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School-based Acceptance and Commitment Therapy for Adolescents with

Anxiety

by

Julie M. Petersen

A thesis submitted in partial fulfillment

of the requirements for the degree

of

MASTER OF SCIENCE

In Psychology

Approved:

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2021

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## ABSTRACT

School-based Acceptance and Commitment Therapy for Adolescents with  
Anxiety

by

Julie M. Petersen, Master of Science

Utah State University, 2021

Major Professor: Michael P. Twohig, Ph.D.  
Department: Psychology

Anxiety disorders are one of the most prevalent diagnoses in youth, often resulting in impaired social and school functioning. Research on treatments for youth anxiety is primarily based in traditional clinical settings using cognitive behavioral therapy (CBT), which has moderate treatment success rates. However, there is significant support for the importance of integrating youth psychotherapies into the school environment to improve access and coordination of care. Additionally, acceptance and commitment therapy (ACT), a treatment with a large base of empirical support for adult anxiety disorders, has yet to be fully researched in adolescents. ACT is theorized to be a developmentally flexible treatment for adolescents and contextually appropriate for adapting to school environments (e.g., shorter sessions, process-based therapeutic approach). The present study is a pilot, randomized waitlist-controlled trial of a school-based, group ACT for adolescents with anxiety to test the effectiveness and acceptability of group ACT integrated into the school day.

Participants (N = 26) with elevated anxiety were randomized to a 12-week waitlist or to receive school-based, group ACT for anxiety. Participants completed online pre-treatment, mid-treatment, post-treatment, and one-month follow-up questionnaires of anxiety, depression, psychological flexibility, student well-being, positive mental health, and class absences. Participants also completed a questionnaire of treatment acceptability at posttreatment. Groups took place 1-2 times a week for .5-1 hours, depending on the need and schedules of the schools.

Participants in the active condition reported significantly decreased anxiety and class absences at posttreatment and follow-up as compared to the waitlist group. No differences were found for outcomes of depression, psychological flexibility, positive mental health, and student well-being. Participants reported the treatment as favorable with good acceptance ratings. These findings provide preliminary support for the use of ACT groups within school settings. Future research may explore the effectiveness and implementation of group ACT in schools with larger, more diverse samples. Overall, this study supports ACT as a possible intervention for schools and other clinical settings providing services to adolescents with anxiety.

(61 pages)

## PUBLIC ABSTRACT

School-based Acceptance and Commitment Therapy for Adolescents with  
Anxiety

Julie M. Petersen

Mental health problems, particularly anxiety, are a growing problem in adolescents. Some treatments (e.g., cognitive behavioral therapy) have been shown effective for youth anxiety, but do not help all adolescents. Acceptance and commitment therapy (ACT), a treatment supported for anxiety in adults, has yet to be fully researched in adolescents. ACT is a flexible therapy that is understood to be appropriate, if not ideal, for younger populations and schools. The present study compares a school-based, group ACT for adolescents with anxiety to a waitlist.

Adolescents ( $N = 26$ ) with anxiety were randomized to a 12 week waitlist or to participate in a school-based, group ACT for anxiety. The groups took place during the school day, ranging from .5-1 hours for 1-2 times a week, depending on the school. Over the course of the study, the adolescents completed four surveys of anxiety, other mental health variables, and class absences.

Adolescents in the ACT groups reported less anxiety and fewer class absences after receiving treatment as compared to the waitlist group. No differences were found for other mental health variables. Participants reported that the ACT groups were acceptable and enjoyable. These findings demonstrate that ACT groups may be beneficial to

integrate within school settings. They also support the use of ACT with younger populations with anxiety more broadly.

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To my parents and family - thank you for your unwavering love and confidence in me. Without you, none of this is possible.

Last, and certainly not least, to Calen - my amazing partner and best friend. Your love is bright as ever.

Julie Petersen



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# CHAPTER I

## INTRODUCTION

### **Adolescent Anxiety**

Adolescents are at high risk for mental disorders (Kessler et al., 2007); the 3-month prevalence of mental disorders in adolescence is estimated at 13.3% (Costello, Mustillo, Erkanli, Keeler, & Angold, 2003). Among all adolescent mental health issues, anxiety disorders are the most common and often is one of the earliest forms of psychopathology to develop (Ormel et al., 2015; Wehry, Beesdo-Baum, Hennelly, Connolly, & Strawn, 2015). While anxiety disorders have a lifetime prevalence of 15-20%, epidemiological estimates of diagnosed adolescent anxiety disorders are as high as 31.9% (Beesdo, Knappe, & Pine, 2009; Merikangas et al., 2010). Additionally, anxiety disorders have a strong comorbidity with behavioral disorders (e.g., conduct disorder), making adolescents with anxiety issues more clinically complicated (Costello et al., 2003; Weissman, Antinoro, & Chu, 2008).

The average age of onset for anxiety disorders is early teen years to young adulthood (De Lijster et al., 2017). Reports of anxiety increase as children age; in one community study, only 2.3% of elementary school children endorsed anxiety as compared to the 15.9% of teenagers (Mazzone et al., 2007). Thus, childhood and adolescence are considered critical periods for the development and maintenance of anxiety disorders, particularly because youth anxiety disorders are likely to become chronic in adulthood (Beesdo et al., 2009; Wehry et al., 2015). Furthermore, youth with anxiety disorders have an increased risk of developing depression, substance use, and other mental disorders later in life (Beesdo et al., 2009; Costello et al., 2003; Pine, Cohen, Gurley, Brook, & Ma, 1998).

With this in mind, it is important to consider how anxiety disorders may be impacting a major realm of adolescent life: school. Overall, anxious youth experience lower self-efficacy in domains of school and social performance (de Lijster et al., 2018; Seipp, 1991). Adolescents with anxiety disorders have more severe life and functional impairment than healthy teenagers (Essau, Conradt, & Petermann, 2000). Additionally, anxious youth have lower social skills and peer acceptance combined with greater interpersonal difficulties, victimization, and loneliness than healthy controls (de Lijster et al., 2018; Greco & Morris, 2005).

Youth with anxiety disorders are also at risk for worse school performance and outcomes, particularly as the child enters adolescence (Green et al., 2016; Mazzone et al., 2007; Seipp, 1991). Green and colleagues (2016) found that 56% of anxious adolescents reported anxiety impairing their school functioning, with 43% endorsing disrupted academic performance. In the same study, 46% of mothers believed that their child's anxiety interfered with their academic performance (Green et al., 2016). Similarly, Mazzone and colleagues (2007) found that 14.1% of students with low grades reported struggling with anxiety, as compared to only 3.9% of students with high or good grades. Beyond school performance, adolescents with anxiety disorders have higher rates of school refusal, a greater risk for school absences, and a lower likelihood of receiving higher education than those without anxiety (de Lijster et al., 2018; Kearney, 2008; Waite & Creswell, 2014). Adolescents with anxiety disorders also report leaving school early and failing to finish school specifically because of anxiety (Van Ameringen, Mancini, & Farvolden, 2003). Thus, adolescent anxiety is a serious problem with vast educational and mental health impacts.

### **Cognitive Behavioral Treatment of Anxiety Disorders**

Anxiety disorders have been traditionally treated in children and adolescents using cognitive behavioral therapy (CBT), both in individual and group formats. CBT is a directive treatment focusing on symptom reduction through specific techniques (e.g., exposure, cognitive restructuring) and out-of-session homework assignments (Greco, Blackledge, Coyne, & Ehrenreich, 2005). Researchers have demonstrated that group and individual CBT are efficacious for youth anxiety disorders in several large reviews and meta-analyses (Cartwright-Hatton, Roberts, Chitsabesan, & Claire, 2004; In-Albon & Schneider, 2007; James, James, Cowdrey, Soler, & Choke, 2015; Silverman, Pina, & Viswesvaran, 2008). CBT has a documented remission rate of 56.5%; however, almost one-third of youth still hold an anxiety disorder diagnosis at the end of treatment (Cartwright-Hatton et al., 2004). Moreover, most studies included in the aforementioned reviews are comparing CBT to waitlist controls, treatment as usual, or medication. While CBT has established greater effectiveness than these options, the evidence for its power is limited due to these weaker comparison groups (Cartwright-Hatton et al., 2004; James et al., 2015). Lastly, the majority of these studies take place in clinics or university settings. There is a need to explore how to best adapt and implement for adolescent anxiety in more naturalistic and advantageous environments, such as schools.

### **Treatment of Anxiety in Schools**

Because of the impairment experienced by youth with anxiety issues in school, school-based treatment options are imperative for mental health problems such as anxiety. Schools are the focal point for youth entering the mental health care system and receiving treatment (Farmer, Burns, Phillips, Angold, & Costello, 2003). Indeed, schools are the most common form of entry into mental health services for adolescents—in one study, 60% of youth initiated mental health care at their school (Farmer et al., 2003). School mental health systems have documented

positive impacts on students and their families, as well as on reducing stigma surrounding the receipt of mental health treatment (Stephan, Weist, Kataoka, Adelsheim, & Mills, 2007).

Additionally, schools have extensive connections with students, communities, and families, indicating their great potential to spread awareness about and provide resources for mental health issues (Weissman et al., 2008). Beyond the convenience of school-based mental health care, it is easier to identify and address impairment as it occurs in the school environment (Mychailyszyn et al., 2011). Overall, schools provide a highly advantageous place for the delivery of treatment for adolescent mental health disorders like anxiety.

Many researchers have investigated the use of CBT as a school-based treatment. Mychailyszyn and colleagues (2012) found in a large review of 63 studies spanning 8,225 participants that CBT delivered in schools was only moderately effective for anxiety and mildly effective for depression. These findings indicate a promising future for school-based CBT interventions but also suggest that there are still many gains needed in this area of research. For example, a large amount of research on school-based interventions focuses on younger children rather than adolescents. Chiu and colleagues (2013) examined the effect of modular CBT to waitlist for children ages 5-12, finding that 95% of CBT patients responded positively, even after a one-year follow-up. Several other treatment studies of child anxiety have also reported the successful implementation of after-school CBT combined with parent training—another aspect of the current school-based intervention research that may be incompatible with treating adolescents (Bernstein, Layne, Egan, Tennison, & Bernstein, 2005; Shortt, Barrett, & Fox, 2015). Considering diverse populations, Mifsud and Rapee (2005) tested school-based CBT for anxious Australian middle school children (the Cool Kids Program) from low income neighborhoods and reported significant reduction of anxiety. However, in another study

comparing CBT to treatment as usual for diverse inner-city children with anxiety, there were no significant differences between groups (Ginsburg, Becker, Drazdowski, & Tein, 2012). Taken as a whole, these findings indicate that CBT may not be accessible or effective for all youth, particularly adolescents, or school settings.

With this in mind, several researchers have tried to adapt and modify traditional CBT in order to provide a more encompassing and successful treatment for adolescents in school. Chu and colleagues (2016) tested a transdiagnostic behavioral activation and exposure therapy school-based intervention against a waitlist for anxiety and depression. The intervention group had a 57% remission rate in anxiety disorder diagnosis as compared to 28.6% in the control, in addition to positive ratings of acceptability and feasibility for the school setting (Chu et al., 2016). On a similar note, Masia-Warner and colleagues (2005) found that a combination of exposure and social skills training in group therapy for adolescents was effective in reducing social anxiety; 67% of participants in the group therapy and only 6% of the waitlist no longer met criteria for social anxiety disorder.

Although the evidence surrounding youth anxiety and CBT school-based interventions is promising, only a few researchers have specifically focused on the use of CBT for adolescent anxiety in a school setting (Chu et al., 2016; Fisher, Masia-Warner, & Klein, 2004). School-based treatment CBT programs have been primarily delivered to anxious elementary-school aged children (Bernstein et al., 2005; Ginsburg et al., 2012; Mifsud & Rapee, 2005; Shortt et al., 2015). Furthermore, the lack of available research on school-based CBT interventions with adolescents signifies a need for further exploration of the treatment of adolescent anxiety in schools. Thus, I am hoping to explore how adolescent anxiety can best be treated within the school setting.



## **Acceptance and Commitment Therapy**

Acceptance and Commitment Therapy (ACT) is a modern behavioral treatment combining elements of acceptance, mindfulness, and behavioral intervention techniques in order to improve psychological flexibility (Hayes, Luoma, Bond, Masuda, & Lillis, 2006).

Psychological flexibility is the ability to remain in the present and act in response to contextual variables in harmony with one's values. This transdiagnostic approach contrasts the internal regulation process common to CBT interventions (Hayes et al., 2006). With this in mind, ACT attempts to change the client's relationship with their thoughts and feelings, using a values-based approach (Block-Lerner, Holston, & Messing, 2009; Greco et al., 2005; Hayes et al., 2006). ACT aims to reduce behaviors interfering with client's values and functioning (e.g., experiential avoidance), rather than focusing attempts to regulate or change the type or frequency of internal experiences. Experiential avoidance, a main target of ACT, is associated with poor outcomes in mental disorders, chronic health issues, worry, and psychological health (Coyne, Mchugh, & Martinez, 2011).

Psychological flexibility is a particularly important issue for the treatment of anxiety. Results from a large sample of healthy college students illustrated that anxiety levels were negatively associated with psychological flexibility (Masuda & Tully, 2012). In a large meta-analysis of 63 studies, Bluett and colleagues (2014) also found a significant medium correlation between psychological inflexibility and measures of anxiety, with particularly large correlations between psychological flexibility and generalized anxiety disorder (GAD) symptoms. This finding is further supported in another review where anxiety is again reported as negatively associated with psychological flexibility (S. C. Hayes et al., 2006).

Although less research has examined psychological flexibility in adolescents, researchers indicate that psychological flexibility is just as important in adolescent populations with anxiety. In a cross-sectional study of healthy adolescents, psychological inflexibility was correlated with greater anxiety and depression, as well as lower self-esteem (Tan & Martin, 2016). Further empirical evidence supports this finding; in another large study of two adolescent samples (total  $N = 1188$ ), psychological inflexibility was associated with anxiety and lower quality of life, social skills, and academic competence (Greco, Lambert, & Baer, 2008). Because of the negative implications for psychological flexibility in both adolescence and adulthood, it is important to target psychological flexibility in treatments for adolescence. With this in mind, ACT is an ideal treatment to research on adolescents with anxiety.

ACT is composed of six treatment processes that broadly aim to increase psychological flexibility: acceptance, cognitive defusion, contact with the present moment, self as context, values, and committed action (Block-Lerner et al., 2009; S. C. Hayes et al., 2006). Each of the six components of ACT have been studied empirically, resulting in confirmation that all six processes are valid and important to the treatment as a whole (Levin, Hildebrandt, Lillis, & Hayes, 2012). Acceptance involves encouraging an active and open embrace of the present moment, without trying to change it, in order to reduce experiential avoidance (S. C. Hayes et al., 2006). Cognitive defusion refers to attempts to change how one relates to their thoughts, reducing any literal interpretations of cognitions rather than changing the cognition itself (S. C. Hayes et al., 2006). Contact with the present moment incorporates a mindfulness-based practice used to encourage non-judgmental present awareness. Self as context utilizes perspective-taking skills in order to teach seeing oneself as a detached observer, thereby separating the self from one's experiences (S. C. Hayes et al., 2006). Values is used to identify the qualities and beliefs

that are important for living a fulfilling life. Committed action then works to develop behaviors that are consistent with selected values and allow for an increasingly flexible life (S. C. Hayes et al., 2006). Together, these six processes target psychological inflexibility and experiential avoidance, broadly aiming to improving the functioning of the client through a contextually-based approach.

### **ACT for Anxiety Disorders**

On the whole, there is a strong empirical base for implementing ACT as a treatment for anxiety disorders and obsessive-compulsive disorder (OCD) in adults (Bluett, Homan, Morrison, Levin, & Twohig, 2014; Swain, Hancock, Hainsworth, & Bowman, 2013; Twohig & Levin, 2017). Across several reviews, researchers report evidence demonstrating that ACT is as effective as treatments like CBT and superior to treatment as usual or waitlist (Bluett et al., 2014; Twohig & Levin, 2017). For example, ACT has performed equally to CBT on post-intervention self-reports, clinical interviews, and public speaking tasks in a randomized controlled trial of social anxiety treatment (Craske et al., 2014). Similarly, ACT and CBT had equal outcomes for depression and anxiety symptoms in a study comparing ACT and cognitive therapy for depression in a diverse group of 101 outpatient participants (Forman, Herbert, Moitra, Yeomans, & Geller, 2007). In the same study, ACT and CBT also had equal effects on increasing functioning, satisfaction, and quality of life (Forman et al., 2007).

ACT has also been found effective in a group format. Ossman and colleagues (2006) tested a 10-session, group ACT intervention in a small pilot study of 22 participants with social anxiety disorder. Results indicated significant improvements in social anxiety symptoms ( $d = 0.83$ ) and experiential avoidance ( $d = 1.71$ ; Ossman, Wilson, Storaasli, & McNeill, 2006). Group ACT has also been compared to group CBT and waitlist for the treatment of GAD in 51

adults with results of no outcome differences between groups; however, steeper reductions in worry were documented in the ACT group ( $d = .79$ ) from pre- to post-treatment (Avdagic & Boschen, 2014). Furthermore, at post-intervention, 78.9% of the participants who received ACT attained reliable change as compared to only 47.4% of the CBT group—but there were no differences between groups at the 3-month follow-up (Avdagic & Boschen, 2014).

Little research has specifically examined ACT for adolescent anxiety. However, mindfulness-based approaches for children and adolescents have been found feasible and promising in several broad reviews (Burke, 2010; Kallapiran, Koo, Kirubakaran, & Hancock, 2015; Zoogman, Goldberg, & Hoyt, 2014). Overall, empirical evidence supports ACT as a successful treatment for the following conditions in youth: anxiety, depression, chronic pain, anorexia, psychosis, parenting difficulties, and prevention efforts for at-risk youth (Coyne et al., 2011; L. Hayes, Boyd, & Sewell, 2011). There is limited work in adolescent anxiety.

There is promise for ACT as a treatment for children with anxiety disorders (Hancock et al., 2018). In a trial comparing ACT, CBT, and a waitlist, there were no significant differences found between CBT and ACT in anxiety disorder diagnosis and symptom outcomes, even at the two-year follow-up point (Hancock et al., 2018). The trial was large ( $N = 157$ ) with the majority of participants meeting criteria for GAD or social anxiety disorder. One-third of all participants no longer met criteria for anxiety disorder diagnoses at 3-month follow-up; improvement continued at two-year follow-up with 45% of the ACT and 60% of the CBT group (non-significant difference) no longer meeting criteria (Hancock, Swain, Hainsworth, Koo, & Dixon, 2016). The ACT group additionally had a significantly greater effect size for quality-of-life outcomes at 3-month follow-up ( $d = 1.51$ ; Hancock et al., 2018). However, participants were primarily younger children with an average age of 11 years. Beyond this trial, there is little

research available on ACT for anxiety disorders in older youth. Brown and Hooper (2009) successfully used ACT as a treatment for a case study of an older adolescent with anxious and obsessive thoughts. In addition, ACT has been implemented as a treatment for three younger adolescents (12-13 years old) with OCD (Armstrong, Morrison, & Twohig, 2013) and four adolescents with posttraumatic stress disorder (PTSD; Woidneck, Morrison, & Twohig, 2014) in smaller scale studies, resulting in positive outcomes. Beyond these smaller studies, there is a need to explore ACT as treatment for older youth.

It is suggested that ACT in particular could be useful for treating adolescents because of ACT's reliance on metaphors; the use of metaphors and nonsensical exercises arguably make it more difficult for the adolescent to argue with or defy the therapist (Greco, Blackledge, Coyne, & Ehrenreich, 2005). Adolescence also provides the ideal time window for addressing psychological flexibility, as teenage years are a time of personal growth and change (Greco et al., 2005). Furthermore, emotional awareness, acceptance, and psychological flexibility—all key components of ACT—are important for decreasing risk of mental disorders and distress in youth, particularly adolescents (Coyne et al., 2011). Despite its promise, research on ACT as a treatment for adolescents, particularly for anxiety disorders, is lacking.

### **ACT in Schools**

With that in mind, ACT may be particularly relevant as a school-based intervention for adolescents. As discussed previously, adolescent symptoms of anxiety and depression have a functional impact on school performance; therefore, ACT may be specifically useful in a school setting due to its contextual focus (Block-Lerner et al., 2009; Green et al., 2016; Mazzone et al., 2007; Seipp, 1991). However, the bulk of school-based research has centralized around mindfulness school-based interventions—only a few researchers have specifically examined the

effectiveness of ACT in a school context. On the whole, mindfulness-based interventions such as ACT in schools are promising, particularly for stress, cognition, and attention-related issues (Zenner, Herrnleben-Kurz, & Walach, 2014). Indeed, several mindfulness and acceptance-based school interventions have been implemented in healthy populations of children and adolescents, reporting them significantly effective for reducing depression, rumination, and anxiety while increasing well-being and mindfulness (Crowley et al., 2018; Huppert & Johnson, 2010; Kuyken et al., 2013; Mendelson et al., 2010; Raes, Griffith, Van der Gucht, & Williams, 2014). The success of these programs shows promise for integrating mindfulness-based interventions like ACT into the school environment, particularly as a treatment for adolescents with mental health problems (Crowley et al., 2018; Huppert & Johnson, 2010).

ACT specifically has only been studied in the school environment several times. To begin with, there are a few studies exploring ACT as a school-based prevention program for adolescent mental health. Van der Gucht and colleagues (2017) examined whether a short ACT program delivered by teachers could improve adolescent mental health; however, no significant effects were found. In another study, ACT was implemented as a school-wide prevention program for anxiety and depression (Burckhardt, Manicvasagar, Batterham, & Hadzi-Pavlovic, 2016). While ACT was found acceptable, there was no difference between ACT and classes as usual (Burckhardt et al., 2016). While these results are promising, they are inconclusive in the effectiveness of ACT with adolescents, particularly as a prevention program.

School-based ACT has only been studied as a treatment for mental health difficulties in a handful of studies. Livheim and colleagues (2015) completed two separate pilot studies looking at the effects of ACT as compared to a control group for depression and for stress for adolescents in school, finding significant reductions in depression ( $d = 0.86$ ), psychological inflexibility ( $d =$

0.76), and stress ( $d = 1.20$ ) as compared to the control in both studies. Brookshier (2016) adapted a mindfulness and ACT intervention for anxiety and psychological inflexibility into a group format for 5-11<sup>th</sup> graders, demonstrating the effectiveness of ACT in improving anxiety, mindfulness, and psychological inflexibility in a range of school-aged youth. In the older students of Brookshier's (2016) study, there was a moderate reduction of anxiety ( $d = 0.73$ ); however, the group was only four students, signifying the need for further research with greater power. In another study, an ACT group for adolescents in high school was compared to the school's Dialectical Behavior Therapy (DBT) group (Mendoza, 2016). In this study, ACT was significantly more effective in reducing various difficulties related to emotion dysregulation with a 15% reduction in emotion dysregulation scores at one-month follow-up compared to no significant changes in the DBT group (Mendoza, 2016). The ACT group also significantly reduced total adolescent depression, anxiety, and stress by 20% at 1-month follow-up (Mendoza, 2016). Beyond these few studies, there appears to be a dearth in research on whether ACT can feasibly and successfully be implemented for adolescents in a school environment.

### **Purpose of Proposed Study**

In sum, ACT is under-researched in adolescents, particularly as a school-based treatment for anxiety (Block-Lerner et al., 2009). There is a clear need to develop better school-based interventions, especially considering the viability of ACT as an effective treatment for adolescents. Researching ACT as a treatment for adolescents is particularly relevant in an externally valid setting such as a school; this study will add a much needed alternative perspective from research that is often clinic-based and removed from real-world contexts (Block-Lerner et al., 2009; Weissman et al., 2008). Therefore, the present study aims to examine the effectiveness of a school-based ACT group on adolescent anxiety, school functioning,

psychological flexibility, and quality-of-life. Positive findings would indicate a need to further increase school-based research for adolescents, as well as indicate the promise of incorporating ACT-based programming into schools as a form of mental health care.

#### *Research Questions*

1. Does an ACT, school-based group intervention decrease anxiety symptoms in adolescents relative to a waitlist control?
2. Does an ACT, school-based group intervention decrease depression symptoms in adolescents relative to a waitlist control?
3. Does an ACT, school-based group intervention increase student well-being and attendance in adolescents relative to a waitlist control?
4. Does an ACT, school-based group intervention increase psychological flexibility relative to a waitlist control?
5. Does an ACT, school-based group intervention increase positive mental health relative to a waitlist control?
6. Is school-based group ACT an acceptable intervention for adolescent anxiety?



## CHAPTER II

### METHOD

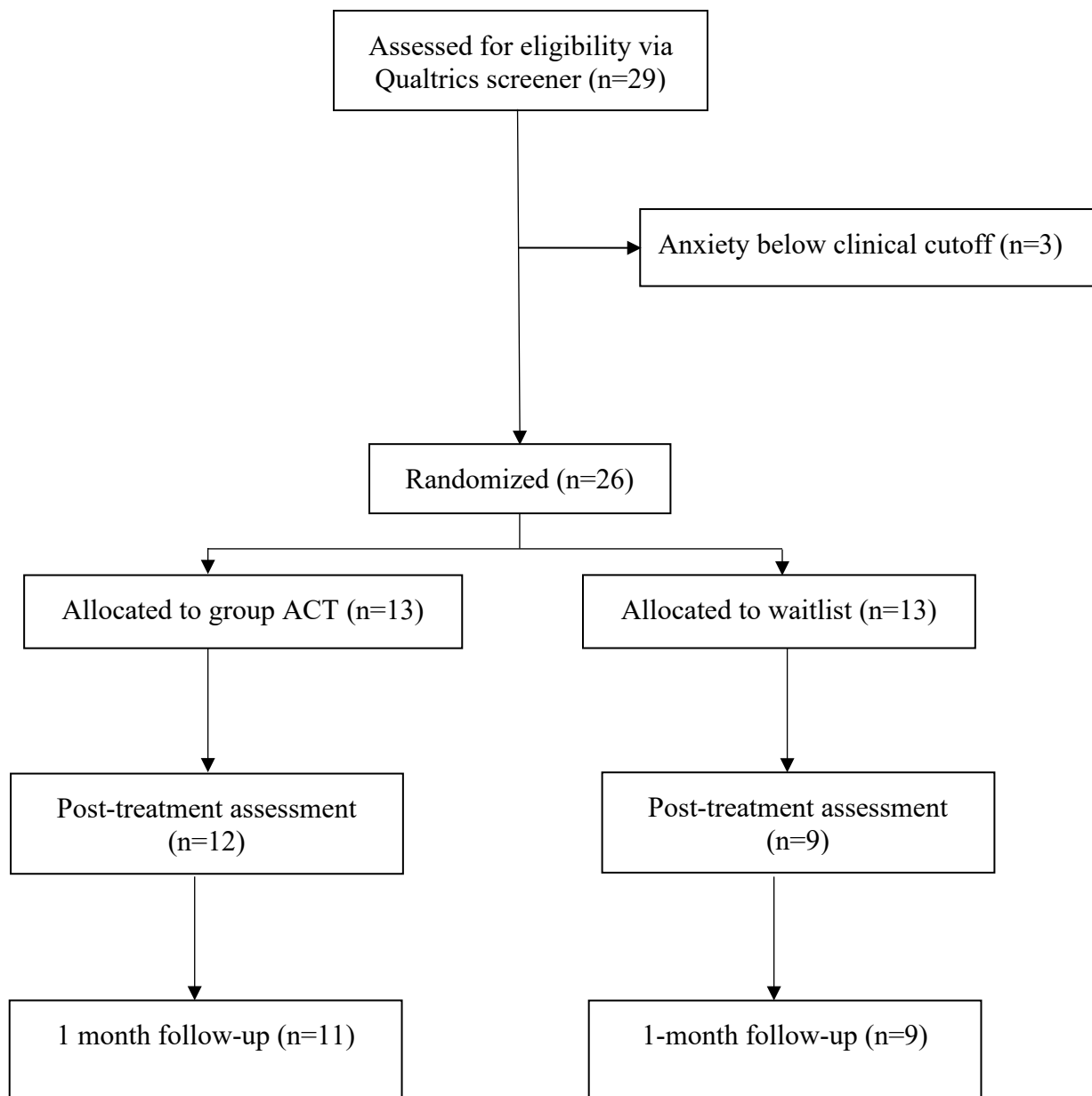
#### **Participants**

Participants were 26 adolescents currently attending high schools in Cache Valley. Participants were only included if their anxiety met a clinical cut-off on the SCARED (>25; Birmaher et al., 1999), parental consent was provided, they were fluent in English, and did not have any disruptive behavior disorders. Participants taking medication or receiving psychological care outside of the study were required to be stabilized for at least 30 days.

Recruitment took place via an eligibility online questionnaire distributed through high schools in Cache Valley by email and school counselor referrals. The questionnaire consisted of measures of anxiety and depression (see Measures section). Participants were screened for disruptive behavior disorders through information from school counselors. See Figure 1 for a CONSORT diagram.

Figure 1

*CONSORT diagram for participant flow in the full sample.*



## Procedure

**Informed Consent.** Participants were required to provide signed parental consent before completing the eligibility questionnaire. Adolescent participants were also asked to provide written assent to treatment.

**Study Design.** After consent, all participants were randomized to receive an ACT-based group intervention (n = 13; L. Hayes & Ciarrochi, 2015) or to a 12-week waitlist (n = 13). Participants completed a baseline, mid-treatment, post-treatment, and one-month follow-up questionnaires of anxiety, depression, psychological flexibility, student well-being, and class attendance via Qualtrics or on paper, depending on their preference. Adolescents were paid 10 dollars for completion of each pre-treatment, mid-treatment, post-treatment, and follow-up questionnaire. See Measures section for more information regarding the composition of the questionnaires.

Two active treatment groups, one at each high school, were completed over the course of 8 weeks. Students on the waitlists received the intervention once the intervention and follow-up were completed.

**Intervention.** The group intervention was based on Hayes and Ciarrochi's (2015) manual, *The Thriving Adolescent: Using Acceptance and Commitment Therapy and Positive Psychology to Help Teens Manage Emotions, Achieve Goals, and Build Connection*. *The Thriving Adolescent* uses a multifaceted model called "DNA-V" to teach the hexaflex skills of ACT. DNA-V is ideal for the group format because of its extensive use of metaphors and interactive activities (L. Hayes & Ciarrochi, 2015). DNA-V is composed of the following modules: the Discoverer, Noticer, Advisor, and Values. The adolescent learns about the "Discoverer" to explore new behaviors and experiences and develop a more adaptive way of

living, with a particular emphasis on values. Adolescents use the “Noticer” to practice present moment awareness, particularly of emotions and physical sensations. Next, the “Advisor” acts as a metaphor for adolescents to learn and practice cognitive defusion and acceptance. Lastly, “Values” is used to combine all three processes through values identification and committed action. DNA-V also incorporates lessons regarding self-esteem, self-compassion, and social issues. See Table 1 for a schedule of group sessions by topic.

Table 1

*Group session topics*

Session	Topic
1	Introductions, confidentiality
2	Values
3	Advisor
4	Noticer
5	Discoverer
6	Committed action and review of values
7	Flexible strength and self-view
8	Final session: review, self-compassion, celebration

The group took place 1-2 times a week for .5-1 hours, depending on the need and daily schedules of the schools. Adolescents in Cache High received the group once a week for 1 hour during a class period and adolescents in Green Canyon High School received the group twice a week for half an hour each during a free period. The timing difference was to accommodate schedules of the schools and of the participants. Groups were led by two graduate students.

Groups were recorded using a secure device and stored on a secure and HIPAA compliant server for supervision purposes. Supervision with a licensed psychologist took place once a week where recordings were reviewed.

## Measures

**Demographics.** During the eligibility questionnaire, information about participant race, ethnicity, age, gender, and previous therapy experiences was collected.

**Screen for Child Anxiety and Related Disorders – Child Report (SCARED;** Birmaher et al., 1999). The SCARED is a 41-item questionnaire measuring the presence of anxiety disorders such as panic disorder, generalized anxiety disorder, separation anxiety, social anxiety, and school avoidance. Participants are asked to rank each item on a 3-point Likert scale (0 = *Not true or hardly ever true*, 2 = *Very true or often true*). A score greater than or equal to 25 indicates the potential presence of an anxiety disorder. Example items include “I have nightmares about something bad happening to me” and “I am nervous.” 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 eligibility, pre-treatment, mid-treatment, post-treatment, and 1-month follow-up. The Cronbach’s alpha in the present sample at pretreatment was .82.

**Center for Epidemiologic Studies Depression Scale (CES-D; Phillips et al., 2006).** The CES-D measures depression severity. Participants are asked to rate 20 items on a 4-point Likert scale from *Rarely or none of the time (less than 1 day)* to *Most or all of the time (5-7 days)*. The scoring ranges from 0-60, with higher scores indicating greater depressive symptoms. Example items include “I felt lonely” and “I had trouble keeping my mind on what I was doing.” The CES-D has been found to be reliable and valid in adolescent populations (Phillips et al., 2006; Radloff, 1991; Stockings et al., 2014). The CES-D was given at eligibility, pre-treatment, mid-

treatment, post-treatment, and 1-month follow-up. The Cronbach's alpha in the present sample at pretreatment was .88.

**Mental Health Continuum Short Form** (MHC-SF; Lamers, Westerhof, Bohlmeijer, Ten Klooster, & Keyes, 2011). The MHC-SF is a shortened questionnaire examining elements of positive mental health, including emotional, psychological, and social well-being. Participants are asked to rate 14 items on a 6-point Likert scale (0 = *Never*, 5 = *Every day*), with higher scores indicating greater positive mental health. Example items include "Good at managing the responsibilities of your daily life" and "Interested in life." The MHC-SF has demonstrated excellent validity and reliability, as well as been successfully tested with adolescents (Keyes, 2006; Lamers et al., 2011). The MHC-SF was given at pre-treatment, mid-treatment, post-treatment, and 1-month follow-up. The Cronbach's alpha in the present sample at pretreatment was .82.

**Avoidance and Fusion Questionnaire for Youth** (AFQ-Y; Greco, Lambert, & Baer, 2008). The AFQ-Y is a 17-item questionnaire measuring cognitive fusion, experiential avoidance, and behavioral ineffectiveness in adolescents. Participants are asked to rate each item 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 try hard to erase hurtful memories from my mind" and "My thoughts and feelings mess up my life." Research has demonstrated support for both reliability and validity of the AFQ-Y in youth (Greco et al., 2008). The AFQ-Y was given at pre-treatment, mid-treatment, post-treatment, and 1-month follow-up. The Cronbach's alpha in the present sample at pretreatment was .79.

**School Attendance.** Participants will be asked to report how many classes they missed since last completing the assessment, excluding any classes missed to participate in the group.

Students were asked to report their attendance at pre-treatment, mid-treatment, post-treatment, and 1-month follow-up.

**Student Subjective Wellbeing Questionnaire (SSWQ; Renshaw & Chenier, 2018).** The SSWQ is a 16-item measure of subjective student wellbeing. In addition to overall wellbeing, the SSWQ examines joy of learning, school connectedness, educational purpose, and academic efficacy. Participants are asked to rate each item on a 4-point Likert scale (1 = *Almost never*, 4 = *Almost always*), with higher scores representing greater subjective well-being. Example items include “I can really be myself at school” and “I feel happy when I am working and learning at school.” Research has demonstrated support for the validity of the SSWQ for adolescents (Renshaw & Chenier, 2018). The SSWQ was given at pre-treatment, mid-treatment, post-treatment, and 1-month follow-up. The Cronbach’s alpha in the present sample at pretreatment was .93.

**Children’s Usage Rating Profile (CURP; Briesch & Chafouleas, 2009).** The CURP is a 10-item measure of method usability for children. In addition to overall usability, the CURP has subscales of personal desirability, feasibility, and understanding of the method. Participants are asked to rate each item on a 4-point Likert scale (1 = *I totally disagree*, 4 = *I totally agree*), with higher scores representing greater usability. Example items include “This is a good way to help students” and “I could see myself using this method again.” Research has demonstrated support for the reliability of the CURP in youth populations (Briesch & Chafouleas, 2009). The CURP was given at post-treatment. The Cronbach’s alpha in the present sample was .91.

**Acceptability of intervention.** Participants were asked an open-ended question during the final group session to report their perceptions of the acceptability of the intervention.

## **Statistical Analyses**

All analyses were conducted with R in RStudio, version 3.5.2 (R Core Team, 2019; RStudio Team, 2019). The following packages were used in analyses: tidyverse (Wickham et al., 2019), furniture (Barrett & Brignone, 2017), magrittr (Bache & Wickham, 2014), lubridate (Grolemund & Wickham, 2011), lmerTest (Kuznetsova, Brockhoff, & Christensen, 2017), texreg (Leifeld, 2013), effectsize (Makowski et al., 2020), and psych (Revelle, 2018).

Multilevel models (MLMs) were used to evaluate between-group differences over time on each outcome variable (6 total) and with the full sample, Green Canyon students only, and Cache High students only. MLMs were conducted as opposed to the planned ANOVAs due to the amount of missing data; because of statistical assumptions, repeated measures ANOVAs only include complete cases. Only MLMs for the full sample are reported due to negligible differences between results.

For each outcome variable, a series of nested models were fitted beginning with a null model (only random intercepts). A fixed effect of time (based on number of weeks since baseline) was added into the second model and a fixed effect of condition (group ACT vs. waitlist) was added into the third model. The fourth model included both time and condition as separate fixed effects and the fifth model included a time by condition interaction. All models included one random intercept for individual participants. Each model was compared to the previously determined best-fitting model (e.g., null model was compared to time-only model, and then time-only compared to condition-only, and so forth). This comparison was completed using likelihood ratio tests at  $p < .05$ . 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 post-treatment and post-treatment to follow-up).



## CHAPTER III

### RESULTS

Demographic conditions by sample and by condition can be found in Table 2. No differences between conditions were found across variables baseline (all  $ps > .05$ ). The only significant difference between high schools was ethnicity, with Cache High having significantly more participants who identified as Hispanic/Latinx (37.5% as compared to 0%,  $p = .02$ ). For the full sample, group attendance was 75.6% on average, with Green Canyon students attending a mean of 9.7 of 16, half-hour biweekly sessions and Cache High students attending a mean of 7.25 of 8, 1-hour weekly sessions. There were no treatment drop-outs (i.e., participants who missed at least 75% of sessions), but 2 participants in the ACT condition at Green Canyon did not attend any sessions, although still completed measures. All other participants attended 60% or more of the sessions.

Means and standard deviations for all measures at all timepoints in the full sample can be found in Table 3. Effect sizes for within- and between-groups for the full sample can be found in Table 4. Estimated marginal means and 95% confidence intervals from best-fitting models can be found in Table 5.

Table 2  
*Demographics for the entire sample and by condition.*

	Entire Sample (N = 26)	Group ACT (n = 13)	Waitlist (n = 13)
Age (SD)	15.7 (1.6)	15.6 (1.1)	15.8 (2.0)
Gender (%)			
Male	7 (26.9)	4 (30.8)	3 (23.1)
Female	19 (73.1)	9 (69.2)	10 (76.9)
Race (%)			
White or Caucasian	22 (84.6)	9 (69.2)	13 (100)
Other	3 (11.5)	3 (23.1)	0 (0)
Ethnicity (%)			
Hispanic/Latinx	3 (11.5)	2 (15.4)	1 (7.7)
Not Hispanic/Latinx	22 (84.6)	10 (76.9)	12 (92.3)

Table 3

*Means and standard deviations of outcome measures for full sample*

	Waitlist				Treatment			
	Pre-treatment (n = 12)	Mid-treatment (n = 10)	Post-treatment (n = 9)	1 month Follow-up (n = 9)	Pre-treatment (n = 12)	Mid-treatment (n = 13)	Post-treatment (n = 12)	1 month Follow-up (n=11)
SCARED <sup>1</sup>	51.8 (5.9)	48.9 (10.3)	46.7 (12.4)	49.8 (10.1)	48.3 (12.4)	47.2 (12.4)	41.6 (15.2)	38.6 (12.7)
CESD <sup>1</sup>	34.2 (10.8)	32.6 (7.8)	29.4 (12.8)	29.1 (9.0)	32.2 (9.7)	26.1 (11.9)	26.3 (10.2)	23.7 (10.6)
AFQ-Y <sup>1</sup>	37.5 (8.6)	36.8 (9.9)	35.2 (10.2)	31.6 (11.5)	37.2 (10.5)	34.2 (13.0)	30.8 (15.1)	32.3 (11.4)
MHC-SF	32.6 (9.4)	33.5 (7.6)	37.0 (5.4)	39.4 (10.1)	33.6 (12.6)	37.2 (10.6)	40.9 (14.0)	37.4 (11.9)
SSWQ	40.9 (9.1)	41.5 (8.0)	44.4 (8.5)	43.3 (8.4)	42.7 (8.3)	44.9 (9.1)	47.8 (11.0)	43.5 (9.5)
Class absences	3.3 (3.4)	3.1 (2.5)	9.1 (9.9)	5.6 (5.7)	7.9 (14.6)	5.8 (7.3)	3.1 (2.8)	3.0 (3.0)

<sup>1</sup> Higher scores indicate greater severity

Note. SCARED = Screen for Child Anxiety and Related Disorders – Child Report, CES-D = Center for Epidemiologic Studies Depression Scale, AFQ-Y = Avoidance and Fusion Questionnaire for Youth, MHC-SF = Mental Health Continuum Short Form, SSWQ = Student Subjective Well-being Questionnaire

Table 4

*Hedges' g effect sizes within ACT condition and between groups across timepoints for full sample*

	Pre- to post-treatment		Post-treatment to follow-up	
	Within-group <sup>1</sup>	Between-groups	Within-group <sup>1</sup>	Between-groups
SCARED	-0.48	-0.38	-0.22	-0.63
CESD	-0.59	-0.26	-.025	-0.40
AFQ-Y	-0.49	-0.21	0.10*	-0.15*
MHC-SF	0.55	0.24	-0.26	0.10*
SSWQ	0.53	0.30	-0.42	0.21
Class absences	-0.50	-0.11*	-0.03	-0.72

<sup>1</sup> Within treatment group

\*Negligible

*Note.* SCARED = Screen for Child Anxiety and Related Disorders – Child Report, CES-D = Center for Epidemiologic Studies Depression Scale, AFQ-Y = Avoidance and Fusion Questionnaire for Youth, MHC-SF = Mental Health Continuum Short Form, SSWQ = Student Subjective Well-being Questionnaire

Table 5  
 Estimated marginal means and 95% confidence intervals from best-fitting multilevel models

	SCARED	CESD	AFQ-Y	MHCSF	SSWQ	Class absences
Intercept	50.09 [44.03; 56.15]*	30.11 [25.02; 35.20]*	36.69 [30.91; 42.48]*	34.57 [28.98; 40.16]*	45.02 [40.47; 49.58]*	7.59 [3.60; 11.59]*
Week	-1.02 [-1.44; -0.60]*	-0.49 [-0.81; -0.17]*	-0.55 [-0.86; -0.24]*	0.45 [0.18; 0.71]*		-0.43 [-0.92; 0.06]
Condition <sup>1</sup>	0.39 [-8.33; 9.12]	5.15 [-1.79; 12.10]	2.47 [-5.57; 10.50]	-3.27 [-11.10; 4.56]	-3.58 [-10.19; 3.03]	-4.25 [-9.69; 1.19]
Week × Condition	0.91 [0.28; 1.53]*					0.75 [0.07; 1.42]*
BIC	655.70	632.89	635.12	614.90	431.77	519.82
Number of observations	89	87	87	87	87	75
Number of participants	25	25	25	25	25	23

\* 0 outside the confidence interval.

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

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

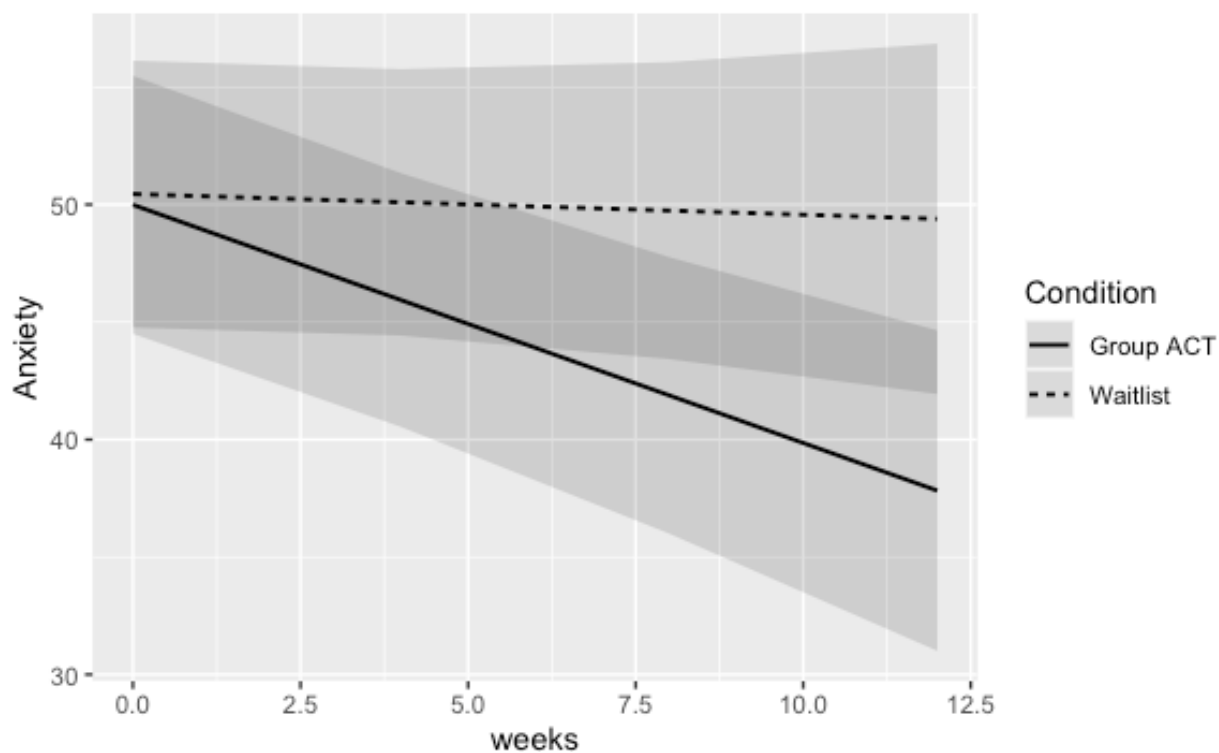
*Note.* SCARED = Screen for Child Anxiety and Related Disorders – Child Report, CES-D = Center for Epidemiologic Studies Depression Scale, AFQ-Y = Avoidance and Fusion Questionnaire for Youth, MHC-SF = Mental Health Continuum Short Form, SSWQ = Student Subjective Well-being Questionnaire

### Research question 1: Anxiety

The best-fitting model selected included the time by condition interaction (model 5). There was a greater decrease in anxiety in the participants who received group ACT as compared to the waitlist group over time and a small group difference from pre- to post-treatment (Hedges'  $g = -.38$ ) and a medium difference from post to follow-up (Hedges'  $g = -0.63$ ). See Figure 2 for a graph of the results supporting a significant decrease in the anxiety condition as compared to the waitlist.

Figure 2

Estimated marginal means and standard error ribbons from best-fitting model for SCARED scores at  $p < .05$



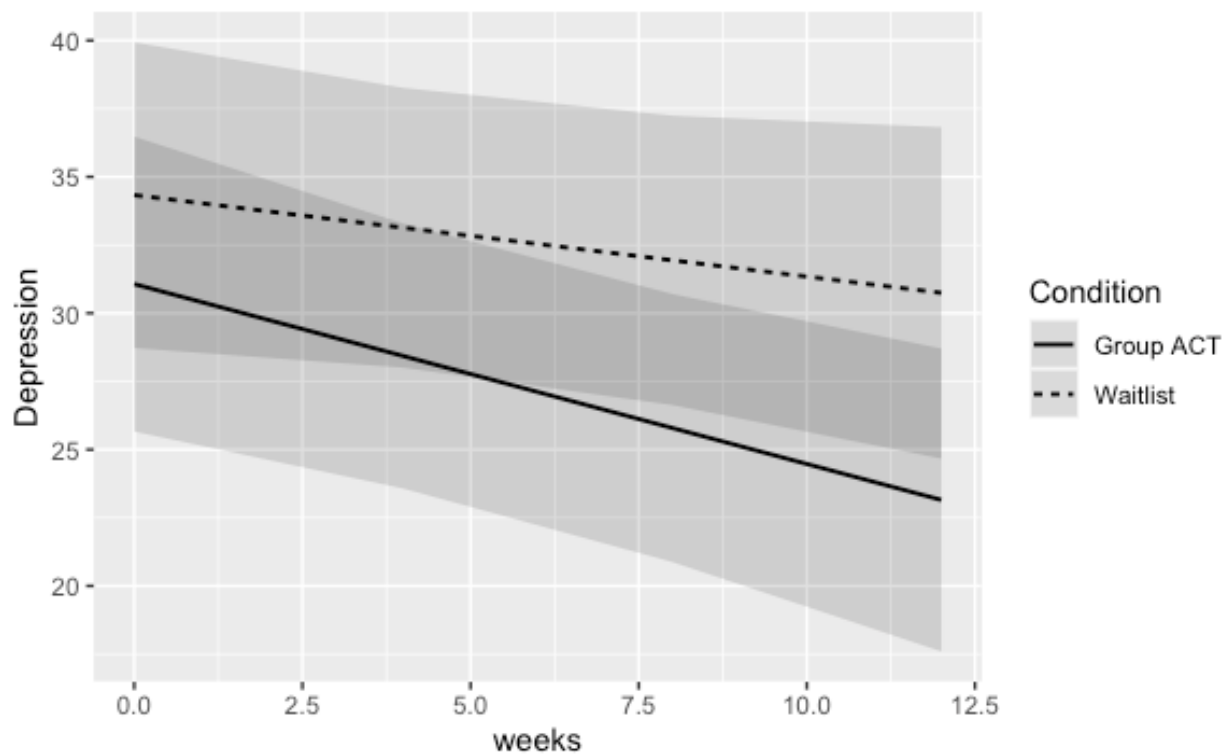
*Note.* SCARED = Screen for Child Anxiety and Related Disorders – Child Report

### Research question 2: Depression

The best-fitting model selected included main effects for time and condition only (model 3). There were no significant effects for time or condition in this model. Effect sizes indicated medium ( $g = -.59$ ) change in depression from pre- to post-treatment in the treatment group. However, no significant differences were found between the two conditions. See Figure 3 for a graph of the best-fitting model.

Figure 3

Estimated marginal means and standard error ribbons from best-fitting model for CESD scores at  $p < .05$



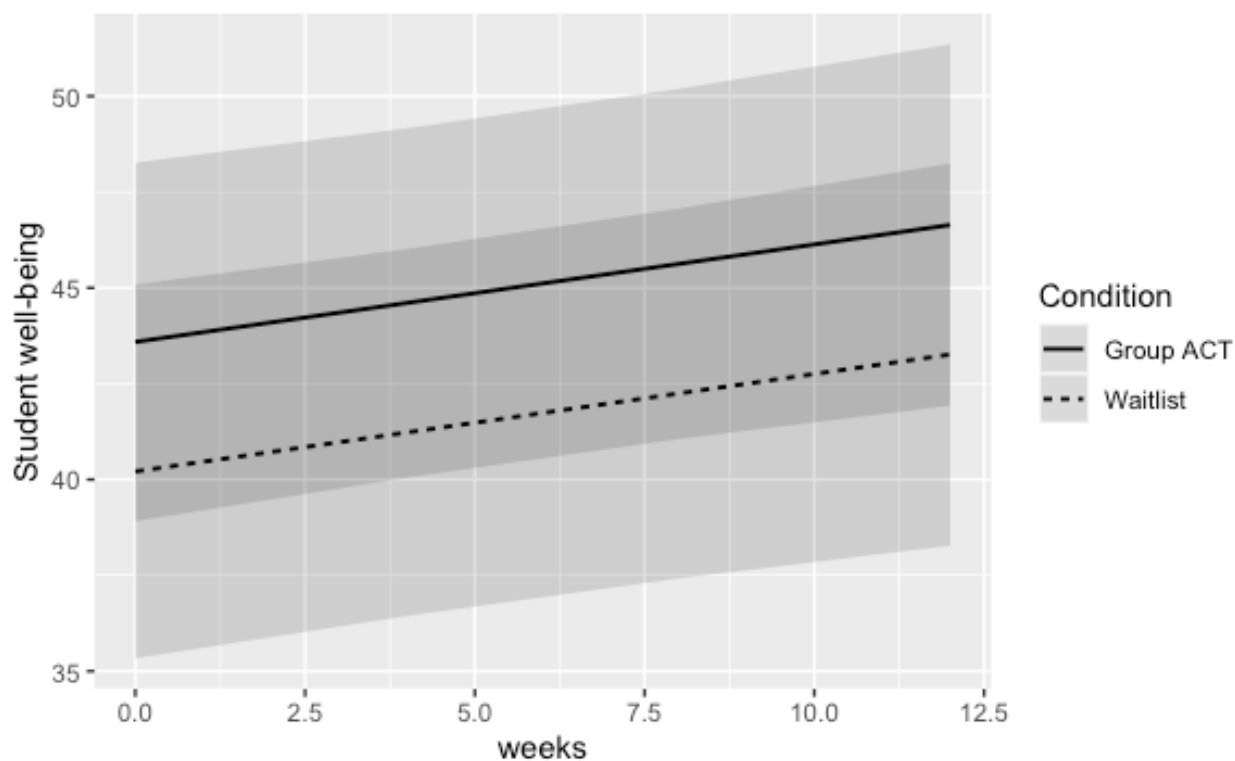
*Note.* CESD = Center for Epidemiologic Studies for Depression Scale

### Research question 3a: Student well-being

The best-fitting model selected included only main effects for condition (model 2) but had no significant effect for condition. There was a trend towards significance with the model containing both condition and time (model 3;  $p = .06$ ). Effect sizes indicated medium ( $g = .53$ ) change in student well-being from pre- to post-treatment in the treatment group. However, no significant differences were found between the two conditions. See Figure 4 for a graph of the model including both time and condition; this is not the best-fitting model but is shown for comparison purposes.

Figure 4

Estimated marginal means and standard error ribbons from the model with both time and condition for SSWQ scores at  $p < .05$



*Note.* SSWQ = Student Subjective Wellbeing Questionnaire

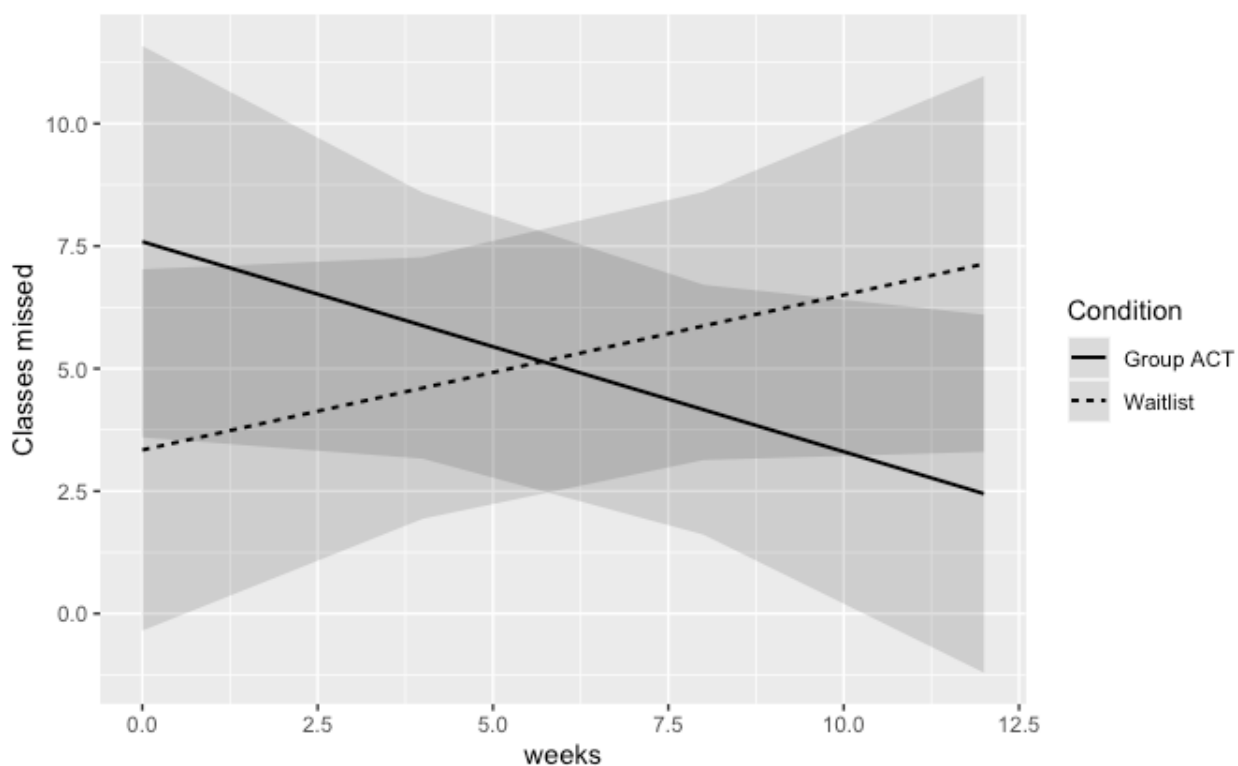
### Research question 3b: Class absences



The best-fitting model selected included the time by condition interaction (model 5). There was a greater decrease in missed class periods in the participants who received group ACT as compared to the waitlist group over time and a small group difference from pre- to posttreatment (Hedges'  $g = -0.11$ ). Effect sizes also indicated medium ( $g = -.50$ ) decrease in missed class periods from pre- to post-treatment in the treatment group. See Figure 5 for a graph of the results supporting significantly fewer classes missed by participants in the ACT condition as compared to the waitlist.

Figure 5

Estimated marginal means and standard error ribbons from best-fitting model for class periods missed at  $p < .05$



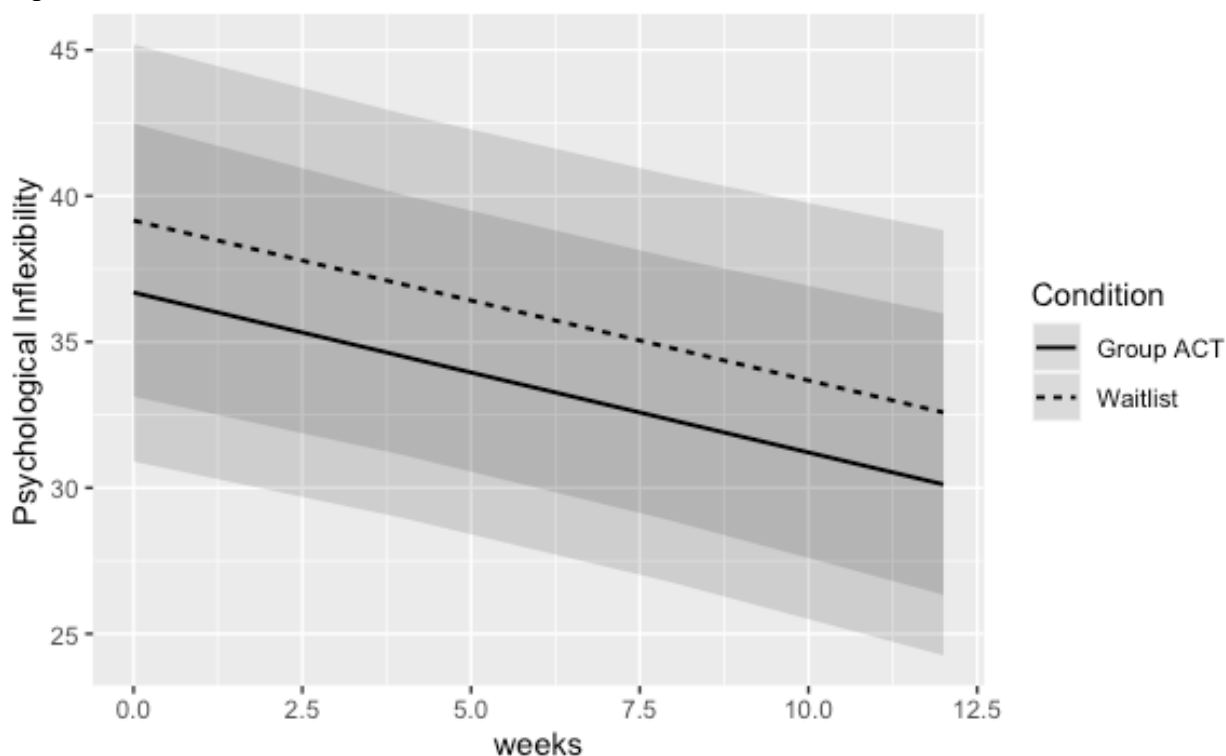
#### Research question 4: Psychological inflexibility

The best-fitting model selected included main effects for time and condition only (model 3). There was only a significant effect for time. Effect sizes indicated medium ( $g = -.49$ ) change

in psychological inflexibility from pre- to post-treatment in the treatment group. However, no significant differences were found between the two conditions. See Figure 6 for a graph of the best-fitting model.

Figure 6

Estimated marginal means and standard error ribbons from best-fitting model for AFQY scores at  $p < .05$



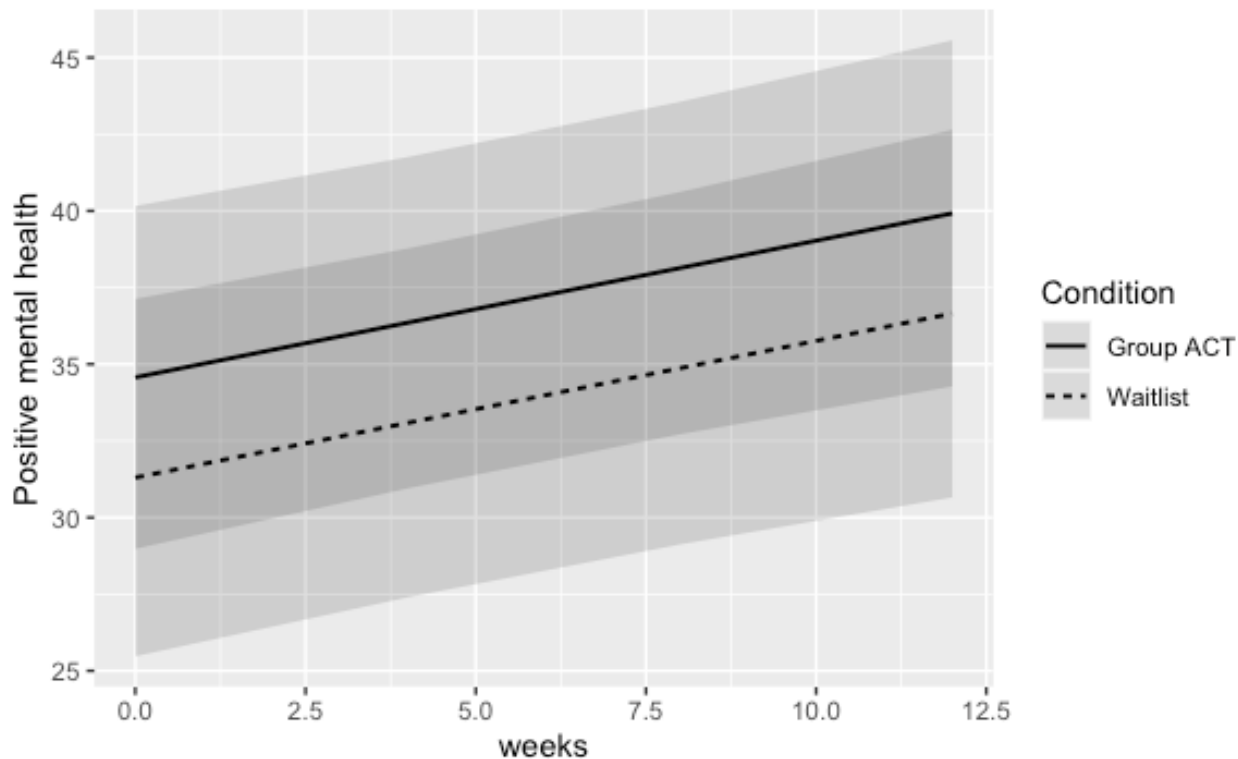
*Note.* AFQY = Avoidance and Fusion Questionnaire for Youth

### Research question 5: Positive mental health

The best-fitting model selected included main effects for time and condition only (model 3). There was only a significant effect for time. Effect sizes indicated medium ( $g = .55$ ) change in positive mental health from pre- to post-treatment in the treatment group. However, no significant differences were found between the two conditions. See Figure 7 for a graph of the best-fitting model.

Figure 7

Estimated marginal means and standard error ribbons from best-fitting model for MHC-SF scores at  $p < .05$



*Note.* MHC-SF = Mental Health Continuum Short Form

### Research question 6: Treatment acceptability

Due to experimenter error, only 10 of the 21 items of the CURP were given to participants. Participants rated 3 items of feasibility, 3 items on understanding, and 4 items on desirability on a 4-point scale, with higher scores indicated greater acceptability for the overall score, and the understanding and desirability subscales. Lower scores on the feasibility scale indicated greater feasibility. Overall, participants reported good treatment acceptability ( $M = 25.5$ ,  $SD = 3.4$ ). Participants gave high positive satisfaction ratings on average for feasibility ( $M = 1.6$ ,  $SD = 0.5$ ), understanding ( $M = 3.2$ ,  $SD = 0.7$ ) and desirability ( $M = 2.8$ ,  $SD = 0.6$ ).

In the open-ended discussion at the end of groups and in feedback emails to group leaders, participants reported positive feelings towards the group. Several participants expressed gratitude for the availability of the group and noted that it was helpful to them.

## CHAPTER IV

### DISCUSSION

This study was aiming to assess the acceptability and effectiveness of school-based group ACT for adolescents with anxiety as compared to a waitlist control. Small to medium between-group effect sizes across timepoints indicated a significant decrease in anxiety in the group ACT condition as compared to the waitlist. These findings are consistent with past pilot studies of ACT-based groups in schools (Smith, Oxman, & Hayes, 2020; Brookshier, 2016). In both previous studies of ACT groups implemented in schools, small samples reported improvements in anxiety, psychological flexibility, and other outcomes (Smith, Oxman, & Hayes, 2020; Brookshier, 2016). The decrease in anxiety following ACT is also supported by broader past research documenting the effectiveness of ACT as a treatment for anxiety across ages (Bluett et al., 2014).

There were also small between-group differences for class attendance across timepoints, indicating a significant decrease in class periods missed by adolescents in the group ACT condition. There are no comparable results examining how group ACT may alter or bolster school attendance. However, previous research indicates that anxiety negatively impacts school attendance (de Lijster et al., 2018; Kearney, 2008; Waite & Creswell, 2014). Thus, this result points to the effectiveness of group ACT in potentially improving secondary outcomes that anxiety may impede. It is also possible that integrating the group into school hours encouraged school attendance. For example, a student who would normally skip school when experiencing anxiety may attend school to receive support from the group. It is also possible that holding the group during a free period improved class attendance—because students were receiving support during the school day, they did not have to miss classes as much for anxiety-related problems.

However, one group in this study was held during a class period, so it is not possible to discern these effects. It is important for future research to examine the potential benefits of missing a class to attend group therapy (i.e., weighing academic costs vs. mental health benefits).

No between-group differences were found for depression, although there was a medium within-group effect size for decreases in depression. Despite nascent research supporting the use of group ACT for treating depression (e.g., Livheim et al., 2015), this result is consistent with previous pilot research that found no significant decreases in youth depression after receiving a school-based, ACT group for anxiety (Smith, Oxman, & Hayes, 2020). As indicated by the CES-D pre-treatment scores (see Table 3), many participants were struggling with depressive symptoms in addition to anxiety; however, the sample may have been underpowered to detect changes in depression. Because this intervention was highly focused on anxiety, rather than other mental health concerns, it is also possible that depressive symptoms were not sufficiently targeted. However, ACT is understood as a transdiagnostic treatment, so it is also possible that the DNA-V skills were not taught in a generalizable manner. Because time was limited, addressing depression was outside the scope of the group sessions. Future research should consider additional sessions or greater efforts to generalize in order to make treatments more effective across mental health concerns. For example, instead of asking about how students used DNA-V when anxiety was present, it would be more transdiagnostic to ask about how skills were used when difficult feelings or thoughts were present.

No between-group differences were found for quality of life outcomes (i.e., student well-being and positive mental health) and psychological inflexibility. Because these are the outcomes that ACT purports to target specifically, these results are not consistent with past larger trials (Bluett et al., 2014). However, previous studies similar in size (e.g., Livheim et al., 2015) also

did not find significant between-group differences in psychological inflexibility or quality of life variables. One possible explanation is that group facilitators were not employees of the school—perhaps students would have reported improved student or general well-being if the group was more directly connected to the school environment beyond occurrence during school hours (e.g., seeing facilitators regularly around the school) or more integrated into students' lives (e.g., receiving reminders about skills from counselors or teachers). Another explanation may be that the groups did not focus on anxiety in school settings specifically. Greater changes in student well-being may have been observed if symptoms interfering with student life (e.g., academics, teacher communication) were directly addressed in group sessions. It is also possible that participants may have experienced greater differences in quality of life and psychological inflexibility across longer follow-up points. However, ethical limitations related to the waitlist length prevented exploring this possibility further in the present study. Overall, these results point towards the need to emphasize larger sample sizes and longer follow-up points in order to better understand the effectiveness of the intervention.

At a clinical level, this study provides some important information regarding the implementation of ACT groups as a treatment for anxiety in high school students. First, the high CURP ratings indicate that the intervention was perceived as acceptable, feasible, and easily understood by the participants. Participants also expressed positive reception for the group itself, underscoring its value. Groups were also able to successfully integrate into school hours; group attendance rates (75% sessions completed) were comparable to past research examining group therapy integrated into schools (Chu et al., 2016; Ginsburg et al., 2012) and outside of schools (Hancock et al., 2018). This finding presents initial support for further efforts to incorporate adolescent mental health care into school hours; integration into school hours is convenient and

cost-effective for students, particularly if classes are not missed. Holding groups during school hours also allowed for students with after-school commitments (e.g., employment, sports, family responsibilities) to receive mental health care in a convenient format. Participants also expressed enjoying the immediate ability to practice DNA-V skills as they continued throughout their school day. For example, participants were taught a present moment awareness exercise that they could then practice during lunch, a typically anxiety-provoking period. Lastly, adaptations across schools were necessary and successful. As previously discussed, the timing (half hour vs. hour) and execution (during free period vs. missing a class) varied between schools. However, no meaningful differences between outcomes were found across schools. This finding supports the need for flexibility when adapting clinical treatments to school environments, as it may not affect treatment outcomes as much as previously thought. Future research in larger samples and varied formats may examine if the lack of differences is due to limited power or to a true lack of difference in treatment delivery.

### *Limitations*

This study had several limitations. First, the CURP was not fully given to participants, leaving the acceptability and feasibility outcomes more in question. Although half of the CURP items provide valuable information regarding the feasibility, it is still incomplete and not validated in a shortened format. Second, the sample is small and lacks diversity overall. Although one school was significant more diverse than the other, the overall sample is predominantly white. Family demographic data was also missing (e.g., socioeconomic status), leaving some questions about what type of students may benefit from the intervention. Further research should include diverse students from a range of backgrounds in order to best understand the effectiveness of the intervention. Third, the groups were all run by the same two therapists.



Future research should use more therapists, perhaps counselors already in the school system, in order to better elucidate intervention effects. It would also be beneficial to collect data on treatment fidelity in the future. While weekly supervision was received and the group sessions closely followed the DNA-V manual, it is a weakness of the present study that integrity data was not collected. As previously stated, the study results would also hold stronger with extended follow-up points. Data from beyond one month would allow for a better understanding of treatment effects in the long term. Lastly, the study ended during the beginning of the COVID-19 pandemic. This resulted in a significant loss of post-treatment and follow-up data. The beginning of such an uncertain time may also have inadvertently affected outcomes at post-treatment and follow-up.

### **Conclusions**

In sum, this study provides preliminary data for the use of ACT groups within schools for adolescents with anxiety. Adolescents in the group ACT condition reported significant reductions in anxiety and missed class periods as compared to the waitlist condition. While the sample was small and fairly homogenous, this study adds to the growing literature supporting ACT for adolescents in schools and beyond.

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