQ-Y8 was given at pre-treatment, mid-treatment, post-treatment, and 1-month follow-up. In the present sample, the reliability of the AFQ-Y8 was good ( $\alpha = .85$ ).

***Screen for Anxiety and Related Disorders – Child Report (SCARED; Birmaher et al., 1999)***

The SCARED measures the presence of anxiety disorders (e.g., panic disorder, generalized anxiety disorders) using 41 items. Participants were asked to rank each item on a 3-point Likert scale, with scores greater than 25 indicating clinical levels of anxiety. Example items include “I am scared to go to school” and “When I get frightened, I feel like I am choking.” The SCARED has been found to be reliable and valid with samples of children and adolescents (Birmaher et al., 1999). The SCARED was given at pre-treatment, mid-treatment, post-treatment, and 1-month follow-up. In the present sample, the reliability of the SCARED-child was good ( $\alpha = .86$ ).

***Center for Epidemiologic Studies Depression Scale (CESD; Phillips et al., 2006)***

The CESD is a 20-item, self-report questionnaire of depressive symptoms. Participants were asked to rank each item on a 4-point Likert scale (*Rarely or none of the time [less than 1 day]* to *Most or all of the time [5-7 days]*), with higher scores indicating greater depressive symptoms. Example items include “I felt lonely” and “I had crying spells.” Previous research supports the reliability and validity with adolescents (Phillips et al., 2006; Stockings et al., 2015). The CESD was given at pre-treatment, mid-treatment, post-treatment, and 1-month follow-up. In the present sample, the reliability of the CESD was excellent ( $\alpha = .92$ ).

### **Caretaker Measures**

#### ***Demographics***

At pre-treatment, caretakers completed information about the following demographics: race, ethnicity, age, household income, marital status, gender, and employment status.

#### ***Screen for Anxiety and Related Disorders – Parent Report (SCARED-parent; Birmaher et al., 1999)***

The SCARED parent report is identical to the SCARED child report, except it asks the parent to rate their child’s anxiety. The SCARED-parent was given to caretakers at pre-, mid-, post-treatment, and 1-month follow-up. In the present sample, the reliability of the SCARED-parent was good ( $\alpha = .85$ ).

#### **Familial Accommodation Scale – Anxiety (FAS; Lebowitz et al., 2013)**

The FAS is a 13-item scale assessing familial accommodation. The first 9 items cover participation in symptoms and modification of routines; each is ranked on a 5-point Likert scale (0 = *Never*, 4 = *Daily*). An example item in this section is “How often do you

reassure your child?” The remaining 4 items ask about distress and consequences related to familial accommodation, also ranked on a 5-point Likert scale (0= *None*, 4 = *Extreme*). An example item of the distress/consequences section is “Does helping your child in these ways cause distress?” The FAS can be broken into two scores: a total accommodation score (from the first nine items) and a child distress score (the final three items). Higher scores indicate greater accommodation and distress. The FAS has established good validity in previous research (Lebowitz et al., 2013). The FAS was given to caretakers at pre-, mid-, and post-treatment, along with 1-month follow-up. In the present sample, the reliability of the FAS total was good, and the reliability of the FAS distress was acceptable ( $\alpha = .82$  and  $.71$  respectively).

***Parental Acceptance Questionnaire (PAQ; Greene et al., 2015)***

The PAQ is an 18-item questionnaire of psychological inflexibility related to parenting. The PAQ asks participants to rank each item on a 4-point Likert scale (1 = *Strongly disagree/never*, 4 = *Strongly agree/almost always*) and higher scores indicate greater psychological inflexibility related to parenting. Example items include “My actions as a parent are consistent with my values” and “When parenting doesn’t go as I had planned, I feel like a failure.” The PAQ has excellent validity and reliability in previous research with parents (Greene et al., 2015). The PAQ was given to caretakers at pre-, mid-, post-treatment, along with 1-month follow-up. In the present sample, the reliability of the PAQ was good ( $\alpha = .89$ ).

**Treatment Acceptability**

***Treatment Evaluation Inventory-Short Form (TEI-SF; Kelley et al., 1989)***

The TEI-SF is a questionnaire measuring perceptions of and satisfaction with treatment. Participants were asked to rate 9 items on a 5-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*). In the present study, the questionnaire was adapted to be specific to anxiety, and only seven of the original nine items were used. Example items include “I believe this treatment is likely to result in permanent improvement” and “Overall, I have a positive reaction to this treatment.” Higher scores indicate greater satisfaction and treatment acceptability. For the full 9-item questionnaire, a score of 27 and higher indicates moderate satisfaction and acceptability; thus, in the present study, a score of 21 or higher indicates moderate acceptability (Kelley et al., 1989). Moderate acceptability is also met via a rating of at least three on each individual item. There is good research support for the reliability of the TEI-SF in youth and their parents (Palermo et al., 2016). The TEI-SF was given at post-treatment and 1-month follow-up to both the adolescent and caretakers. In the present sample, the reliability of the TEI-SF was good for both adolescents ( $\alpha = .83$ ) and caretakers ( $\alpha = .90$ ).

### ***Acceptability of Intervention***

Adolescent participants were asked three open-ended questions in their post-treatment questionnaire to report their perceptions and thoughts about the intervention.

## **Predictions**

### **Adolescent Outcomes**

1. ACT will be superior to the waitlist control condition on measures of health-related anxiety, anxiety, and depression.

2. ACT will reduce health-related anxiety, anxiety sensitivity, anxiety, and depression over the course of treatment and will maintain gains at 1-month follow-up.
3. ACT will have adequate treatment acceptability.

### **Process of Change Outcomes**

1. Individuals who complete treatment will have reduced psychological inflexibility.
2. Individuals who complete treatment will have reduced anxiety sensitivity.

### **Caretaker Outcomes**

1. Caretakers will report reduced familial accommodation and anxiety symptoms in their child and reduced parental psychological inflexibility after treatment and at 1-month follow-up.

### **Data Analysis**

All analysis took place in R with RStudio (R Core Team, 2021). The following packages were used: stringr (Wickham & Wickham, 2019), furniture (Barrett & Brignone, 2017), magrittr (Bache & Wickham, 2014), lmerTest (Kuznetsova et al., 2017), rio (Chan et al., 2021), effsize (Torchiano & Torchiano, 2020), sjPlot (Lüdtke & Lüdtke, 2015), texreg (Leifeld, 2013), and cowplot (Wilke et al., 2019).

### **Between Group Comparisons**

Multilevel models (MLMs) were used to evaluate between group differences in outcomes over time. More specifically, MLMs were used to investigate the effect of treatment over time (at pretreatment, mid-treatment, posttreatment, and follow-up time points) relative to the waitlist condition on the following outcomes: health-related anxiety (CIAS), depression (CESD), general anxiety (SCARED-child), anxiety sensitivity

(CASI), and psychological inflexibility (AFQY8). MLMs were also used to investigate the effect of treatment on parental psychological inflexibility (PAQ), total familial accommodation (FAS), adolescent distress related to accommodation (FAS distress), and parent-reported child anxiety symptoms (SCARED-parent). All models include an interaction of time and condition, as well as one random intercept for individual participants. Final models were estimated using the maximum likelihood criterion. Effect sizes using Hedges'  $g$  were also calculated for between- and within-group changes across timepoints (pre-treatment to mid-, post-treatment, and one-month follow-up). The following benchmarks were used: 0.2 for a small effect, 0.5 for a medium effect, and 0.8 for a large effect.

### **Treatment Acceptability**

Treatment acceptability was evaluated using the total score of the TEI-SF for caretakers and adolescents. Individual item scores were also examined for better understanding of treatment acceptability ratings. Open-ended questions were coded for common themes.

### **Treatment Fidelity**

Based on previous research using ACT (Ong et al., 2021; Twohig et al., 2021), 20% of all sessions (30 of 150) from the active condition were selected for fidelity coding. At least two videos per participant were coded and at least three videos per session number were coded. Within these constraints, videos for coding were randomly selected using a random number generator. If a selected video was missing (e.g., recording error), then a corresponding video that fit the previous constraints was selected. Selected sessions were then assessed for treatment integrity based on standardized

scoring measures from previous clinical trials using ACT (Ong et al., 2021; Twohig et al., 2021). Each ACT process was rated on a scale from 1 (*The variable was never explicitly covered*) to 5 (*The variable occurred with high frequency and was covered in a very in-depth manner*). The following ACT-inconsistent processes were also rated on the same scale: cognitive challenging, experiential avoidance strategies, and promotion of the idea that thoughts and feelings cause behaviors. Lastly, global adherence to ACT was rated from 1 (*Not at all adherent*) to 5 (*Extremely adherent*).

The videos were coded by two graduate research assistant who had received formal training in ACT. Before coding the selected videos, the two research assistants established interrater reliability with another trained rater (JMP) of at least 0.8 or greater for two videos.



## CHAPTER IV

### RESULTS

The adolescent participants were mostly girls (66.7%) with an average age of 14.2 ( $SD = 1.6$ ). All participants identified as White, and the majority identified as non-Hispanic/Latine (90%). The most common primary diagnoses, as diagnosed by the Mini-KID, were GAD (43.3%), followed by OCD (26.7%). Approximately 36.7% of the sample had at least one comorbid disorder. There were no significant differences in adolescent demographics or pre-treatment measures between groups. A breakdown of the adolescent demographics can be found in Table 1.

The caretakers who participated in the study were also mostly women (86.7%) with an average age of 43.4 ( $SD = 4.9$ ). The caretakers were 100% White and 83.3% non-Hispanic/Latinx. The majority of caretakers had achieved a bachelor's degree or higher (roughly 80%) and were married (83.3%). A little over half the caretakers reported income over \$100,000 (53.3%) and 43.3% of the participating caretakers identified as full-time employees. There were no significant differences in caretaker demographics or pre-treatment measures between groups. All caretaker demographics can be found in Table 2.

There were no dropouts in the treatment condition; all participants who were assigned to ACT attended all ten sessions. In the waitlist condition, one participant was removed due to a sudden increase in self-harm. See Figure 1 for a CONSORT diagram of participant flow.

#### **Adolescent Outcomes**

Means and standard deviations over time for adolescent outcomes can be found in Table 3. Estimated marginal means and 95% confidence intervals from best-fitting multilevel models for adolescent outcomes can be found in Table 5. Effect sizes for within the ACT condition and between groups across timepoints for adolescent outcomes can be found in Table 7. Figures 2-4 display the estimated marginal means and standard error ribbons from best-fitting models for adolescent outcomes.

### ***Primary Outcome***

**Health-Related Anxiety.** The model for the CIAS had a significant interaction between time and condition ( $p = .03$ ). There was also a significant fixed effect of time alone ( $p = .002$ ). Within-group effect sizes indicated small changes from pre- to mid-, post-treatment, and one-month follow-up (Hedges'  $g$ s ranging from .22 to .41). Between-group effect sizes also indicated small changes from pre- to mid-, post-treatment, and one-month follow-up (Hedges'  $g$ s ranging from -.22 to -.41). See Figure 2 for a graph of the CIAS model.

### ***Secondary Outcomes***

**General Anxiety.** The model for the SCARED-child did not have a significant interaction between time and condition ( $p = .12$ ). The model had a significant fixed effect of time ( $p = .04$ ). All effect sizes were negligible, except for the within-group effect size from pre- to post-treatment (Hedges'  $g = .32$ ). See Figure 2 for a graph of the SCARED-child model.

**Depression.** The model for the CESD did not have a significant interaction between time and condition ( $p = .08$ ). There were no significant fixed effects for time or condition alone. Within-group effect sizes were negligible at all timepoints. Between-

group effect sizes indicated small changes from pre-treatment to all other time points as compared to the waitlist group (Hedges'  $g$ s ranging from .30 to .32). See Figure 3 for a graph of the CESD model.

### ***Process Outcomes***

**Psychological Inflexibility.** The model for the AFQY8 did not have a significant interaction between time and condition ( $p = .39$ ). There were no significant fixed effects for time or condition alone. Within-group effect sizes indicated small change from pre- to mid-treatment (Hedges'  $g = -.22$ ) for the ACT group, but effect sizes for other timepoints were negligible. Between-group effect sizes indicated small change at all timepoints (Hedges'  $g$ s ranging from  $-.29$  to  $-.34$ ). See Figure 4 for a graph of the AFQY8 model.

**Anxiety Sensitivity.** The model for the CASI did not have a significant interaction between time and condition ( $p = .12$ ). The model only had a significant effect of time ( $p = .01$ ). Between-group effect sizes were all negligible. Within-group effect sizes were negligible from pre- to mid-treatment, but small from pre-treatment to post-treatment (Hedges'  $g = .39$ ) and to follow-up (Hedges'  $g = .35$ ). See Figure 4 for a graph of the CASI model.

### **Caretaker Outcomes**

Means and standard deviations over time for caretaker outcomes can be found in Table 4. Estimated marginal means and 95% confidence intervals from best-fitting multilevel models for caretaker outcomes can be found in Table 6. Effect sizes for within the ACT condition and between groups across timepoints for caretaker outcomes can be found in Table 8. Figure 5 displays the estimated marginal means and standard error ribbons from best-fitting models for all caretaker outcomes.

### ***Primary Outcome***

**Parent Report of Child Anxiety.** The model for the SCARED-parent had a significant interaction between time and condition ( $p = .003$ ). There was also a significant fixed effect of time alone ( $p < .001$ ). Within-group effect sizes indicated negligible changes from pre- to mid-treatment, but medium changes from pre-treatment to post-treatment (Hedges'  $g = .93$ ) and to one-month follow-up (Hedges'  $g = .62$ ) in the ACT condition. Between-group effect sizes also indicated small changes from pre- to mid-treatment (Hedges'  $g = -.43$ ), and medium from pre-treatment to post-treatment (Hedges'  $g = -.64$ ) and to one-month follow-up (Hedges'  $g = -.50$ ). See Figure 5 for a graph of the SCARED-parent model.

### ***Secondary Outcomes***

**Total Familial Accommodation.** The model for the total FAS did not have a significant interaction between time and condition ( $p = .98$ ). There were no significant fixed effects for time or condition alone. Within-group effect sizes for the ACT condition were negligible from pre- to mid-treatment, but small from pre-treatment to post-treatment (Hedges'  $g = .30$ ) and to one-month follow-up (Hedges'  $g = .28$ ). Between-group effect sizes indicated small, bordering on medium, change from pre- to mid-, post-treatment, and one-month follow-up (Hedges'  $gs$  ranging from  $-.44$  to  $-.47$ ). See Figure 5 for a graph of the model for the total FAS.

**Child Distress Associated with Accommodation.** The model for the FAS distress did not have a significant interaction between time and condition ( $p = .65$ ). There were no significant fixed effects for time or condition alone. Within-group effect sizes for the ACT condition were negligible from pre- to mid- and post-treatment, but small for

pre-treatment to follow-up (Hedges'  $g = .34$ ). Between-group effect sizes were negligible at all timepoints. See Figure 5 for a graph of the FAS Distress model.

### ***Process Outcome***

**Parental Psychological Inflexibility.** The model for the PAQ had a significant interaction between time and condition ( $p = .04$ ). There were no significant fixed effects for time or condition alone. Within-group effect sizes for the ACT condition were small from pre- to mid-treatment (Hedges'  $g = -.14$ ), and negligible at all other timepoints. Between-group effect sizes indicated small to medium change from pre- to mid-, post-treatment, and one-month follow-up (Hedges'  $g$ s ranging from  $-.44$  to  $-.56$ ). See Figure 5 for a graph of the PAQ model.

### **Treatment Acceptability**

#### ***Adolescent Rated Acceptability***

Overall, adolescent participants rated the treatment positively, falling above the predicted cut-off for moderate acceptability. As previously noted, acceptability benchmarks were a rating of at least 3 on each item, and at least a total score of 21. At post-treatment, participants rated each TEI-SF item between 3.5 to 4.2 on average, indicating agreement that the treatment was useful and acceptable. The total TEI-SF at post-treatment was 27.5 ( $SD = 4.2$ ). At follow-up, individual item ratings ranged from 3.7 to 4.5, with a total score of 29.2 ( $SD = 5.0$ ).

Responses to the three open-ended questions were coded for common themes in answers. In response to the question asking participants what they liked about the intervention, the participants identified a specific ACT metaphor or skill ( $n = 4$ ), the therapeutic relationship ( $n = 4$ ), and/or a new understanding of/relationship with their

anxiety ( $n = 3$ ). In response to the question asking participants what they liked least about the intervention, one-third of participants said nothing ( $n = 5$ ), one-third left it blank ( $n = 5$ ), and one-third noted difficulty remembering or implementing a specific ACT skill ( $n = 5$ ). Lastly, in response to the question asking how the intervention can be improved, the majority of participants said nothing ( $n = 11$ ), and the remaining people noted specific aspects such as extending the length of treatment ( $n = 1$ ) or personalizing it further ( $n = 2$ ).

### ***Caretaker Rated Acceptability***

Caretakers similarly rated the intervention as highly acceptability. At post-treatment, individual items on the TEI-SF, as rated by caretakers, ranged from 3.7 to 4.6. The total TEI-SF score at post-treatment was 30.1 ( $SD = 3.8$ ). At follow-up, the items similarly ranged from 3.8 to 4.5. The total score at follow-up was 29.6 ( $SD = 2.8$ ). Overall, these ratings indicate that the caretakers rated the intervention as highly acceptable for their child.

### **Treatment Fidelity**

Overall, sessions were rated as extremely adherent ( $M = 4.9$ ,  $SD = 0.3$ ). Across all sessions, each of the six ACT processes were rated as covered moderately in depth ( $M$ s ranging from 2.3 to 3.8), with the exception of self-as-context ( $M = 1.1$ ,  $SD = .4$ ). All ACT-inconsistent process were rated as never being explicitly covered: cognitive challenging ( $M = 1$ ,  $SD = 0$ ), experiential avoidance strategies ( $M = 1.1$ ,  $SD = 0.3$ ), and promotion of the idea that thoughts and feelings cause behaviors ( $M = 1.1$ ,  $SD = 0.3$ ).

By individual sessions, the ratings were appropriate and as expected according to each session's manualized agenda. Acceptance was most highly rated in sessions 2 ( $M =$

5.0,  $SD = 0$ ) and 3 ( $M = 5.0$ ,  $SD = 0$ ), during which acceptance is first introduced and practiced. Cognitive defusion was most highly rated in 4 ( $M = 5.0$ ,  $SD = 0$ ), when it is first taught. Sessions 4 and 5 also had high ratings of SAC and PMA, which is consistent with the manual, as session 5 is a variable skill session based on what the client most needs. SAC was most highly rated in session 5 ( $M = 1.7$ ,  $SD = 1.2$ ). PMA was most highly rated in sessions 4 ( $M = 3.7$ ,  $SD = 1.5$ ) and 5 ( $M = 3.7$ ,  $SD = .6$ ). Session 6 covered values, which was reflected in the ratings ( $M = 4$ ,  $SD = 1.7$ ). Lastly, committed action was most highly rated in session 8 ( $M = 4$ ,  $SD = .8$ ); this average is again consistent with the manual, as session 8 is one of the experiential practice sessions, during which there is a large emphasis home practice.

## **CHAPTER V**

### **DISCUSSION**

Overall, the present study aimed to test the effectiveness and acceptability of telehealth ACT for adolescents with health-related anxiety (HA). Adolescents in the ACT condition reported significant decreases in HA as compared to the waitlist group. No other significant differences were found between groups in general anxiety, depression, psychological inflexibility, and anxiety sensitivity. However, depression approached significance and there were small effect sizes for within-group change in anxiety sensitivity and for between-group changes in psychological inflexibility and depression. Caretakers whose adolescent was in the ACT condition reported decreases in general child anxiety and parental psychological inflexibility. No differences in familial accommodation by caretakers was found. Lastly, both adolescents and caretakers reported positive acceptability and receipt of the intervention.

#### **Treatment Acceptability**

As previously noted, adolescents rated the intervention above the predicted “moderately acceptable” cut-off, indicating positive reception of the intervention. Caretakers rated the intervention similarly, although slightly higher, indicating that the intervention was perceived as positive and acceptable by them as well. It is especially notable that, in the open-ended responses, the majority of adolescents wrote that they would not change anything about the intervention and that it was helpful.

There are few studies examining adolescent and caretaker acceptability of ACT. Previous research using ACT for mental and physical health concerns in adolescents has found that ACT is rated as acceptable and satisfactory by both adolescents and their



caretakers (e.g., Clery et al., 2021; Petersen et al., 2022a; Troneieri et al., 2019). Because ACT is a developing intervention for adolescents (Petersen et al., 2022b), these findings are important for researchers working to adapt and implement ACT with youth, particularly for HA.

### **Treatment Efficacy by Adolescent Report**

Adolescents in the ACT condition reported a significant decrease in HA as compared to the waitlist group. There is currently no clinical cut-off established for the CIAS, so it is not currently possible to discern the clinical impact of this reduction. However, adolescents reported during treatment and in the open-ended feedback that HA became easier to respond to and was reduced.

This study is the first trial looking at the treatment of HA in adolescents using ACT. Further, this is also one of the first studies examining how to treat HA in youth, outside of one case study reporting on the use of CBT for an adolescent's HA (Roberts-Collins, 2016). The pilot results from this study are consistent with the reported reductions in HA from this case study. Furthermore, past studies testing ACT for HA in adults have also found similar reductions in health-related anxiety in both individual and group formats (Eilenberg et al., 2013, 2016, Khesmakhi et al., 2019). Interestingly, this study is the first test of ACT for HA in the United States—the current available studies on ACT for HA in adults have all occurred internationally (e.g., Denmark, New Zealand, Iran). Thus, this study also adds an interesting perspective on the implementation of ACT for HA internationally.

Lastly, the reductions in HA are broadly consistent with previous research looking at the use of ACT for anxiety, OCD, and related disorders in youth (e.g., Hancock et al.,

2016, Petersen et al., 2022a, Shabani et al., 2019). While it is the first study looking specifically at HA, the reductions are comparable, although a little smaller, than those reported in similarly sized trials for youth with related problems.

### ***Secondary Outcomes***

The adolescents in the ACT condition did not report significant differences in general anxiety or depression as compared to the waitlist group. These findings were generally unexpected, especially when accompanied by significant reductions in HA for the ACT group. In Roberts-Collins' (2016) case study, the adolescent reported decreases in general anxiety following CBT for HA. Similarly, other adult case studies of ACT for HA also found decreases in general anxiety (Graham et al., 2015; Jourdain & Dulin, 2009). However, comparable results are not available on a larger scale—the available randomized controlled trials do not measure both general and health-related anxiety (Eilenberg et al., 2013, 2016, Khesmakhi et al., 2019). With this in mind, it remains uncertain whether decreases in general anxiety would accompany decreases in HA within a larger sample. Furthermore, it might not even be expected to see decreases in general anxiety because the target of ACT is technically not symptom reduction (Arch & Craske, 2008). However, because significant decreases in HA were found, the conflicting results are worthy of further consideration.

Past studies of ACT for general anxiety in youth tend to find improvements in general anxiety symptoms. For example, adolescents participating in a school-based, group ACT intervention reported significant decreases in anxiety as compared to those on a waitlist, although this decrease did not meet the criteria for clinically significant change (Petersen et al., 2022a). Similarly, a larger trial comparing ACT, CBT, and a waitlist for

youth found that both ACT and CBT resulted in significant decreases in general anxiety compared to a waitlist (Hancock et al., 2016). However, Hancock and colleagues' (2016) study participants were primarily younger children who met criteria for GAD and/or social anxiety disorder. It is possible that HA responds to intervention differently, especially because HA tends to have a more somatic presentation in youth (Haig-Ferguson et al., 2020). Thus, the ACT intervention for HA in the present study was perhaps not targeting the same symptoms as the more general ACT interventions for anxiety. Additionally, Hancock and colleagues' (2016) sample was predominantly younger children, which likely would involve significant differences in implementation as compared to adolescents (see Petersen et al., 2022b). Overall, these findings broadly suggest that further work is needed in developmentally applying and understanding the implementation of ACT for anxiety and related problems—perhaps more sensitive developmental adaptation and application is necessary based on the age and presenting problem of the child or adolescent in order to elicit more transdiagnostic effects.

There were also no significant differences in reported depression by the adolescents in the ACT and waitlist groups, although the finding trended towards significance with small effect sizes between groups. This finding was arguably expected, as ACT studies on youth with anxiety have not historically found changes in depression (Petersen et al., 2022a, Smith et al., 2020). However, there is evidence to suggest that ACT can be helpful for youth when targeting depression specifically (L. L. Hayes et al., 2011, Livheim et al., 2015). Further research on targeting anxiety and depression symptoms simultaneously using ACT would be important for informing future treatment implementation. The present sample was also low on depression symptoms in general

(see Table 3), suggesting that there may be a possible floor effect. For example, only five of the 30 participants had comorbid major depressive disorder. Because depression was not a major concern for the majority of the adolescents in the sample, it may have been more difficult to target indirectly. Perhaps, when working with youth, it is important to target depression overtly and/or first, rather than assuming generalization of skills like one might with adults receiving ACT for anxiety (e.g., Wolitzky-Taylor et al., 2012).

### ***Process Outcomes***

There were also no significant differences found between groups for both psychological inflexibility and anxiety sensitivity. Despite the lack of significance, there were small between-group effect sizes for psychological inflexibility. ACT is intended to target psychological inflexibility, so these findings were not in line with the study predictions (S. C. Hayes et al., 2006). However, previous studies on ACT for youth have mixed findings on psychological inflexibility. For example, in the school-based, ACT intervention study discussed previously, adolescents who participated in the ACT group did not report significant differences in psychological inflexibility compared to those on the waitlist at post-treatment and follow-up (Petersen et al., 2022a). Alternatively, in the larger trial comparing ACT, CBT, and a waitlist (Hancock et al., 2016), the youth who received ACT or CBT reported improvements in psychological inflexibility as compared to the waitlist. However, as previously discussed, the sample within the study by Hancock and colleagues (2016) was mostly children. With this in mind, it is possible that the AFQY8, the only measure of psychological inflexibility validated on youth, has reduced sensitivity and/or is not reliable for tracking change in psychological inflexibility over time in adolescents. It may also be important to consider whether measuring

psychological *inflexibility* (like the AFQY8) is an accurate form of measuring psychological flexibility; youth may report low psychological inflexibility, but this does not automatically indicate high psychological flexibility (Cherry et al., 2021).

Additionally, similar to depression, these results may be hampered by floor effects. The average AFQY8 score was approximately an 11 out of 32. Although the AFQY8 currently does not have an established clinical cut-off score, it may have been hard to intervene on psychological inflexibility further with such a low starting point.

For anxiety sensitivity, there were also no differences between groups, and small effect sizes for within-group change. There is research supporting the importance of anxiety sensitivity as a relevant process for HA (Wright et al., 2006) and general anxiety in adolescents (Qi et al., 2021). Because of the observed decreased in HA, it was surprising to see no change in anxiety sensitivity between groups. On the other hand, there was also no differences in general anxiety, so this finding is arguably more consistent with the overall results. ACT does not specifically target anxiety sensitivity, even when tailored for HA, so it is possible that this process was ultimately irrelevant within the chosen intervention, despite the reported small within-group change. However, no current studies on ACT for HA measure anxiety sensitivity change, so it is difficult to understand if this finding is due to the intervention or something else (e.g., sample size).

### **Treatment Efficacy by Caretaker Report**

Caretakers in the ACT condition reported significantly greater decreases in child general anxiety as compared to those in the waitlist group. On average, both groups began within the clinical range of the SCARED-parent (i.e., scores greater than 25), but the ACT condition reported falling below the clinical cut-off at post and follow-up while

the waitlist condition remained within the clinical range. However, a reduction of at least 55% is required to be considered clinically significant, which was not met (Caporino et al., 2017). This finding was especially interesting given that the adolescents did not report significant differences in general anxiety between groups. There is one study suggesting that parent-child agreement on the SCARED is especially low, with children reporting more severe anxiety, subsequently bringing the parental validity into question (Cosi et al., 2010). Alternatively, a study on youth with social anxiety found that parent reports are better at predicting anxiety during a specific task rather than naturalistic settings (Bowers et al., 2020). It is therefore possible that the parental report may be a better predictor for youth struggling with HA, as HA is theoretically highly influenced by parental involvement and/or influence (Wright et al., 2017). In terms of previous intervention research, however, there is only one study on ACT for youth anxiety that includes parental/caretaker perspectives; the only available study found comparable effects, suggesting that parent also notice decrease in anxiety after their child receives ACT (Hancock et al., 2016). Thus, this finding is highly valuable, suggesting that ACT can affect change notable to caretakers.

Caretakers also reported significant improvements in parental psychological inflexibility as compared to the waitlist condition. However, when looking closely at the means, this change was only a couple points on average (see Table 4). It could be argued that this was not a clinically significant change, although data on what is considered a significant change in the PAQ is not available. Overall, the improvements in parental psychological inflexibility were especially interesting because most caretakers were not directly involved in sessions, although some parents reported learning concepts from their

children and/or practicing together. Looking to other studies, most intervention research using ACT has not explored the PAQ as a potential outcome with adolescents who have anxiety, OCD, and/or related problems. In a study of acceptance-enhanced behavior therapy (AEBT) for adolescents with trichotillomania, there were not significant changes in the PAQ compared to the waitlist condition (Twohig et al., 2021). There is one case study supporting the idea that the PAQ can be targeted via an ACT-based parenting intervention for a child with oppositional defiant disorder (Flujas-Contreras et al., 2022). However, this is, to my knowledge, the first study indicating that parental psychological inflexibility may be impacted by an adolescent intervention. Because of the dearth of research, however, it is difficult to discern how this finding may hold up in replication and/or with other samples. Regardless, parental psychological inflexibility is considered an important variable in adolescent mental health concerns (e.g., Beeckman et al., 2019); these results thereby provide important pilot evidence that parental psychological inflexibility can potentially be influenced via ACT for adolescents.

In contrast with the other caretaker outcomes, total familial accommodation and distress associated with familial accommodation did not differ significantly between the ACT and waitlist conditions. Because the sessions did not typically involve caretakers, this finding was not necessarily unexpected. However, because of the other significant caretaker outcomes, it is unclear why accommodation did not differ between groups. One possible explanation is that the accommodation scores were low generally; the maximum score on the total FAS is a 36, and the ACT group's average was an 11.3 ( $SD = 5.7$ ). The same pattern was observed for the FAS distress score, where the maximum was 12 ( $M = 4.5$ ,  $SD = 4.5$ ). It therefore may have been difficult to enact significant change with such

a low starting score. Furthermore, the present sample was diagnostically diverse and familial accommodation was likely not a clinical issue for all participants—the sample ranged from FAS total scores of 4 to 27. It is possible that familial accommodation was only a significant issue for youth with specific presenting problems (e.g., OCD).

However, other studies looking at ACT for youth anxiety and related problems do not measure familial accommodation (e.g., Shabani et al., 2019), so future research may clarify how ACT can influence familial accommodation.

### **Limitations and Future Directions**

Despite promising results, the present study has several significant limitations. First, the participants in this study were fairly homogenous: mostly White, non-Hispanic/Latine, female, and from financially privileged backgrounds. Although this is the first study of HA using ACT in the United States, further research with more racially and culturally diverse samples is needed. While there is nascent evidence suggesting that ACT can successfully be adapted to youth from a variety of racial and culture backgrounds (e.g., Petts et al., 2017), it is important to test the effectiveness and acceptability in diverse groups to best inform treatment implementation. The present sample is also small ( $N = 30$  dyads), and likely underpowered. It also uses a waitlist control group, which is not as informative as an active comparison group would be (e.g., CBT). On a similar note, the active group was in the pre- to post-treatment phase slightly longer than the waitlist (10.5 vs. 13.5 weeks). Future research may focus on exploring different intervention options for HA in larger samples of youth, including but not limited to other acceptance- and/or mindfulness-based treatments, traditional CBT, and so forth. By comparing to an active treatment and better controlling for time spent in the



intervention, the effectiveness of ACT can be better understood, particularly as a transdiagnostic approach.

Other limitations of this study are related to the implementation of the intervention. Ten sessions are a limited period of time, particularly for youth. The studies examining treating HA in adults have utilized between nine to twelve sessions (Eilenberg et al., 2013, 2016, Khesmakhi et al., 2019). The case study looking at the use of CBT for health-related anxiety in an adolescent utilized 12 sessions (Roberts-Collins, 2016). Other ACT with youth studies have been 8-10 sessions and have found generally similar findings (Hancock et al., 2016, Petersen et al., 2022a, Twohig et al., 2021); it may be important to lengthen the intervention to test if other outcomes (e.g., depression, psychological inflexibility) move more substantially with greater time in therapy. Furthermore, longer intervention time may more accurately mimic naturalistic therapy settings for youth. Another limitation is that only one therapist saw all 15 participants in the active condition. While treatment fidelity was monitored and rated highly, future studies should use a variety of therapists to assure that the outcomes are not due to a therapist effect, especially because of how several participants highlighted the therapeutic relationship as a highlight of the intervention.

Lastly, this study is limited by several measurement concerns. The CIAS has not been validated with a clinical population (Wright & Asmundson, 2005), and it is therefore possible that the CIAS does not function optimally within a clinical sample. Furthermore, caretaker general anxiety and HA were not measured. Previous research has demonstrated that child HA is positively correlated with parental HA (Thorgaard et al., 2017). A better understanding of caretaker psychopathology may also be informative in

understanding barriers and/or facilitators of symptom change within the family environment, particularly considering variables like familial accommodation. It also is a limitation that this study only measures follow-up at one-month from the end of treatment. Because adolescence is a period of development, longer follow-ups are imperative. It would be important to assess if gains are maintained from post-treatment to longer periods of time to understand how effective the intervention truly is for adolescents long-term, especially given the potential consequences of struggling with mental health concerns in adolescence (e.g., other psychopathology in adulthood; Beesdo et al., 2009). Relatedly, more frequent measurement of symptoms (e.g., session by session) may also provide insight into how the treatment is functioning and provide insight in how to best encourage maintenance of gains in adolescents receiving ACT for HA.

## **Conclusion**

In sum, the results of this pilot trial suggest that telehealth ACT for HA in adolescents has potential as an acceptable and effective intervention. However, further research is needed with larger and more diverse samples, as well as with more rigorous methodology and measurement. Despite these limitations, the present study adds to the growing research base supporting the use of ACT as an evidence-based intervention for adolescents.

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**Table 1***Demographic information about adolescents*

	Full Sample (N = 30)	ACT (n = 15)	Waitlist (n = 15)
Age, M (SD)	14.2 (1.6)	14.5 (1.6)	13.8 (1.5)
Gender Identity, n (%)			
Male	8 (26.7)	4 (26.7)	4 (26.7)
Female	20 (66.7)	10 (66.7)	10 (66.7)
Trans/Non-binary	2 (6.7)	1 (6.7)	1 (6.7)
Race, n (%)			
White	30 (100)	15 (100)	15 (100)
Ethnicity, n (%)			
Hispanic/Latine	3 (10)	2 (13.3)	1 (6.7)
Non-Hispanic/Latine	27 (90)	13 (86.7)	14 (93.3)
Current psychotherapy at intake, n (%)			
Yes	4 (13.3)	4 (26.7)	0 (0)
No	26 (86.7)	11 (73.3)	15 (100)
Current psychotherapy length, n (%)			
Less than 1 month	1 (3.3)	1 (6.7)	0 (0)
1-3 months	1 (3.3)	1 (6.7)	0 (0)
3-6 months	1 (3.3)	1 (6.7)	0 (0)
6 months - 1 year	1 (3.3)	1 (6.7)	0 (0)
Current psychotropic medication, n (%)			
Yes	12 (40)	6 (40)	6 (40)
No	18 (60)	9 (60)	9 (60)
Length of medication, n (%)			
1-3 months	3 (10)	1 (6.7)	2 (13.3)
3-6 months	2 (6.7)	1 (6.7)	1 (6.7)
6 months - 1 year	7 (23.3)	4 (26.7)	3 (20)

Current chronic health condition, n (%)			
Yes	1 (3.3)	0 (0)	1 (6.7)
No	27 (90)	13 (86.7)	14 (93.3)
Do Not Know	2 (6.7)	2 (13.3)	0 (0)
Primary diagnosis, n (%)			
OCD	8 (26.7)	4 (26.7)	4 (26.7)
GAD	13 (43.3)	6 (40)	7 (46.7)
PD	4 (13.3)	3 (20)	1 (6.6)
IAD	4 (13.3)	1 (6.6)	3 (20)
Emetophobia	1 (3.3)	1 (6.6)	0 (0)
Secondary diagnoses, n (%)			
ADHD – inattentive type	3 (10)	1 (6.6)	2 (13.3)
ADHD – combined type	1 (3.3)	1 (6.6)	0
MDD	5 (16.7)	4 (26.7)	1 (6.6)
ASD <sup>1</sup>	2 (6.7)	1 (6.6)	1 (6.6)
Trichotillomania	1 (3.3)	0	1 (6.6)
Specific phobia	1 (3.3)	1 (6.6)	0
Number of comorbidities, n (%)			
0	19 (63.3)	7 (46.7)	12 (80)
1	10 (33.3)	8 (53.3)	2 (13.3)
2	0 (0)	0 (0)	0 (0)
3	1 (3.3)	0 (0)	1

*Note.* OCD = Obsessive-Compulsive Disorder; GAD = Generalized Anxiety Disorder; PD = Panic Disorder (with or without agoraphobia); IAD = Illness Anxiety Disorder; ADHD = Attention-Deficit/Hyperactivity Disorder; MDD = Major Depressive Disorder; ASD = Autism Spectrum Disorder.

<sup>1</sup>Autism Spectrum Disorder cannot be ruled out.

**Table 2***Demographic information about caretakers*

	Full Sample (N=30)	ACT (n=15)	Waitlist (n=15)
Age, M (SD)	43.4 (4.9)	44.1 (4.4)	42.8 (5.5)
Gender identity, n (%)			
Male	4 (13.3)	1 (6.7)	3 (20)
Female	26 (86.7)	14 (93.3)	12 (80)
Ethnicity, n (%)			
Hispanic/Latine	5 (16.7)	3 (20)	2 (13.3)
Non-Hispanic/Latine	25 (83.3)	12 (80)	13 (86.7)
Race, n (%)			
White	30 (100)	15 (100)	15 (100)
Education, n (%)			
High school or equivalent	1 (3.3)	0 (0)	1 (6.7)
Some college	3 (10)	2 (13.3)	1 (6.7)
College or technical degree	2 (6.7)	0 (0)	2 (13.3)
Bachelor's degree	18 (60)	11 (73.3)	7 (46.7)
Master's or specialist degree	4 (13.3)	1 (6.7)	3 (20)
Doctoral degree	2 (6.7)	1 (6.7)	1 (6.7)
Marital status, n (%)			
Married	25 (83.3)	14 (93.3)	11 (73.3)
Widowed	1 (3.3)	0 (0)	1 (6.7)
Separated	1 (3.3)	0 (0)	1 (6.7)
Divorced or annulled	3 (10)	1 (6.7)	2 (13.3)
Household income, n (%)			
\$20,000 - \$39,999	2 (6.7)	2 (13.3)	0 (0)
\$40,000 - \$59,999	5 (16.7)	1 (6.7)	4 (26.7)
\$60,000 – \$79,999	4 (13.3)	3 (20)	1 (6.7)
\$80,000 - \$99,999	3 (10)	0 (0)	3 (20)
\$100,000 or more	16 (53.3)	9 (60)	7 (46.7)
Employment status, n (%)			

Full Time	13 (43.3)	6 (40)	7 (46.7)
Part Time	8 (26.7)	3 (20)	5 (33.3)
Unemployed	3 (10)	2 (13.3)	1 (6.7)
Stay-at-home parent	6 (20)	4 (26.7)	2 (13.3)

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**Table 3***Means and standard deviations over time for adolescent outcomes*

	Pre-treatment Week 0		Mid-treatment Week 5		Post-treatment Week 10		1-Month follow-up Week 14	
	ACT (n=15)	Waitlist (n=15)	ACT (n=14)	Waitlist (n=12)	ACT (n=14)	Waitlist (n=12)	ACT (n=12)	Waitlist (n=14)
CIAS	67.5 (8.0)	68.7 (11.4)	65.5 (9.8)	68.8 (12.3)	64.1 (9.8)	67.9 (8.2)	63.8 (10.1)	67.8 (8.9)
CASI	36.7 (6.1)	35.5 (7.0)	36.3 (6.4)	35.5 (7.0)	34.2 (6.5)	34.7 (6.5)	34.7 (5.1)	35.2 (8.2)
AFQY8	11.1 (6.7)	12.6 (6.8)	12.5 (6.1)	16.0 (7.7)	11.4 (6.5)	14.5 (7.6)	11.2 (5.3)	13.8 (8.5)
SCARED	40.4 (10.9)	39.5 (12.2)	39.7 (15.1)	43.5 (12.5)	36.4 (13.9)	39.1 (10.9)	39.0 (14.6)	40.7 (13.6)
CESD	23.9 (12.3)	18.3 (11.6)	23.9 (12.3)	18.3 (11.6)	23.5 (11.5)	22.3 (12.2)	22.5 (9.9)	21.4 (12.4)

*Note.* CIAS = Childhood Illness Attitude Scale, CASI = Childhood Anxiety Sensitivity Index, AFQ-Y8 = Avoidance and Fusion Questionnaire for Youth, SCARED = Screen for Child Anxiety and Related Disorders – Child Report, CESD = Center for Epidemiologic Studies Depression Scale.

**Table 4***Means and standard deviations over time for caretaker outcomes*

	Pre-treatment Week 0		Mid-treatment Week 5		Post-treatment Week 10		1-Month follow-up Week 14	
	ACT (n=15)	Waitlist (n=15)	ACT (n=15)	Waitlist (n=14)	ACT (n=14)	Waitlist (n=12)	ACT (n=13)	Waitlist (n=14)
SCARED	32.1 (10.1)	35.3 (11.0)	31.0 (13.2)	37.5 (10.3)	22.4 (11.0)	34.5 (14.6)	24.8 (13.5)	34.9 (16.0)
PAQ	34.3 (7.4)	36.9 (7.1)	35.4 (8.1)	40.3 (5.5)	33.2 (8.3)	39.8 (7.7)	35.0 (8.4)	39.4 (8.6)
FAS Total	11.3 (5.7)	13.9 (5.5)	10.9 (5.2)	13.7 (7.5)	9.7 (4.7)	12.5 (8.9)	9.7 (5.5)	12.5 (7.8)
FAS Distress	4.5 (3.2)	4.2 (2.3)	4.0 (3.6)	3.6 (2.2)	4.4 (3.7)	4.4 (2.9)	3.2 (4.1)	3.7 (2.2)

*Note.* SCARED = Screen for Child Anxiety and Related Disorders – Parent Report, FAS = Familial Accommodation Scale - Anxiety, PAQ = Parental Acceptance Questionnaire.

**Table 5**

*Estimated marginal means and 95% confidence intervals from best-fitting multilevel models for adolescent outcomes*

	CIAS	CASI	AFQY8	SCARED - Child	CESD
Intercept	67.30 [62.28; 72.32]*	36.95 [33.72; 40.17]*	11.80 [ 8.40; 15.20]*	40.60 [34.17; 47.03]*	24.46 [ 18.40; 30.52]*
Week	-0.34 [-0.56; -0.13]*	-0.25 [-0.43; -0.06]*	-0.07 [-0.27; 0.13]	-0.37 [-0.72; - 0.03]*	-0.18 [ - 0.45; 0.09]
Condition	1.99 [-5.12; 9.10]	-1.35 [-5.91; 3.22]	1.74 [-3.08; 6.56]	-0.08 [-9.19; 9.03]	-5.21 [- 13.79; 3.37]
Week × Condition	0.34 [ 0.04; 0.63]*	0.21 [-0.05; 0.47]	0.12 [-0.15; 0.40]	0.36 [-0.11; 0.83]	0.33 [ -0.04; 0.70]
BIC	720.37	666.78	686.12	803.71	765.64
Number of observations	108	107	108	108	108
Number of participants	30	30	30	30	30

\* 0 outside the confidence interval.

<sup>1</sup> Relative to waitlist condition.

<sup>2</sup> Best-fitting model at  $p < .05$ .

*Note.* CIAS = Childhood Illness Attitude Scale, CASI = Childhood Anxiety Sensitivity Index, AFQ-Y8 = Avoidance and Fusion Questionnaire for Youth, SCARED = Screen for Child Anxiety and Related Disorders – Child Report, CES-D = Center for Epidemiologic Studies Depression Scale.



**Table 6**

*Estimated marginal means and 95% confidence intervals from best-fitting multilevel models for caretaker outcomes*

	SCARED - Caretaker	FAS Total	FAS Distress	PAQ
Intercept	32.41 [26.25; 38.57]*	11.38 [ 8.34; 14.42]*	4.61 [ 3.05; 6.17]*	34.50 [30.56; 38.45]*
Week	-0.69 [-0.97; - 0.42]*	-0.10 [-0.26; 0.06]	-0.04 [-0.13; 0.05]	-0.10 [-0.26; 0.07]
Condition	3.51 [-5.22; 12.23]	2.72 [-1.59; 7.03]	-0.51 [-2.73; 1.70]	2.69 [-2.90; 8.27]
Week × Condition	0.60 [ 0.22; 0.98]*	-0.00 [-0.23; 0.22]	0.03 [-0.09; 0.15]	0.24 [ 0.01; 0.47]*
BIC	758.35	641.20	517.53	658.52
Number of observations	106	106	107	106
Number of participants	30	30	30	30

\* 0 outside the confidence interval.

<sup>1</sup> Relative to waitlist condition.

<sup>2</sup> Best-fitting model at  $p < .05$ .

*Note.* SCARED = Screen for Child Anxiety and Related Disorders – Parent Report, FAS = Familial Accommodation Scale - Anxiety, PAQ = Parental Acceptance Questionnaire.

**Table 7**

*Hedges' g effect sizes within ACT condition and between groups across timepoints for adolescent outcomes*

	Pre- to mid-treatment		Pre- to post-treatment		Pre-treatment to one month follow-up	
	Within-group <sup>a</sup>	Between-groups	Within-group <sup>a</sup>	Between-groups	Within-group <sup>a</sup>	Between-groups
CIAS	.22	-.22	.37	-.27	.41	-.25
CASI	.06 <sup>b</sup>	.15 <sup>b</sup>	.39	.05 <sup>b</sup>	.35	.08 <sup>b</sup>
AFQ-Y8	-.22	-.34	-.04 <sup>b</sup>	-.31	-.01 <sup>b</sup>	-.29
SCARED	.05 <sup>b</sup>	-.09 <sup>b</sup>	.32	-.07 <sup>b</sup>	.11 <sup>b</sup>	-.02 <sup>b</sup>
CESD	-.06 <sup>b</sup>	.31	.03 <sup>b</sup>	.32	.12 <sup>b</sup>	.30

<sup>a</sup> Within treatment group

<sup>b</sup> Negligible

*Note.* CIAS = Childhood Illness Attitude Scale, CASI = Childhood Anxiety Sensitivity Index, AFQ-Y8 = Avoidance and Fusion Questionnaire for Youth, SCARED = Screen for Child Anxiety and Related Disorders – Child Report, CES-D = Center for Epidemiologic Studies Depression Scale.

**Table 8**

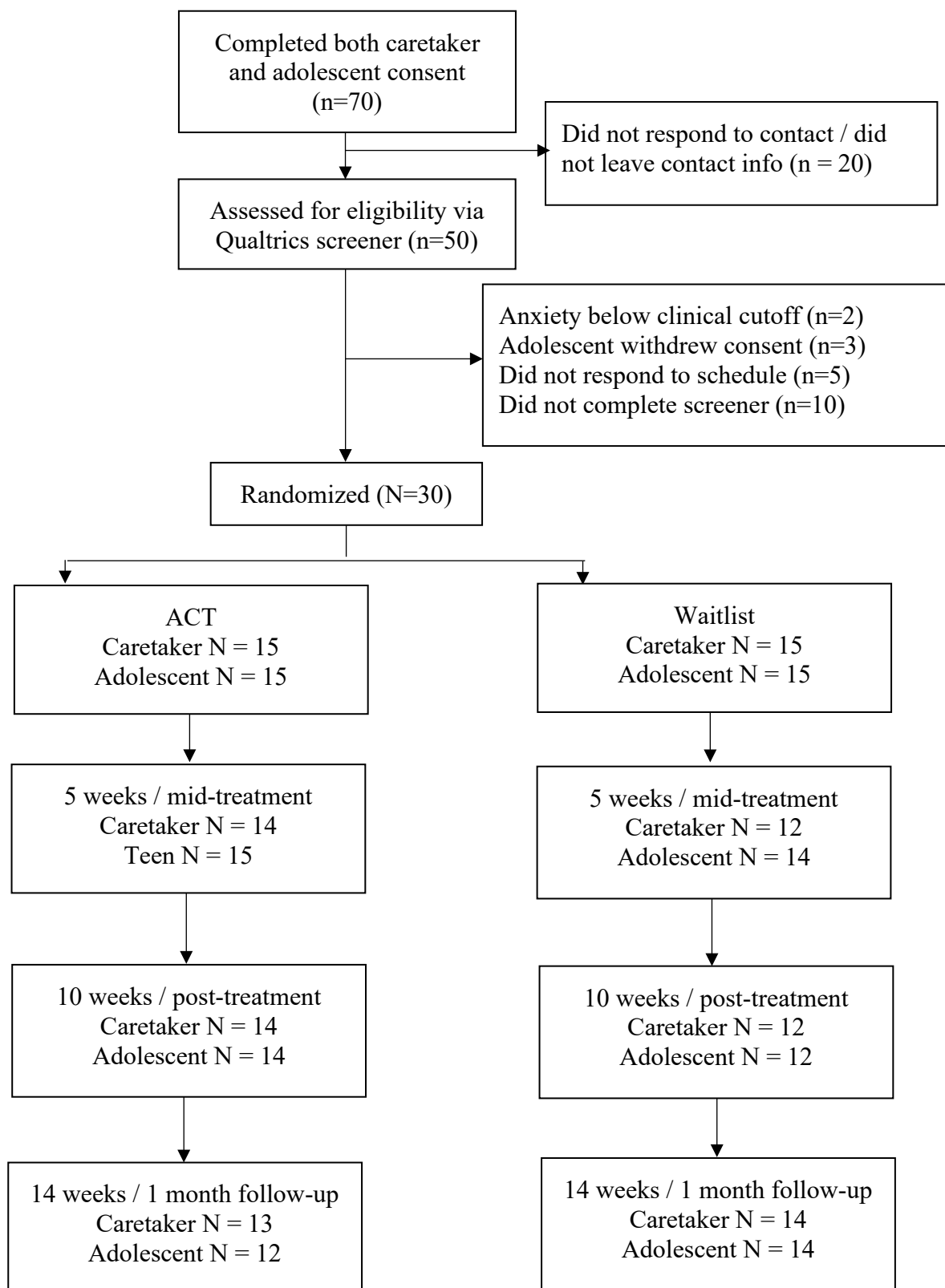
*Hedges' g effect sizes within ACT condition and between groups across timepoints for caretaker outcomes*

	Pre- to mid-treatment		Pre- to post-treatment		Pre-treatment to one month follow-up	
	Within-group <sup>a</sup>	Between-groups	Within-group <sup>a</sup>	Between-groups	Within-group <sup>a</sup>	Between-groups
SCARED	.09 <sup>b</sup>	-.43	.93	-.64	.62	-.50
PAQ	-.14	-.49	.14 <sup>b</sup>	-.56	-.08 <sup>b</sup>	-.44
FAS Total	.07 <sup>b</sup>	-.47	.30	-.47	.28	-.44
FAS Distress	.14 <sup>b</sup>	.11 <sup>b</sup>	.03 <sup>b</sup>	.04 <sup>b</sup>	.34	-.02 <sup>b</sup>

<sup>a</sup> Within treatment group

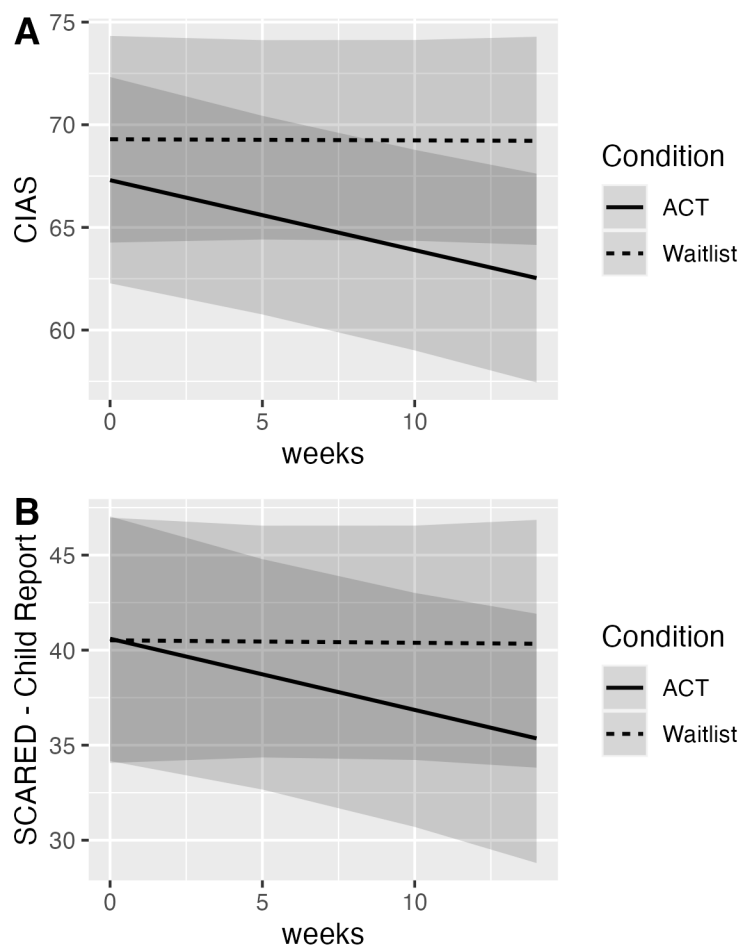
<sup>b</sup> Negligible

*Note.* SCARED = Screen for Child Anxiety and Related Disorders – Parent Report, FAS = Familial Accommodation Scale - Anxiety, PAQ = Parental Acceptance Questionnaire.

**Figure 1***CONSORT diagram for participant flow in the full sample*

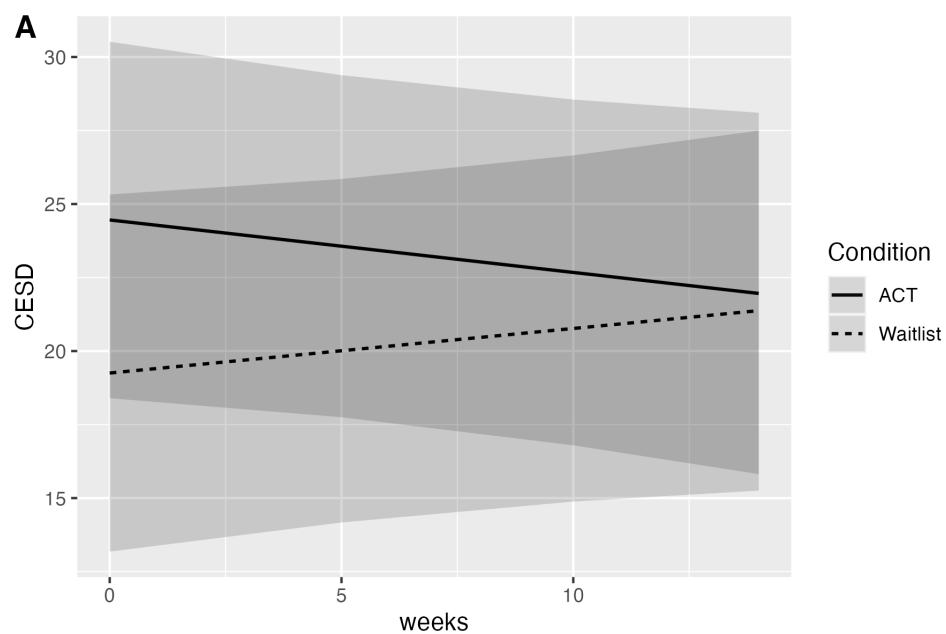
**Figure 2**

*Estimated marginal means and standard error ribbons from best-fitting models for adolescent health-related and general anxiety at  $p < .05$*



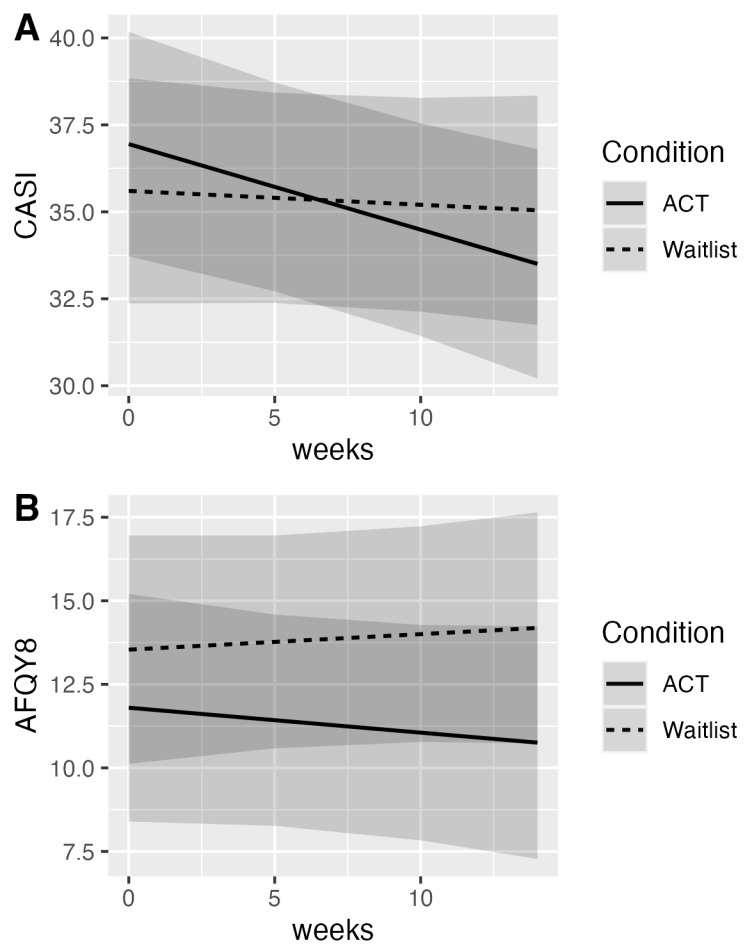
**Figure 3**

*Estimated marginal means and standard error ribbons from best-fitting models for adolescent depression at  $p < .05$*



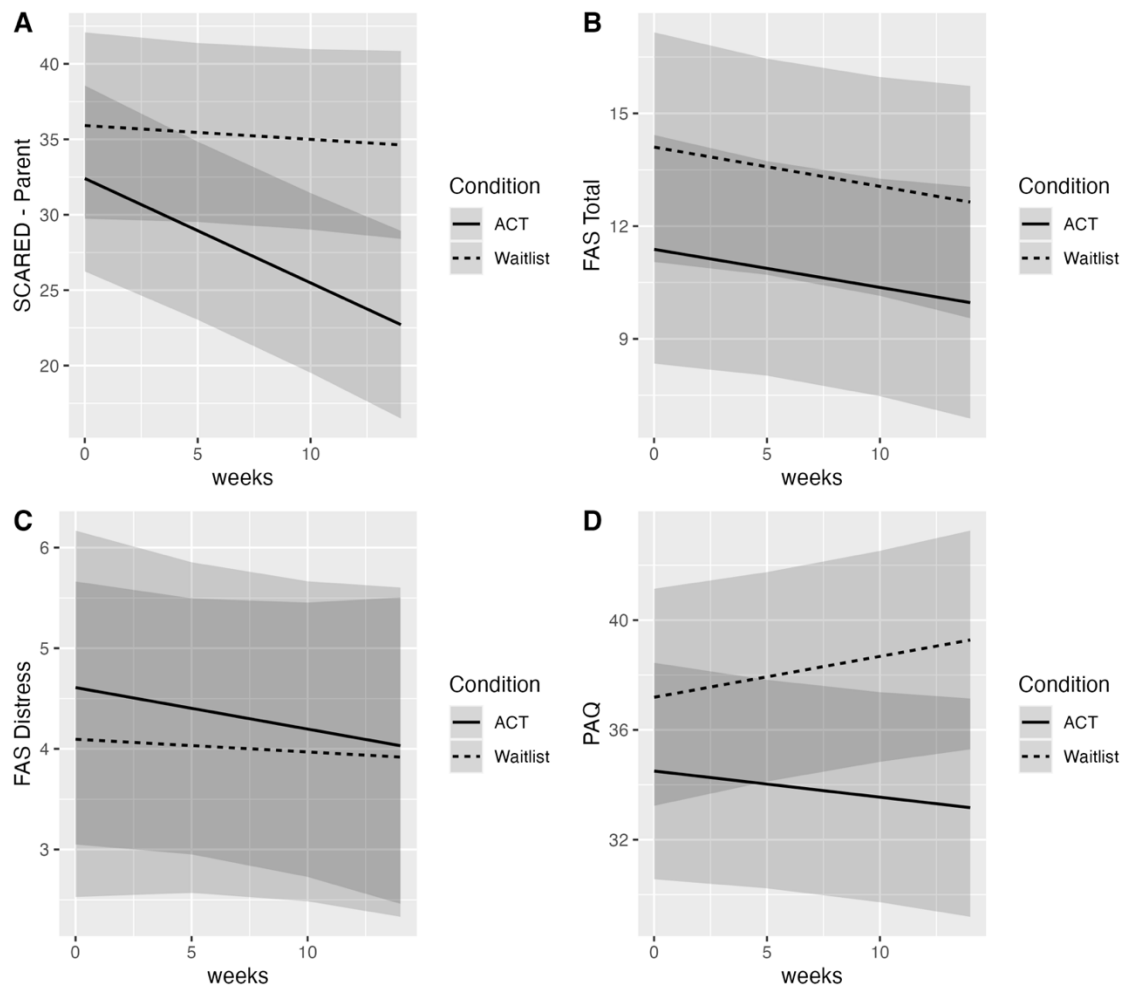
**Figure 4**

*Estimated marginal means and standard error ribbons from best-fitting models for process outcomes in adolescent participants at  $p < .05$*



**Figure 5**

*Estimated marginal means and standard error ribbons from best-fitting models for caretaker outcomes at  $p < .05$*





## Appendix: Measures

**Eligibility Questions**

1. What is your age?
2. Do you currently live in Utah
  - a. Yes
  - b. No
3. How did you hear about this study?
  - a. Facebook ad
  - b. Google ad
  - c. My doctor/therapist/provider told me about it
  - d. Someone from my friends/family told me about it
  - e. Paper flyer
  - f. Online posting
  - g. Email
  - h. Newspaper ad
  - i. Other (Please specify \_\_\_\_\_)

### Childhood Illness Attitude Scales (CIAS)

Directions: Below are a number of questions. Read each question carefully and put an X on the

line in front of the words that best answers the question. There are no right or wrong answers. Remember, find the words that best answers the question.

1. Do you worry about your health?

\_\_\_ None of the time \_\_\_ Sometimes \_\_\_ A lot of the time

2. Are you worried that you might get really sick in the future?

\_\_\_ None of the time \_\_\_ Sometimes \_\_\_ A lot of the time

3. Does the thought of being sick scare you?

\_\_\_ None of the time \_\_\_ Sometimes \_\_\_ A lot of the time

4. If you have pain, do you worry that it may be caused by a bad sickness?

\_\_\_ None of the time \_\_\_ Sometimes \_\_\_ A lot of the time

5. If pain lasts for a week or more, do you tell your mom or dad?

\_\_\_ None of the time \_\_\_ Sometimes \_\_\_ A lot of the time

6. If pain lasts for a week or more, do you ask your mom or dad if you can go to the doctor?

\_\_\_ None of the time \_\_\_ Sometimes \_\_\_ A lot of the time

7. If pain lasts for a week or more, do you believe that you have a bad sickness?

\_\_\_ None of the time \_\_\_ Sometimes \_\_\_ A lot of the time

8. Do you try not to have habits that may be bad for you, such as smoking, drinking, or drugs?

\_\_\_ None of the time \_\_\_ Sometimes \_\_\_ A lot of the time

9. Do you try not to eat foods that may not be good for you (such as junk food)?

\_\_\_ None of the time \_\_\_ Sometimes \_\_\_ A lot of the time

10. Do you check your body to find out if there is something wrong?

\_\_\_ None of the time \_\_\_ Sometimes \_\_\_ A lot of the time

11. Do you believe that you are really sick, but the doctors do not know why?

\_\_\_ None of the time \_\_\_ Sometimes \_\_\_ A lot of the time

12. When you feel sick, do you tell your mom or dad?

\_\_\_ None of the time \_\_\_ Sometimes \_\_\_ A lot of the time

13. When you feel sick, do you ask your mom or dad if you can go to the doctor?

\_\_\_ None of the time \_\_\_ Sometimes \_\_\_ A lot of the time

14. Do you ask your mom or dad for medicine?

\_\_\_ None of the time \_\_\_ Sometimes \_\_\_ A lot of the time

15. When your doctor tells you that you are not sick, do you not believe him/her?

\_\_\_ None of the time \_\_\_ Sometimes \_\_\_ A lot of the time

16. If a doctor tells you what he/she found, do you soon begin to believe that you might have another sickness?

\_\_\_ None of the time \_\_\_ Sometimes \_\_\_ A lot of the time

17. Are you afraid of news that reminds you of death?

\_\_\_ None of the time \_\_\_ Sometimes \_\_\_ A lot of the time

18. Does the thought of dying scare you?

\_\_\_ None of the time \_\_\_ Sometimes \_\_\_ A lot of the time

19. Are you afraid that you might die soon?

\_\_\_ None of the time \_\_\_ Sometimes \_\_\_ A lot of the time

20. Are you afraid that you might have cancer?

\_\_\_ None of the time \_\_\_ Sometimes \_\_\_ A lot of the time

21. Are you afraid that you have something wrong with your heart?

\_\_\_ None of the time \_\_\_ Sometimes \_\_\_ A lot of the time

22. Are you afraid that you have another bad sickness?

\_\_\_ None of the time \_\_\_ Sometimes \_\_\_ A lot of the time

Which sickness? \_\_\_\_\_

23. When you read or hear about a sickness, do you think that you might have that sickness?

\_\_\_ None of the time \_\_\_ Sometimes \_\_\_ A lot of the time

24. When you have a strange feeling in your body, do you find it hard to think about something else?

\_\_\_ None of the time \_\_\_ Sometimes \_\_\_ A lot of the time

25. When you have a strange feeling in your body, do you worry

\_\_\_ None of the time \_\_\_ Sometimes \_\_\_ A lot of the time

26. When you have a strange feeling in your body, do you tell

your mom or dad?

\_\_\_ None of the time \_\_\_ Sometimes \_\_\_ A lot of the time

27. When you have a strange feeling in your body, do you ask your mom or dad if you can go to the doctor?

\_\_\_ None of the time \_\_\_ Sometimes \_\_\_ A lot of the time

28. Has your doctor told you that you have a sickness?

\_\_\_ Yes \_\_\_ No

If yes, what sickness? \_\_\_\_\_

29. How many times have you seen your doctor in the last year?

\_\_\_ 0 times \_\_\_ 1-2 times \_\_\_ 3 or more times

30. How many doctors have you seen in the past year?

\_\_\_ 0 times \_\_\_ 1-2 \_\_\_ 3 or more

31. How often have you been treated (had to take medicine or had surgery) during the past year?

\_\_\_ 0 times \_\_\_ 1-2 times \_\_\_ 3 or more times

32. If you have had treatments in the last year, what were they?

\_\_\_\_\_

The next three questions concern feelings in your body (for example, pain, aches, pressure in your body, breathing problems, being tired etc.)

33. Do strange feelings in your body stop you from going to school?

\_\_\_ None of the time \_\_\_ Sometimes \_\_\_ A lot of the time

34. Do strange feelings in your body stop you from enjoying yourself?

\_\_\_ None of the time \_\_\_ Sometimes \_\_\_ A lot of the time

35. Do strange feelings in your body stop you from keeping your mind on what you are doing?

\_\_\_ None of the time \_\_\_ Sometimes \_\_\_ A lot of the time

**Screen for Child Anxiety Related Disorders (SCARED)****Child Version**

Below is a list of sentences that describe how people feel. Read each phrase and decide if it is “Not True or Hardly Ever True” or “Somewhat True or Sometimes True” or Very True or Often True” for you. Then for each sentence, fill in one circle that corresponds to the response that seems to describe you for the last 3 months.

1. When I feel frightened, it is hard for me to breathe

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

2. I get headaches when I am at school

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

3. I don't like to be with people I don't know well

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

4. I get scared if I sleep away from home

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

5. I worry about other people liking me

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

6. When I get frightened, I feel like passing out

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

7. I am nervous

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

8. I follow my mother or father wherever they go

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

9. People tell me that I look nervous

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

10. I feel nervous with people I don't know well

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

11. My I get stomachaches at school

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

12. When I get frightened, I feel like I am going crazy

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

13. I worry about sleeping alone

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

14. I worry about being as good as other kids

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

15. When I get frightened, I feel like things are not real

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

16. I have nightmares about something bad happening to my parents

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

17. I worry about going to school

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

18. When I get frightened, my heart beats fast

0 = Not True or Hardly Ever True



1 = Somewhat True or Sometimes True

2 = Very True or Often True

19. I get shaky

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

20. I have nightmares about something bad happening to me

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

21. I worry about things working out for me

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

22. When I get frightened, I sweat a lot

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

23. I am a worrier

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

24. I get really frightened for no reason at all

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

25. I am afraid to be alone in the house

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

26. It is hard for me to talk with people I don't know well

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

27. When I get frightened, I feel like I am choking

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

28. People tell me that I worry too much

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

29. I don't like to be away from my family

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

30. I am afraid of having anxiety (or panic) attacks

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

31. I worry that something bad might happen to my parents

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

32. I feel shy with people I don't know well

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

33. I worry about what is going to happen in the future

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

34. When I get frightened, I feel like throwing up

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

35. I worry about how well I do things

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

36. I am scared to go to school

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

37. I worry about things that have already happened

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

38. When I get frightened, I feel dizzy

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

39. I feel nervous when I am with other children or adults and I have to do something while they watch me (for example: read aloud, speak, play a game, play a sport)

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

40. I feel nervous when I am going to parties, dances, or any place where there will be people that I don't know well

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

41. I am shy

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

### **Parent Version**

Below is a list of sentences that describe how people feel. Read each phrase and decide if it is "Not True or Hardly Ever True" or "Somewhat True or Sometimes True" or Very True or Often True" for your child. Then for each sentence, fill in one circle that

corresponds to the response that seems to describe your child for the last 3 months. Please respond to all statements as well as you can, even if some do not concern your child.

1. When my child feels frightened, it is hard for him/her to breathe

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

2. My child gets headaches when he/she is at school

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

3. My child doesn't like to be with people he/she doesn't know well

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

4. My child gets scared if he/she sleeps away from home

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

5. My child worries about other people liking him/her

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

6. When my child gets frightened, he/she feels like passing out

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

7. My child is nervous

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

8. My child follows me wherever they go

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

9. People tell me that my child looks nervous

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

10. My child feels nervous with people he/she doesn't know well

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

11. My child gets stomachaches at school

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

12. When my child gets frightened, he/she feels like he/she is going crazy

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

13. My child worries about sleeping alone

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

14. My child worries about being as good as other kids

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

15. When he/she gets frightened, he/she feels like things are not real

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

16. My child has nightmares about something bad happening to his/her parents

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

17. My child worries about going to school

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

18. When my child gets frightened, his/her heart beats fast

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

19. He/she gets shaky

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

20. My child has nightmares about something bad happening to him/her

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

21. My child worries about things working out for him/her

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

22. When my child gets frightened, he/she sweats a lot

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

23. My child is a worrier

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

24. My child gets really frightened for no reason at all

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

25. My child is afraid to be alone in the house

0 = Not True or Hardly Ever True



1 = Somewhat True or Sometimes True

2 = Very True or Often True

26. It is hard for my child to talk with people he/she doesn't know well

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

27. When my child gets frightened, he/she feels like he/she is choking

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

28. People tell me that my child worries too much

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

29. My child doesn't like to be away from his/her family

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

30. My child is afraid of having anxiety (or panic) attacks

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

31. My child worries that something bad might happen to his/her parents

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

32. My child feels shy with people he/she doesn't know well

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

33. My child worries about what is going to happen in the future

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

34. When my child gets frightened, he/she feels like throwing up

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

35. My child worries about how well he/she does things

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

36. My child is scared to go to school

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

37. My child worries about things that have already happened

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

38. When my child gets frightened, he/she feels dizzy

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

39. My child feels nervous when they are with other children or adults and he/she has to do something while they watch him/her (for example: read aloud, speak, play a game, play a sport)

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

40. My child feels nervous when I am going to parties, dances, or any place where there will be people that he/she doesn't know well

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

41. My child is shy

0 = Not True or Hardly Ever True

1 = Somewhat True or Sometimes True

2 = Very True or Often True

**Center for Epidemiological Studies Depression Scale (CESD)**

Below is a list of the ways you might have felt or behaved. Please tell me how often you have felt this way during the past week.

1. I was bothered by things that usually don't bother me.

1 = Rarely or none of the time (less than 1 day )

2 = Some or a little of the time (1-2 days)

3 = Occasionally or a moderate amount of time (3-4 days)

4 = Most or all of the time (5-7 days)

2. I did not feel like eating; my appetite was poor.

1 = Rarely or none of the time (less than 1 day )

2 = Some or a little of the time (1-2 days)

3 = Occasionally or a moderate amount of time (3-4 days)

4 = Most or all of the time (5-7 days)

3. I felt that I could not shake off the blues even with help from my family or friends.

1 = Rarely or none of the time (less than 1 day )

2 = Some or a little of the time (1-2 days)

3 = Occasionally or a moderate amount of time (3-4 days)

4 = Most or all of the time (5-7 days)

4. I felt I was just as good as other people.

1 = Rarely or none of the time (less than 1 day )

2 = Some or a little of the time (1-2 days)

3 = Occasionally or a moderate amount of time (3-4 days)

4 = Most or all of the time (5-7 days)

5. I had trouble keeping my mind on what I was doing.

1 = Rarely or none of the time (less than 1 day )

2 = Some or a little of the time (1-2 days)

3 = Occasionally or a moderate amount of time (3-4 days)

4 = Most or all of the time (5-7 days)

6. I felt depressed.

1 = Rarely or none of the time (less than 1 day )

2 = Some or a little of the time (1-2 days)

3 = Occasionally or a moderate amount of time (3-4 days)

4 = Most or all of the time (5-7 days)

7. I felt that everything I did was an effort.

1 = Rarely or none of the time (less than 1 day )

2 = Some or a little of the time (1-2 days)

3 = Occasionally or a moderate amount of time (3-4 days)

4 = Most or all of the time (5-7 days)

8. I felt hopeful about the future.

1 = Rarely or none of the time (less than 1 day )

2 = Some or a little of the time (1-2 days)

3 = Occasionally or a moderate amount of time (3-4 days)

4 = Most or all of the time (5-7 days)

9. I thought my life had been a failure.

1 = Rarely or none of the time (less than 1 day )

2 = Some or a little of the time (1-2 days)

3 = Occasionally or a moderate amount of time (3-4 days)

4 = Most or all of the time (5-7 days)

10. I felt fearful.

1 = Rarely or none of the time (less than 1 day )

2 = Some or a little of the time (1-2 days)

3 = Occasionally or a moderate amount of time (3-4 days)

4 = Most or all of the time (5-7 days)

11. My sleep was restless.

1 = Rarely or none of the time (less than 1 day )

2 = Some or a little of the time (1-2 days)

3 = Occasionally or a moderate amount of time (3-4 days)

4 = Most or all of the time (5-7 days)

12. I was happy.

1 = Rarely or none of the time (less than 1 day )

2 = Some or a little of the time (1-2 days)

3 = Occasionally or a moderate amount of time (3-4 days)

4 = Most or all of the time (5-7 days)

13. I talked less than usual.

1 = Rarely or none of the time (less than 1 day )

2 = Some or a little of the time (1-2 days)

3 = Occasionally or a moderate amount of time (3-4 days)

4 = Most or all of the time (5-7 days)

14. I felt lonely.

1 = Rarely or none of the time (less than 1 day )

2 = Some or a little of the time (1-2 days)

3 = Occasionally or a moderate amount of time (3-4 days)

4 = Most or all of the time (5-7 days)

15. People were unfriendly.

1 = Rarely or none of the time (less than 1 day )

2 = Some or a little of the time (1-2 days)

3 = Occasionally or a moderate amount of time (3-4 days)

4 = Most or all of the time (5-7 days)

16. I enjoyed life.

1 = Rarely or none of the time (less than 1 day )

2 = Some or a little of the time (1-2 days)

3 = Occasionally or a moderate amount of time (3-4 days)

4 = Most or all of the time (5-7 days)

17. I had crying spells.

1 = Rarely or none of the time (less than 1 day )

2 = Some or a little of the time (1-2 days)

3 = Occasionally or a moderate amount of time (3-4 days)

4 = Most or all of the time (5-7 days)

18. I felt sad.

1 = Rarely or none of the time (less than 1 day )

2 = Some or a little of the time (1-2 days)

3 = Occasionally or a moderate amount of time (3-4 days)

4 = Most or all of the time (5-7 days)

19. I felt that people dislike me.

1 = Rarely or none of the time (less than 1 day )

2 = Some or a little of the time (1-2 days)

3 = Occasionally or a moderate amount of time (3-4 days)

4 = Most or all of the time (5-7 days)

20. I could not get “going.”

1 = Rarely or none of the time (less than 1 day )

2 = Some or a little of the time (1-2 days)

3 = Occasionally or a moderate amount of time (3-4 days)

4 = Most or all of the time (5-7 days)

**Children's Anxiety Sensitivity Index (CASI)**

Directions: A number of statements which boys and girls use to describe themselves are given below. Read each statement carefully and put an X on the line in front of the words that describe you. There are no right or wrong answers. Remember, find the words that best describe you.

1. I don't want other people to know when I feel afraid.

None

Some

A lot

2. When I cannot keep my mind on my schoolwork I worry that I might be going crazy.

None

Some

A lot

3. It scares me when I feel "shaky".

None

Some

A lot

4. It scares me when I feel like I am going to faint.

None

Some

A lot

5. It is important for me to stay in control of my feelings.

None

Some

A lot

6. It scares me when my heart beats fast.

None

Some

A lot

7. It embarrasses me when my stomach growls (makes noise).

None

Some

A lot

8. It scares me when I feel like I am going to throw up.

None

Some

A lot



9. When I notice that my heart is beating fast, I worry that there might be something wrong with me.

None

Some

A lot

10. It scares me when I have trouble getting my breath.

None

Some

A lot

11. When my stomach hurts, I worry that I might be really sick.

None

Some

A lot

12. It scares me when I can't keep my mind on my schoolwork.

None

Some

A lot

13. Other kids can tell when I feel shaky.

None

Some

A lot

14. Unusual feelings in my body scare me.

None

Some

A lot

15. When I am afraid, I worry that I might be crazy.

None

Some

A lot

16. It scares me when I feel nervous.

None

Some

A lot

17. I don't like to let my feelings show.

None

Some

A lot

18. Funny feelings in my body scare me.

None

Some

A lot

**Avoidance and Fusion Questionnaire for Youth 8 item (AFQ-Y8)**

We want to know more about what you think, how you feel, and what you do. Read each sentence. Then, circle a number between 0-4 that tells how true each sentence is for you.

1. My life won't be good until I feel happy.

0 = Not at all true

1 = A little true

2 = Pretty true

3 = True

4 = Very true

2. My thoughts and feelings mess up my life.

0 = Not at all true

1 = A little true

2 = Pretty true

3 = True

4 = Very true

3. The bad things I think about myself must be true.

0 = Not at all true

1 = A little true

2 = Pretty true

3 = True

4 = Very true

4. If my heart beats fast, there must be something wrong with me.

0 = Not at all true

1 = A little true

2 = Pretty true

3 = True

4 = Very true

5. I stop doing things that are important to me whenever I feel bad.

0 = Not at all true

1 = A little true

2 = Pretty true

3 = True

4 = Very true

6. I do worse in school when I have thoughts that make me feel sad.

0 = Not at all true

1 = A little true

2 = Pretty true

3 = True

4 = Very true

7. I am afraid of my feelings.

0 = Not at all true

1 = A little true

2 = Pretty true

3 = True

4 = Very true

8. I can't be a good friend when I feel upset.

0 = Not at all true

1 = A little true

2 = Pretty true

3 = True

4 = Very true

**Parental Acceptance Questionnaire (6PAQ)**

1. When interacting with my child, I focus on our time together.

- 1 = Strongly disagree/never
- 2 = disagree/infrequently
- 3 = agree/often
- 4 = strongly agree/almost always

2. I am consistent in my parenting practices.

- 1 = Strongly disagree/never
- 2 = disagree/infrequently
- 3 = agree/often
- 4 = strongly agree/almost always

3. I would rather give in to my child than have him/her make a scene in public.

- 1 = Strongly disagree/never
- 2 = disagree/infrequently
- 3 = agree/often
- 4 = strongly agree/almost always

4. I get upset if things don't go my way when I interact with my child.

- 1 = Strongly disagree/never
- 2 = disagree/infrequently
- 3 = agree/often
- 4 = strongly agree/almost always

5. I can clearly state my values related to parenting.

- 1 = Strongly disagree/never
- 2 = disagree/infrequently
- 3 = agree/often
- 4 = strongly agree/almost always

6. If someone criticizes my parenting, I must be a bad parent.

- 1 = Strongly disagree/never
- 2 = disagree/infrequently
- 3 = agree/often
- 4 = strongly agree/almost always

7. My parenting behaviors are based on what matters to me as a parent rather than how I feel in the moment.

- 1 = Strongly disagree/never
- 2 = disagree/infrequently
- 3 = agree/often
- 4 = strongly agree/almost always

8. I feel like my mind is somewhere else when I play with my child.

- 1 = Strongly disagree/never
- 2 = disagree/infrequently
- 3 = agree/often
- 4 = strongly agree/almost always

9. When my child misbehaves I find myself wrapped in my emotions rather than dealing with the behavior.

- 1 = Strongly disagree/never
- 2 = disagree/infrequently
- 3 = agree/often
- 4 = strongly agree/almost always

10. My actions as a parent are consistent with my values.

- 1 = Strongly disagree/never
- 2 = disagree/infrequently
- 3 = agree/often
- 4 = strongly agree/almost always

11. I have negative thoughts about myself when my child behaves in a negative way.

- 1 = Strongly disagree/never
- 2 = disagree/infrequently
- 3 = agree/often
- 4 = strongly agree/almost always

12. It is difficult to initiate/maintain routines because I don't want to deal with my child's reactions.

- 1 = Strongly disagree/never
- 2 = disagree/infrequently
- 3 = agree/often
- 4 = strongly agree/almost always

13. When parenting doesn't go as I had planned, I feel like a failure.

- 1 = Strongly disagree/never
- 2 = disagree/infrequently
- 3 = agree/often
- 4 = strongly agree/almost always

14. I avoid taking my child to the store for fear of how they will behave.

- 1 = Strongly disagree/never
- 2 = disagree/infrequently
- 3 = agree/often
- 4 = strongly agree/almost always

15. I am able to sacrifice convenience for effective discipline.

- 1 = Strongly disagree/never
- 2 = disagree/infrequently

3 = agree/often

4 = strongly agree/almost always

16. I'm a bad parent when my child misbehaves.

1 = Strongly disagree/never

2 = disagree/infrequently

3 = agree/often

4 = strongly agree/almost always

17. When spending time with my child, I find myself planning my day and thinking of the things I need to get done.

1 = Strongly disagree/never

2 = disagree/infrequently

3 = agree/often

4 = strongly agree/almost always

18. I have clear parenting values that guide my interactions with my child.

1 = Strongly disagree/never

2 = disagree/infrequently

3 = agree/often

4 = strongly agree/almost always

### **Familial accommodation scale – Anxiety**

#### **Participation in symptom-related behaviors in the past month**

1. How often did you reassure your child?

0 (Never) 1 (1-3 times a month) 2 (1-2 times a week) 3 (3-6 times a week) 4 (Daily)

2. How often did you provide items needed because of anxiety?

0 (Never) 1 (1-3 times a month) 2 (1-2 times a week) 3 (3-6 times a week) 4 (Daily)

3. How often did you participate in behaviors related to your child's anxiety?

0 (Never) 1 (1-3 times a month) 2 (1-2 times a week) 3 (3-6 times a week) 4 (Daily)

4. How often did you assist your child in avoiding things that might make him/her more anxious?

0 (Never) 1 (1-3 times a month) 2 (1-2 times a week) 3 (3-6 times a week) 4 (Daily)

5. Have you avoided doing things, going places, or being with people because of your child's anxiety?

0 (Never) 1 (1-3 times a month) 2 (1-2 times a week) 3 (3-6 times a week) 4 (Daily)

#### **Modification of functioning during the past month**

6. Have you modified your family routine because of your child's symptoms?

0 (Never) 1 (1-3 times a month) 2 (1-2 times a week) 3 (3-6 times a week) 4 (Daily)

7. Have you had to do things that would usually be your child's responsibility?

0 (Never) 1 (1-3 times a month) 2 (1-2 times a week) 3 (3-6 times a week) 4 (Daily)

8. Have you modified your work schedule because of your child's anxiety?

0 (Never) 1 (1-3 times a month) 2 (1-2 times a week) 3 (3-6 times a week) 4 (Daily)

9. Have you modified your leisure activities because of your child's anxiety?

0 (Never) 1 (1-3 times a month) 2 (1-2 times a week) 3 (3-6 times a week) 4 (Daily)

#### **Distress and consequences**

Does helping your child in these ways cause you distress?

0 (No) 1 (Mild) 2 (Moderate) 3 (Severe) 4 (Extreme)

Has your child become distressed when you have not provided assistance? To what degree?

0 (No) 1 (Mild) 2 (Moderate) 3 (Severe) 4 (Extreme)

Has your child become angry/abusive when you have not provided assistance? To what degree?



0 (No) 1 (Mild) 2 (Moderate) 3 (Severe) 4 (Extreme)

Has your child's anxiety been worse when you have not provided assistance? How much worse?

0 (No) 1 (Mild) 2 (Moderate) 3 (Severe) 4 (Extreme)

## Treatment Evaluation Inventory-Short Form

### Satisfaction Survey

Please complete the items listed below by placing a checkmark on the line next to each question that best indicates how you feel about the treatment. Please read the items over carefully because a checkmark accidentally placed on one space rather than another may not represent the meaning you intended.

1. I find this treatment to be an acceptable way of dealing with my child's health anxiety.

_____	_____	_____	_____	_____
strongly disagree	disagree	neutral	agree	strongly agree

2. I liked the procedures used in this treatment.

_____	_____	_____	_____	_____
strongly disagree	disagree	neutral	agree	strongly agree

3. I believe this treatment is likely to be effective.

_____	_____	_____	_____	_____
strongly disagree	disagree	neutral	agree	strongly agree

4. I experienced discomfort as a result of the treatment.

_____	_____	_____	_____	_____
strongly disagree	disagree	neutral	agree	strongly agree

5. I believe my child experienced discomfort as a result of the treatment.

_____	_____	_____	_____	_____
strongly disagree	disagree	neutral	agree	strongly agree

6. I believe this treatment is likely to result in permanent improvement.

_____	_____	_____	_____	_____
strongly disagree	disagree	neutral	agree	strongly agree

7. I believe it would be acceptable to use this treatment with individuals who cannot choose

treatment for themselves.

<hr/> strongly disagree	<hr/> disagree	<hr/> neutral	<hr/> agree	<hr/> strongly agree
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8. Overall, I have a positive reaction to this treatment.

<hr/> strongly disagree	<hr/> disagree	<hr/> neutral	<hr/> agree	<hr/> strongly agree
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**Acceptability questions**

What did you like best about the treatment?

What did you like least about the treatment? Why did you like this the least?

Do you have any other comments or suggestions about how we can improve the treatment?

## JULIE M. PETERSEN, M.S.

### Curriculum Vitae

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#### CONTACT INFORMATION

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**Utah State University**, Logan, UT March 2021 – Present  
 Anticipated Doctor of Philosophy (August 2024)  
 Graduate Certificate in Advanced Research Methods and Analysis – Quantitative (December 2022)  
 Combined Program in Clinical/Counseling Psychology (APA-accredited)  
 Proposed Dissertation (Approved May 2021): “*Telehealth acceptance and commitment therapy for adolescents with transdiagnostic health related anxiety: A randomized controlled trial*”  
Chair: Michael P. Twohig, Ph.D.

**Utah State University**, Logan, UT August 2018 – March 2021  
 Master of Science  
 Combined Program in Clinical/Counseling Psychology (APA-accredited)  
 Master’s Thesis: “*School-based acceptance and commitment therapy for adolescents with anxiety*”  
Chair: Michael P. Twohig, Ph.D.

**Haverford College**, Haverford, PA Graduated May 2016  
 Bachelor of Science in Psychology  
 Minor in East Asian Studies  
 Senior Thesis: “*Psychological distress, conflict resolution, and attachment in romantic relationships*”  
Chair: Benjamin Le, Ph.D.

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#### BOOK

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Twohig, M.P., Levin, M.E., & **Petersen, J.M.**, (In press). *The Oxford Handbook of Acceptance and Commitment Therapy*. Oxford University Press.

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#### PEER-REVIEWED PUBLICATIONS

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27. Capel, L.K., **Petersen, J.M.**, Becker, M.R., Levin, M.E., & Twohig, M.P. (In press). The efficacy and feasibility of a fully automated, web-based acceptance-enhanced behavioral treatment for trichotillomania in adults: A randomized waitlist-controlled trial. *Journal of Obsessive-Compulsive and Related Disorders*.
26. **Petersen, J.M.**, Capel, L.K., Levin, M.E., & Twohig, M.P. (In press). Moderators and processes of change in a pilot randomized controlled trial of acceptance-enhanced behavior therapy for trichotillomania in adolescents. *Journal of Obsessive-Compulsive and Related Disorders*.
25. **Petersen, J.M.** & Twohig, M.P. (2022). Acceptance and commitment therapy for a child with misophonia: A case study. *Clinical Case Studies*, 15346501221126136.
24. Zemestani, M., Hosseini, M., **Petersen, J.M.**, Twohig, M. P. (2022). A pilot randomized controlled trial of culturally-adapted, telehealth group acceptance and commitment therapy for Iranian adolescent females with anxiety. *Journal of Contextual Behavioral Science*, 25, 145-152.

23. **Petersen, J.M.**, Zurita Ona, P., & Twohig, M.P. (in press). A review of acceptance and commitment therapy (ACT) for adolescents: Developmental and contextual considerations. *Cognitive and Behavioral Practice*.
22. **Petersen, J.M.**, Barney, J.L., Fruge, J.E., Lee, E.B., Levin, M.E., & Twohig, M.P. (2022). Longitudinal outcomes from a pilot randomized controlled trial of telehealth acceptance-enhanced behavior therapy for adolescents with trichotillomania. *Journal of Obsessive-Compulsive and Related Disorders*, 33, 100725.
21. Ong C.W., **Petersen, J.M.**, Terry, C.L., Krafft, J., Barney, J.L., Abramowitz, J.S., & Twohig, M.P. (2022). The “how” of exposures: Examining the relationship between exposure parameters and outcomes in obsessive-compulsive disorder. *Journal of Contextual Behavioral Science*, 24, 87-95.
20. **Petersen, J.M.**, Davis, C.H., Renshaw, T.L., Levin, M.E., & Twohig, M.P. (in press). School-based acceptance and commitment therapy for adolescents with anxiety: A pilot trial. *Cognitive and Behavioral Practice*.
19. **Petersen, J.M.**, Zurita Ona, P., Blythe, M., Möller, C.M., Twohig, M.P. (2022). Intensive outpatient acceptance and commitment therapy with exposure and response prevention for adolescents. *Journal of Contextual Behavioral Science*, 23, 75-84.
18. **Petersen, J.M.**, Barney, J.L., Barrett, T.S., Lensegrav-Benson, T., Quakenbush-Roberts, B., & Twohig, M.P. (2022). Values engagement as a predictor of eating disorder severity in female adolescents with eating disorders. *Eating Disorders: The Journal of Treatment and Prevention*, 1.
17. **Petersen, J.M.** & Twohig, M.P. (2021). Sexual orientation intrusive thoughts and well-being: The mediating role of psychological inflexibility. *Journal of Cognitive Psychotherapy*, 1.
16. Krafft, J., Ong, C.W., Davis, C.H., **Petersen, J.M.**, Levin, M.E., & Twohig, M.P. (2021). An open trial of group acceptance and commitment therapy (ACT) with an adjunctive mobile app for generalized anxiety disorder (GAD). *Cognitive and Behavioral Practice*, 1.
15. Ong, C.W., Lee., E.B., **Petersen, J.M.**, Levin, M.E., & Twohig, M.P. (2021). Is perfectionism always unhealthy? Examining the moderating effects of psychological flexibility and self-compassion. *Journal of Clinical Psychology*, 77(11), 2576-2591.
14. **Petersen, J.M.**, Durward, C., Levin, M.E. (2021). Psychological inflexibility as a mediator between weight self-stigma and health-related outcomes. *Bulletin of Menninger Clinic*, 85(3), 316-330.
13. Ong, C.W., Krafft, J., Panoussi, F., **Petersen, J.M.**, Levin, M.E., & Twohig, M.P. (2021). In-person and online-delivered acceptance and commitment therapy for hoarding disorder: A multiple baseline study. *Journal of Contextual Behavioral Science*, 20, 108-117.
12. Twohig, M.P., **Petersen, J.M.**, Fruge, J.E., Ong, C.W., Barney, J.L., Krafft, J., Lee, E.B., & Levin, M.E. (2021). A pilot randomized controlled trial of online-delivered ACT-enhanced behavior therapy for trichotillomania in adolescents. *Cognitive and Behavioral Practice*, 28(4), 653-668.
11. Zemestani, M., Salavati, M., Seyedolshohadaii, A., **Petersen, J.M.**, Twohig, M.P., & Ghaderi, E. (2020). An Iranian randomized controlled trial of acceptance and commitment therapy (ACT)

versus exposure and response prevention (ERP) for patients with obsessive-compulsive disorder on an optimal dose of SSRIs. *Behavior Modification*, 0145445520982977.

10. Levin, M.E., **Petersen, J.M.**, Durward, C., Bingham, B., Davis, E., Nelson, C. & Cromwell, S. (2020). A randomized controlled trial of online acceptance and commitment therapy to improve diet and physical activity among adults who are overweight/obese. *Translational Behavioral Medicine*, 11(6), 1216-1225.
9. **Petersen, J.M.**, Ong, C.W., Hancock, A., Gillam, R., Levin, M.E., & Twohig, M.P. (2020). An examination of the relationship between perfectionism and neurological functioning. *Journal of Cognitive Psychotherapy*, 35(3), 195-211.
8. Ong, C.W., Pierce, B.G., **Petersen, J.M.**, Barney, J.L., Fruge, J.E., Levin, M.E., & Twohig, M.P. (2020). A psychometric comparison of psychological inflexibility measures: Discriminant validity and item performance. *Journal of Contextual Behavioral Science*, 18, 34-47.
7. Davazdahemami, M.H., Bayrami, A., **Petersen, J.M.**, Twohig, M.P., Bakhtiyari, M., Noori, M., Kheradmand, A. (2019). Effectiveness of acceptance and commitment therapy for death anxiety in Iranian clients diagnosed with OCD. *Bulletin of the Menninger Clinic*, 84(Supplement A), 1-11.
6. **Petersen, J.M.**, Krafft, J., Twohig, M.P., Levin, M.E. (2019). Evaluating the open and engaged components of acceptance and commitment therapy in an online self-guided website: Results from a pilot trial. *Behavior Modification*. 0145445519878668.
5. Brown, L., McLean, C., Zang, Y., Zandberg, L., Mintz, J., Yarvis, J. S., Litz, B.T., Peterson, A. L., Bryan, C.J., Fina, B., **Petersen, J.**, Dondanville, K.A., Roache, J.D., Young-McCaughan, S., & Foa, E.B. (2019). Does prolonged exposure increase suicide risk? Results from an active duty military sample. *Behaviour Research and Therapy*, 118, 87-93.
4. Brown, L., Gallagher, T., **Petersen, J.**, Asnaani, A., Benhamou, K., & Foa, E.B. (2018). Does CBT exacerbate suicidal ideation? Findings from a naturalistic sample. *Journal of Anxiety Disorders*, 59, 10-16.
3. Brown, L., Jerud, A., Asnaani, A., **Petersen, J.**, Zang, Y., & Foa, E.B. (2018). An examination of changes in PTSD and depressive symptoms over the course of prolonged exposure. *Journal of Consulting and Clinical Psychology*, 86(5), 452-463.
2. **Petersen, J.**, & Le, B. (2017). Psychological distress, attachment, and conflict resolution in romantic relationships. *Modern Psychological Studies*, 23(1), 1-26.
1. Asnaani, A., Zandberg, L.J., & **Petersen, J.** (2016). Barriers to CBT training: Is mobile technology the solution? *Clinical Psychologist*, 69(4), 6-13.

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## BOOK CHAPTERS

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10. **Petersen, J.M.**, Davis, C.H., Hayes, L., & Ciarrochi, J. (In press). The DNA-V model of ACT for development and growth. In C. Rivera & S. Ortiz (Eds.), *Terapias Contextuales en Niños, Adolescentes, y Padres: Fundamentos y Aplicación Clínica (Contextual Therapies in Children, Adolescents and Parents: Fundamentals and Clinical Application)*. Akadia.

9. **Petersen, J.M.**, Woods, D.W., & Twohig, M.P. (In press). Modifications for working with adolescents. In Woods, D.W. & Twohig, M.P., *Trichotillomania: An ACT-enhanced Behavior Therapy Approach Therapist Guide* (2<sup>nd</sup> ed.). Oxford University Press.
8. Twohig, M.P., Levin, M.E., & **Petersen, J.M.**, (In press). Introduction to the Oxford University Press Handbook of Acceptance and Commitment Therapy. In M.P. Twohig, M.E. Levin, & **J.M. Petersen** (Eds.), *The Oxford Handbook of Acceptance and Commitment Therapy*. Oxford University Press.
7. **Petersen, J.M.**, Hayes, L., Gillard, D., & Ciarrochi, J. (2022). ACT for children and adolescents. In Twohig, M.P., Levin, M.E., & **Petersen, J.M.** (Eds.), *The Oxford Handbook of Acceptance and Commitment Therapy*. Oxford University Press.
6. Twohig, M.P., **Petersen, J.M.**, & San Miguel, G.G. (In press). Third wave conceptualization of anxiety, obsessive compulsive disorders, and obsessive compulsive related disorders. In W.T. O'Donohue & A. Masuda (Eds). *Behavior Therapy: First, Second, and Third Waves* (329-350). New York, NY: Springer Publishing.
5. Twohig, M.P., Krafft, J., **Petersen, J.M.**, & Davis, C.H. (2022). Training and supervision in acceptance and commitment therapy. In D. McKay, E. Storch, & J. Abramowitz (Eds.), *Training and Supervision in Specialized Cognitive-Behavior Therapy: Methods, Settings, & Populations*. Washington DC: American Psychological Association.
4. Krafft, J., **Petersen, J.M.**, & Twohig, M.P. (2021). Acceptance and commitment therapy for obsessive-compulsive and related disorders. In D. McKay, J. Abramowitz, & E. Storch (Eds.). *Complexities in Obsessive-Compulsive and Related Disorders*. New York: Oxford Press.
3. Gallagher, T., **Petersen, J.**, & Foa, E.B. (2020). Prolonged exposure for PTSD. In L. F. Bufka, C. V. Wright & R. Halfond (Eds.), *Casebook to the Clinical Practice Guideline for the Treatment of PTSD*. Washington DC: American Psychological Association.
2. Twohig, M.P., Ong, C.W., **Petersen, J.M.**, Barney, J.L., & Fruge, J.E. (2020). Acceptance and Commitment Therapy and Exposure Exercises. In M.E. Levin, M.P. Twohig, & J.E. Krafft (Eds.). *Innovations in ACT*. New Harbinger: Oakland, CA.
1. **Petersen J.M.**, & Twohig, M.P. (2019). Acceptance and Commitment Therapy (ACT). In D. L. Cabaniss and Y. Holoshitz (Eds). *Differential Psychotherapeutics*. Norton: New York: New York.

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#### SUBMITTED MANUSCRIPTS

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- Petersen, J.M.** (Under review). Acceptance-enhanced behavior therapy for trichotillomania in youth. *Journal of Cognitive Psychotherapy*.
- Capel, L.K., **Petersen, J.M.**, Woods, D.W., Marcks, B.A., Twohig, M.P. (Under review). Mental health providers' knowledge of trichotillomania and skin picking disorder, and associated treatments. *Cognitive and Behavioral Practice*.
- Petersen, J.M.**, Barney, J.L., Capel, L.K., Woolley, M.G., Lensegrav-Benson, T., Quakenbush-Roberts, B., Twohig, M.P. (under review). Self-compassion and body image inflexibility as mediators of outcomes in a residential eating disorder sample. *Eating Disorders: The Journal of Treatment and Prevention*.



Krafft, J., **Petersen, J.M.**, Ong, C.W., Twohig, M.P., & Levin, M.E. (Under review). Processes of change in online acceptance and commitment therapy for hoarding. *Journal of Contextual Behavioral Science*.

Krafft, J., **Petersen, J.M.**, Ong, C.W., Twohig, M.P., & Levin, M.E. (Under review). Making space: A randomized waitlist-controlled trial of an acceptance and commitment therapy website for hoarding. *Journal of Obsessive-Compulsive and Related Disorders*.

**Petersen, J.M.**, Snow, J., Stone, L., Levin, C. (Under review). The impact of COVID-19 and mental health on academic outcomes in undergraduates during the spring 2020 lockdown. *Bulletin of Menninger Clinic*.

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## GRANT ACTIVITY

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|------|---|
| 2022 | Co-Investigator. Misophonia Research Fund. <i>Acceptance and commitment therapy (ACT) plus behavioral intervention for misophonia</i> , US\$400,000. Funded.  |
| 2022 | Principal Investigator. International OCD Foundation. <i>A randomized trial of web-based acceptance and commitment therapy plus exposure and response prevention for adolescent obsessive-compulsive disorder</i> , US\$49,682. Not funded. |
| 2021 | Principal Investigator. Utah State University, Undergraduate Research and Creative Opportunities. <i>Selective eating in adolescents and their parents</i> . US\$1,000. Not funded.   |
| 2021 | Principal Investigator. American Psychological Foundation. <i>Telehealth acceptance and commitment therapy for adolescents with transdiagnostic health-related anxiety: A pilot trial</i> , US\$7,500. Not funded.                          |
| 2020 | Co-Principal Investigator. American Psychological Foundation. <i>Open trial of acceptance and commitment therapy for adolescents with transdiagnostic health-related anxiety</i> , US\$20,000. Not funded.                                  |

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## CLINICAL EXPERIENCE

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**Utah State University, Acceptance and Commitment Therapy Research Group**, Logan, UT  
 “Telehealth acceptance and commitment therapy for adolescents with transdiagnostic health related anxiety: A randomized controlled trial”

May 2021 – Present

*Student Assessor, Therapist, and Study Coordinator*

- Adolescent community population with transdiagnostic health-related anxiety
- Semi-structured clinical interviews and individual therapy via Zoom
- Acceptance and commitment therapy (ACT)
- Assessments administered: Mini-KID, Children’s Illness Anxiety Scale, AFQ-Y8, SCARED

Total hours: 128, Direct contact hours: 161.5

Supervisor: Michael Twohig, Ph.D.

“Acceptance and commitment therapy plus behavioral intervention for misophonia”

November 2022 – Present

*Student Therapist*

- Adult community population with misophonia
- Individual therapy via Zoom and in-person
- Acceptance and commitment therapy (ACT)

Total hours: 16, Direct contact hours: 12

Supervisor: Michael Twohig, Ph.D.

**Utah State University, Behavioral Health Clinic, Logan, UT**

*Part-time Graduate Student Therapist*

May 2021 – May 2022

- Student-athlete population
- Semi-structured clinical interviews and individual therapy
- ACT, ERP, Behavioral Activation, DBT skills
- Participate in biweekly interdisciplinary meetings regarding client progress
- Assessments administered: DIAMOND, Y-BOCS, PSSI-5, GAD-7, OQ-45, PHQ-9, AAQ-II

Total hours: 95, Direct contact hours: 83.5

Supervisor: Michael Twohig, Ph.D.

**Utah State University, Acceptance and Commitment Therapy Research Group, Logan, UT**

*“Self-help website for adults with trichotillomania”*

September 2021 – November 2021

*Student Assessor*

- Adult community population with trichotillomania
- Conduct semi-structured clinical interviews via Zoom
- Assessments administered: DIAMOND, MGH-HPS

Total hours: 6.5, Direct contact hours: 4.5

Supervisor: Michael Twohig, Ph.D.

**Utah State University, Anxiety and Related Disorders Clinic, Logan, UT**

*Part-time Graduate Student Therapist*

September 2020 – June 2022

- Child, adolescent, and adult community population
- Semi-structured clinical interviews, cognitive testing and interpretation, individual therapy, and group therapy via Zoom and in-person
- ACT, ERP, Habit Reversal Training, Behavioral Activation, DBT skills, Behavioral Parent Training
- Assessments administered: DIAMOND, Mini-KID, Y-BOCS, CY-BOCS, PITS, KTEA-3, WISC-V, WAIS-IV, MMPI-2, RCADS-25, AFQ-Y8, SCARED, CBCL, BASC, Connors, GAD-7, OQ-45, PHQ-9, AAQ-II

Total hours: 673, Direct contact hours: 419.5

Supervisors: Michael Twohig, Ph.D., Sara Boghosian, Ph.D.

**Utah State University, Psychology Community Clinic, Logan, UT**

*Part-time Graduate Student Therapist*

September 2019 – May 2020

- Child, adolescent, and adult community population
- Semi-structured clinical interviews, cognitive testing and interpretation, and individual in-person therapy
- CBT, ACT, ERP, Habit Reversal Training, Behavioral Activation, DBT skills, MI, Behavioral Parent Training
- Assessments administered: Y-BOCS, KTEA-3, WISC-V, CBCL, BASC, Connors, GAD-7, OQ-45, PHQ-9, AAQ-II

Total hours: 254.5, Direct contact hours: 85.5

Supervisors: Susan Crowley, Ph.D., Sara Boghosian, Ph.D., Marietta Veeder, Ph.D.

**Utah State University, Acceptance and Commitment Therapy Research Group, Logan, UT***“School-based acceptance and commitment therapy for adolescents with anxiety”*

September 2019 – March 2020

*Student Therapist*

- Adolescent high school students with anxiety
- Group ACT based on DNA-V
- Assessments administered: SCARED, CES-D, AFQ-Y8

Total hours: 30, Direct contact hours: 23Supervisor: Michael Twohig, Ph.D.*“Telepsychotherapy for the treatment of adolescents with trichotillomania”*

September 2019 – September 2021

*Student Study Therapist and Research Assistant*

- Adolescent community population with trichotillomania
- Semi-structured clinical and diagnostic assessments
- Individual ACT and HRT delivered via Zoom
- Assessments administered: PITS, Mini-KID, TSC

Total hours: 46, Direct contact hours: 21Supervisor: Michael Twohig, Ph.D.**University of Pennsylvania, Center for the Treatment and Study of Anxiety, Philadelphia, PA***Full-time Research Assistant*

June 2016 – June 2018

*Intake Coordinator*

- Adult community population with anxiety disorders, OCD, PTSD, and related problems
- Administered clinical phone screens for patients interested in study participation or treatment

Supervisors: Edna Foa, Ph.D., Steve Tsao, Ph.D., Thea Gallagher, Psy.D.*Independent Evaluator*

- Adult community population with anxiety disorders, OCD, PTSD, and related problems
- Assessments administered: PSSI-5, Y-BOCS, SCID-5

Supervisors: Edna Foa, Ph.D., Liz Turk-Karan, Ph.D., Jeremy Tyler, Psy.D.**Child and Adolescent OCD, Tic, Trich, and Anxiety Group, Philadelphia, PA***Research Intern*

June – August 2015

- Child and adolescent community population with anxiety, obsessive-compulsive, and related disorders
- Administered clinical phone screens for patients interested in study participation or treatment

Supervisor: Marty Franklin, Ph.D.**University of Pennsylvania Anxiety Program, Philadelphia, PA***Research Intern*

June 2014 – May 2015

- Adult community population with anxiety disorders
- Administered clinical phone screens for patients interested in study participation

Supervisor: Dianne Chambless, Ph.D.

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**WORKSHOPS DELIVERED**

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**Petersen, J.M.** & Twohig, M.P. (2022, October 21). *Acceptance and commitment therapy with children and adolescents*. Virtual training on ACT adapted for children and adolescents at Juniper Mental Health, Salt Lake City, Utah.

**Petersen, J.M.** (2022, October 14). *Acceptance and commitment therapy with youth in schools*. Invited workshop on ACT for youth for school psychologists, counselors, and social workers in the South Jordan school district, West Jordan, Utah.

Twohig, M.P., & **Petersen, J.M.** (2022, September 17-18). *Introduction to ACT and experiential workshop*. Introductory training on ACT for professionals and students at Utah State University, Logan, Utah.

Klimczak, K. & **Petersen, J.M.** (2022, March 17). *ACT for a meaningful life*. Virtual training on brief ACT skills for students and community members at Utah State University Mental Health Week, Logan, Utah.

**Petersen, J.M.** (2022, March 15). *A practical introduction to ACT*. Invited virtual training on ACT skills and implementation at the Department of Psychiatry at New York University Langone Medical School, New York, New York.

**Petersen, J.M.** & Barney, J. (2020, October 1). *Living a Meaningful Life Amidst COVID-19*. Virtual training on values and committed action during the COVID-19 pandemic for community members at Utah State University, Logan, Utah.

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## PRESENTATIONS

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15. **Petersen, J.M.** & Twohig, M.P. (2022, July 10). *Meet your DNAV: A brief introduction to ACT for teens* [High Schooler Program Presentation]. International OCD Foundation Annual World Conference, Denver, Colorado.

14. **Petersen, J.M.**, Barney, J.L., Fruge, J., Lee, E.B., Levin, M.E., & Twohig, M.P. (2022, July 9). Longitudinal outcomes and moderators of ACT-enhanced behavior therapy for adolescent trichotillomania. In *Special areas of consideration for treating OCDs and comorbid conditions* [Symposium]. International OCD Foundation Annual World Conference, Denver, Colorado.

13. Abramowitz, J.S., Coyne, L., & **Petersen, J.M.** (2022, July 9). In L.K. Capel [Chair], *ACT for OCDs in youth: Tips and tricks for optimizing treatment delivery* [Panel]. International OCD Foundation Annual World Conference, Denver, Colorado.

12. **Petersen, J.M.** & Twohig, M.P. (2022, July 8). *The how-tos of exposures and ACT* [Conference workshop]. International OCD Foundation Annual World Conference, Denver, Colorado.

11. **Petersen, J.M.** (2022, February 24). *ACT with adolescents: Adaptations, data, and clinical tips* [Webinar]. Association for Contextual Behavioral Science Student Special Interest Group.

10. **Petersen, J.M.**, Krafft, J., Ong, C.W., Twohig, M.P., & Levin, M.E. (2021, November 18). Making space: An ACT website for hoarding. In C.A. Stamatis (Chair), *Advances in the assessment and treatment of hoarding disorder* [Symposium]. Association for Cognitive and Behavioral Therapies Annual Conference, online.

9. **Petersen, J.M.**, Davis, C.H., Renshaw, T., Levin, M.E., & Twohig, M.P. (2021, November 21). School-based ACT groups for adolescents with anxiety. In L. Sarfan (Chair), *Expanding the evidence base: Transdiagnostic treatments across the lifespan* [Symposium]. Association for Cognitive and Behavioral Therapies Annual Conference, online.
8. **Petersen, J.M.**, Fruge, J., Ong, C.W., Barney, J.L., Krafft, J., Twohig, M.P. (2021, June 25). Online ACT-enhanced behavior therapy for adolescent trichotillomania. In C.H. Davis (Chair), *ACT with adolescents: Preliminary outcomes and processes of change across contexts* [Symposium]. Association for Contextual Behavior Science Annual World Conference, online.
7. **Petersen, J.M.** & Twohig, M.P. (2021, June 27). Sexual orientation intrusive thoughts and well-being: The mediating role of psychological inflexibility. In L.K. Capel (Chair), *Investigating acceptance and commitment therapy interventions and processes in obsessive-compulsive and related disorders* [Symposium]. Association for Contextual Behavior Science Annual World Conference, online.
6. Davis, C.H., Muñoz-Martinez, A., Berger, E., Klimczak, K., Otto-Scheiber, C.S., & Karekla, M. (2021, June 24). **J.M. Petersen** (Chair), *Advancements in digital acceptance and commitment therapy to improve population health* [Symposium]. Association for Contextual Behavior Science Annual World Conference, online.
5. **Petersen, J.M.**, Levin, M.E., Durward, C., Bingeman, B., Nelson, C., & Cromwell, S. (2020, July 19). Using online ACT to improve diet and physical activity among adults with weight problems. In *Innovations and advancements in acceptance and commitment therapy and compassion focused therapy for health conditions* [Symposium]. Association for Contextual Behavior Science Annual World Conference, online.
4. Twohig, M.P., Coyne, L., LeJeune, J., Zurita Ona, P. (2020, July 18). **J.M. Petersen** (Chair), *Committed adolescence: Implementing values-based work with adolescents* [Panel]. Association for Contextual Behavior Science Annual World Conference, online.
3. Davis, C.H., Gaudiano, B., Keinonen, K., Vilardaga, R., Moitra, E. (2020, July 17). **J.M. Petersen** (Chair), *Broader reach, bigger impact: Expanding access to contextual behavioral science through digital interventions* [Symposium]. Association for Contextual Behavior Science Annual World Conference, online.
2. **Petersen, J.M.** & Twohig, M.P. (2020, July 18). *Modern behavioral approach to obsessive-compulsive and related disorders* [Conference workshop]. Association for Contextual Behavior Science Annual World Conference, online.
1. Coyne, L., Franklin, M., Tsao, S., & Zurita Ona, P (2019, July 20). **J.M. Petersen** (Chair), *Better together: Treating teen OCD using techniques from ACT and ERP* [Panel]. International OCD Foundation Annual World Conference, Austin, Texas.

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## POSTER PRESENTATIONS

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9. **Petersen, J.**, Zang, Y., Kaczurkin, A., Bakhshaie, J., Raines, A., Schmidt, N., Foa, E.B., & Zvolensky, M. (2018, November). Examining the mechanisms underlying the association of PTSD and nicotine dependence: A parallel multiple mediator analysis. Poster presented at the Association of Behavioral and Cognitive Therapies Annual Conference, Washington, D.C.

8. **Petersen, J.**, Zang, Y., Kaczurkin, A., Bakhshaie, J., Raines, A., Schmidt, N., Foa, E.B., & Zvolensky, M. (2018, November). Trauma exposure, PTSD and smoking: Evaluation of the psychosocial and clinical characteristics of smokers. Poster presented at the Association of Behavioral and Cognitive Therapies Annual Conference, Washington, D.C.
7. Belli, G., Zang, Y., Gallagher, T., McLean, C.P., Tannahill, H., **Petersen, J.**, Yarvis, J.S., Litz, B.T., Mintz, J., Young-McCaughan, S., Peterson, A.L., & Foa, E.B. (2018, November). Understanding the association between anger and depression in active duty military personnel: The role of social support and negative cognitions. Poster presented at the annual convention of the Association for Behavioral and Cognitive Therapies, Washington, DC.
6. Belli, G., **Petersen, J.**, & Asnaani, A. (2018, April). Alliance, expectancy, functioning, and quality of life in anxiety disorders following CBT. Poster presented at the Anxiety and Depression Association of America Annual Conference, Washington, D.C.
5. **Petersen, J.** & Asnaani, A. (2017, November). Presence of depressive features in anxiety disorders. Poster presented at the Association of Behavioral and Cognitive Therapies Annual Conference, San Diego, California.
4. **Petersen, J.**, Asnaani, A., & Foa, E.B. (2017, November). Changes in functional impairment in anxiety disorders following 8 weeks of CBT. Poster presented at the Association of Behavioral and Cognitive Therapies Annual Conference, San Diego, California.
3. Umaran, O., **Petersen, J.**, & Asnaani, A. (2017, November). Post-traumatic stress disorder in migraines: An integrated protocol for combined psychological treatment. Primary presenter at the Association of Behavioral and Cognitive Therapies Annual Conference, San Diego, California.
2. **Petersen, J.**, Chazin, D., Zang, Y., Zandberg, L.J., Asnaani, A., & Foa, E.B. (2017, April). Looking beyond symptoms: Coping changes in a randomized controlled trial of concurrent treatment for post-traumatic stress disorder and alcohol dependence. Poster presented at the Anxiety and Depression Association of America Annual Conference, San Francisco, California.
1. **Petersen, J.**, Porter, E., & Chambless, D.L. (2015, May). The effects of anxiety on the provision and receipt of social support. Poster presented at the Association of Psychological Science Annual Conference, New York, New York.

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## TEACHING EXPERIENCE

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**Psychological Services Center Seminar Series**; Boston University, Boston, MA (virtual)

November 15, 2022

*Guest Lecturer*

Topic: Acceptance and commitment therapy for anxiety, obsessive-compulsive, and related disorders.

**Child and Adolescent Psychotherapy**; Brigham Young University, Provo, UT

October 12, 2022

*Guest Lecturer*

Topic: Acceptance and commitment therapy for children and adolescents.

**Orientation to Psychology as a Career and Profession**; Utah State University, Logan, UT

February 20, 2020

*Guest Lecturer*

Topic: Acceptance and commitment therapy, values, and career applications.

**Abnormal Psychology;** Utah State University, Logan, UT

April 2, 2019

*Guest Lecturer*

Topic: Trichotillomania and its treatment.

**Introduction to Psychology;** Utah State University, Logan, UT

August 2018 – January 2019

*Teaching Assistant*

Responsibilities: Held office hours and graded lab assignments for introductory psychology course.

Supervisor: Kathryn Sperry, Ph.D.

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## PROFESSIONAL DEVELOPMENT TRAININGS

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**Culturally Tailored ACT: Targeting Black Racial Trauma**

May 28 – June 18, 2021

Presenters: Jennifer Shephard Payne, Ph.D.

**Introduction to Experiential Acceptance and Commitment Therapy**

September 13 – 14, 2019

Presenters: Michael Twohig, Ph.D., Clarissa Ong, M.S.

**Focused Acceptance and Commitment Therapy: The Basics and Beyond,** Logan, UT

April 20, 2019

Presenter: Kirk Strosahl, Ph.D.

**Advanced ACT: Doing Experiential Work without Exercises,** Logan, UT

August 31 – September 1, 2018

Presenters: Matthieu Villatte, Ph.D., Jennifer Villatte, Ph.D.

**Prolonged Exposure Therapy for Adolescents with PTSD,** Philadelphia, PA

October 20, 2017

Presenters: Sandy Capaldi, Psy.D., Liz Turk-Karan, Ph.D.

**Transdiagnostic Exposure Therapy Training with Experiential Practice,** Philadelphia, PA

September 16, 2017

Presenters: Joanna Kaye, M.S., Anu Asnaani, Ph.D.

**Intensive Training in Prolonged Exposure (PE) for PTSD,** Philadelphia, PA

April 24 – 27, 2017

Presenters: Edna B. Foa, Ph.D., Laurie Zandberg, Psy.D., Jeremy Tyler, Psy.D., Thea Gallagher, Psy.D.

**Intensive Training in Exposure & Response Prevention (Ex/RP) for OCD,** Philadelphia, PA

July 17 – 20, 2017

Presenters: Elna Yadin, Ph.D., Edna B. Foa, Ph.D., Jeremy Tyler, Psy.D., Thea Gallagher, Psy.D., Elizabeth Turk-Karan, Ph.D., Laurie Zandberg, Psy.D.

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## ADDITIONAL EXPERIENCE

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**Utah State University, Acceptance and Commitment Therapy Research Group**

October 2018 – Present

*Social Media Manager*

- Developed cross-channel social media platforms on Facebook and Instagram
- Scheduled, created, and distributed written content and images to promote research and clinical work
- Managed social media advertisements to improve recruitment for research studies

Supervisors: Michael Twohig, Ph.D., Michael Levin, Ph.D.**Utah State University, Department of Psychology**

May 2021 – June 2022

*Elected Student Representative*

- Represented combined clinical/counseling psychology student body at monthly faculty meetings
- Communicated student concerns to the Director of Clinical Training and Department Head
- Conducted monthly student meetings to disseminate department information and address student concerns
- Mediated student-faculty conflicts

**Cache Valley High School**

November 2018 – June 2019

*Classroom Volunteer*

- Adolescent high school student population
- Led reading groups and vocabulary exercises
- Assisted with grading writing assignments

Supervisor: Mary Bybee**Big Brothers Big Sisters**

October 2016 – June 2018

*Big Sister*

- Acted as a positive role model and mentor to a 13-year-old girl through biweekly activities
- Received training on mentoring, relationship development, diversity, and active listening

Supervisor: Anna Greenwald, MSW**Swarthmore College**

October 2016 – June 2018

*Assistant Fencing Coach*

- Created and led fencing club's drills, conditioning, lessons, refereeing, and fencing

Supervisor: John Molloy, Head Coach

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**AWARDS**

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Emma Eccles Jones College of Education and Human Services Doctoral Student Researcher of the Year  
January 2023Utah State Department of Psychology Anthony LaPray Scholarship  
April 2022Association for Contextual Behavioral Science Michael J. Asher Student Dissertation Award  
March 2022Association for Contextual Behavioral Science Student Spotlight Award  
December 2021



Utah State Department of Psychology Anthony LaPray Scholarship  
March 2021  
Utah State Department of Psychology Walter R. Borg Scholarship  
March 2020