**Abstract**

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. However, integrating youth psychotherapies into the school environment improves access to evidence-based care. The present study is a pilot, randomized waitlist-controlled trial of a school-based, group acceptance and commitment therapy-based (ACT) intervention for adolescents with anxiety. Students at two separate schools (*N* = 26) with elevated anxiety were randomized to a 12-week waitlist or to immediate treatment. Participants in the immediate treatment condition reported statistically significant decreases in anxiety and class absences at posttreatment and follow-up compared to the waitlist group. No statistically significant differences were found between groups for depression, psychological flexibility, positive mental health, and student well-being. However, medium within-condition effect sizes were seen in the treatment group for all outcomes. Participants reported the treatment as favorable with good acceptance ratings. Overall, this study supports ACT as a viable intervention for schools and other clinical settings providing services to adolescents with anxiety.

*Keywords*: acceptance and commitment therapy, adolescents, anxiety, school mental health, DNA-V, transdiagnostic

**School-based acceptance and commitment therapy for adolescents with anxiety**

Among all adolescent mental health issues, anxiety disorders are the most common and often one of the earliest forms of psychopathology to develop (Wehry et al., 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). Youth with anxiety disorders also have an increased risk of developing depression, substance use, and other mental disorders later in life (Beesdo, Knappe, & Pine, 2009). Additionally, youth with anxiety have greater functional impairment and lower social skills and peer acceptance combined with greater interpersonal difficulties, victimization, and loneliness than youth without anxiety (de Lijster et al., 2018; Greco & Morris, 2005).

Anxiety disorders are often treated in children and adolescents using cognitive behavioral therapy (CBT). Researchers have demonstrated that group and individual CBT are efficacious for youth anxiety disorders in several large reviews and meta-analyses (e.g., Cartwright-Hatton et al., 2004; James et al., 2015). CBT has a documented anxiety 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). Furthermore, the majority of these studies took place in clinics or university settings. There is a need to explore how to best adapt and implement treatments for adolescent anxiety in more naturalistic environments, such as schools, to improve external validity of evidence-based care.

Schools are the focal point for youth entering the mental health care system and receiving treatment (Farmer et al., 2003). School mental health systems have documented positive impacts on students, their families, and stigma surrounding mental health treatment (Stephan et al., 2007). Mychailyszyn and colleagues (2012) found in a review of 63 studies spanning 8,225 participants that CBT delivered in schools was moderately effective for anxiety (﻿Hedge’s *g* = 0.50). However, only a few studies have examined CBT for adolescent anxiety within a high school setting (e.g., Chu et al., 2016), with most targeted to elementary-school aged children (Bernstein et al., 2005; Ginsburg et al., 2012). There is thus a need for further exploration of school-based treatment of adolescent anxiety.

ACT is a form of CBT combining elements of acceptance, mindfulness, and behavior change methods in order to improve psychological flexibility, or the ability to remain in the present moment while acting consistently with one’s values independent of whatever thoughts and feelings arise (Hayes et al., 2006). In adolescence, psychological inflexibility (i.e., the opposite of psychological flexibility) may look like rigid rule following (e.g., insistence on attaining all As in school to prevent feelings of failure), avoidance of important activities (e.g., not attending a party because of thoughts like “I will just embarrass myself” or “Nobody wants me there anyway”), and/or unhelpful fusion with labels or identities (e.g., “I am bad at violin and shouldn’t bother practicing”, “I am the athlete so I can’t try out for the musical”).Overall, ACT aims to change the client’s relationship with their thoughts and feelings in service of a more meaningful life, rather than focusing on attempts to regulate or change these internal experiences (Hayes et al., 2006).

Psychological flexibility is a particularly important issue for the treatment of anxiety in youth (Bluett et al., 2014). Although less research has examined psychological flexibility in youth, there are signs that this construct is just as important as in adults. Previous studies have established association between psychological inflexibility and anxiety, depression, low self-esteem, poor academic and social skills, and overall reduced quality of life (Tan & Martin, 2016; Greco, Lambert, & Baer, 2008). Because of the potential negative implications for psychological inflexibility in adolescence and adulthood, ACT may be a promising intervention that warrants further research in adolescents with anxiety.

There is a strong empirical base for implementing ACT as a treatment for anxiety disorders and obsessive-compulsive disorders (OCD) in adults (Bluett et al., 2014; Swain et al., 2013; Twohig & Levin, 2017). However, little research has specifically examined ACT for adolescent anxiety. In the largest trial comparing ACT, CBT, and a waitlist for youth anxiety, there were no statistically significant differences found between CBT and ACT in anxiety disorder diagnosis and symptom outcomes at post-treatment and the two-year follow-up point (i.e., medium to large effect sizes for both conditions; Hancock et al., 2018). However, participants were primarily younger children (mean age = 11 years). There are few studies available on ACT for anxiety disorders in adolescents beyond several small studies with positive outcomes (e.g., Brown & Hooper, 2009; Armstrong, Morrison, & Twohig, 2013). There is a need to explore ACT as treatment for older youth on a larger scale (e.g., bigger sample sizes, randomized trials).

ACT may also be particularly relevant as a school-based intervention for adolescents. As discussed previously, adolescent symptoms of anxiety and depression have an impact on functioning and school performance; therefore, ACT may be useful to integrate into a school setting (Green et al., 2016; Mazzone et al., 2007; Seipp, 1991). Preliminary pilot research suggests that ACT can be effectively implemented in a school environment and is a growing area in need of more research. Livheim and colleagues (2015) completed two pilot studies with adolescents in Swedish and Australian schools, finding positive effects of group ACT delivered by clinical psychology doctoral students and school counselors compared to a control group (support from a school nurse or counselor) for depression and for stress. As another example, Smith and colleagues (2020) found that adolescent females (N = 10) reported significant improvements in anxiety and psychological flexibility (i.e., small to medium effect sizes) after six-week, ACT school-based group intervention. 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.

There is a clear need to better explore the use of ACT in school environments, especially considering the viability of ACT as a promising treatment for adolescents with anxiety. 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 treatment research that is often clinic-based and removed from real-world contexts (Weissman et al., 2008). Lastly, because the bulk of treatment research with youth in and outside of schools utilizes CBT, it is important to further research on ACT given its growing promise as a treatment for anxiety in both youth and adult populations. While there is no evidence suggesting ACT would provide increased efficacy in comparison to CBT for youth with anxiety (e.g., Hancock et al., 2018), improving and expanding evidence-based treatment options for youth with anxiety is vital. This is particularly relevant given the current mental health crisis in youth (American Academy of Pediatrics, 2021).

The present study is a pilot trial of a school-based ACT group intervention, DNA-V, on adolescent anxiety, depression, class attendance, psychological flexibility, and quality of life (i.e., positive mental health and student well-being). DNA-V uses three characters (the Discoverer, Noticer, and Advisor) to introduce and engage adolescents with ACT processes (e.g., acceptance, present moment awareness, and cognitive defusion) in the service of psychological skill-building and values/vitality (i.e., the “V” in DNA-V). To our knowledge, this trial is the first to use a randomized, waitlist-controlled format as a preliminary test of DNA-V, a unique and developmentally adapted form of ACT, in a group, school-integrated format for adolescents with anxiety. We predicted that adolescents in the treatment group would show improvements on all outcomes at post-treatment and follow-up as compared to the waitlist.

**Method**

**Participants**

Participants were 26 adolescents at two high schools (Schools A and B) in the Mountain West region of the United States. Participants had to meet the following inclusion criteria: anxiety above the clinical cut-off of 25 on the Screen for Child Anxiety and Related Disorders – Child Report (SCARED; Birmaher et al., 1999), provision of parental consent, fluent in English, and not too disruptive to participate in group therapy (as identified by school counselors). 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 the two participating high schools by email and school counselor referrals and occurred September-October of 2019. See Figure 1 for a CONSORT diagram and Table 1 for participant demographics.

**Procedure**

Participants were required to provide signed parental consent before completing the eligibility questionnaire. Adolescent participants were also asked to provide written assent to treatment. All study procedures were approved by the university institutional review board and the school district. After consent and assent, participants were randomized to receive an ACT-based group intervention (*n* = 13) or to a 12-week waitlist (*n* = 13). Participants completed 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 (School A *n* = 18, School B *n* = 8), were completed over the course of 8 weeks. Students on the waitlists received the intervention once the treatment and follow-up were completed. The same two clinical psychology doctoral students acted as co-facilitators for every group therapy session. Both student therapists had previous experience delivering ACT-based anxiety treatments. Additionally, the student therapists attended weekly supervision, including reviews of session recordings, with a licensed psychologist who is an expert in ACT for anxiety disorders.

**Intervention**

The group intervention utilized the DNA-V model, a developmentally adapted ACT intervention for youth. We adapted our treatment protocol from *The Thriving Adolescent* (Hayes & Ciarrochi, 2015), a therapy manual which introduces the conceptual basis and application of the DNA-V model with adolescent clients. While the original protocol details a group intervention for adolescents, we made several adaptations to ensure that DNA-V was delivered most effectively for the brief sessions and school environments. As our time with students was limited, adaptations involved emphasizing memorable, experiential exercises as opposed to prolonged didactic instruction of DNA-V concepts. The group also did not include the “social view” aspect of DNA-V, which primarily focuses on building social skills, promoting prosocial behavior, and improving friendships. This element of DNA-V was instead woven throughout the group as a secondary element of other exercises.

In DNA-V, core ACT skills are personified through distinct “characters” (i.e., the *Discoverer*, *Noticer*, and *Advisor*) and the concept of *Vitality* (i.e., values). The character of the *Advisor* maps onto acceptance, defusion, and self-as-context by encouraging the adolescent to separate their mind (i.e., “self-talk”) from themselves while opening up to whatever it might be saying without having to respond or do what it says. The *Noticer* primarily correlates with present moment awareness, along with acceptance and self-as-context, by helping adolescents strengthen their ability to observe internal and external experiences of all kinds as transient. The *Discoverer* primarily connects the adolescent to committed action by helping adolescents try new behaviors and ways of living that are values-based. Lastly, the concept of *Vitality* almost directly mirrors the values process in ACT. However, DNA-V makes significant developmental adaptations so that it is more appropriate for developing young people. Overall, we encouraged students to embody these characters and concepts through various activities to recognize how they are distinguished yet connected to one another, ultimately aiming to help them develop the ability to switch between characters in a functional manner (i.e., *flexible self-view*). Additional adaptations included using videos (e.g., clips from popular movies) to introduce key principles and frequently asking students to recall lessons from previous sessions to help with retention of skills.

Starting with the third session, we also helped each student make a personal behavioral commitment for the week. This aimed to promote the generalization of DNA-V skills while additionally encouraging mutual support among students in the group. We provided example behavioral commitments corresponding with each therapy session to show the diversity of how students applied DNA-V to their own lives. We found that our groups brought together students who may not typically socialize with one another. In the spirit of DNA-V, we tried to facilitate bonds out of the common struggles adolescents face, both in regards to anxiety and broader personal challenges.

In the following sections, we have outlined the session-by-session content of our DNA-V group treatment. The majority of the treatment materials described can be found for free on the website associated with *The Thriving Adolescent* (www.thrivingadolescent.com). Due to differences in class schedules, at one of our sites (School A) therapy was divided into two half-hour sessions during the lunch hour on separate days, and at our second site (School B) therapy was given once per week for an hour during a chosen class period. The content covered each week, however, was the same across the two schools. Therefore, the sessions described below either occurred during one meeting or across two shorter periods in a given week. While this was a slight implementation difference, modifying to fit school schedules is consistent with community-based research. Additionally, despite the differing attendance and group sizes, there were no apparent differences between implementation of DNA-V in the groups. However, the smaller group often required more individual participation (e.g., more frequent response to questions, sharing of personal examples) of the members simply because there were fewer individuals to respond to the prompts.

**Week 1: Introduction to DNA-V.** We first began by setting basic ground rules for the group by inviting each student to suggest possible rules and/or respond to prompts related to groups rules (e.g., “*Should eating be allowed in group?*”, “*Are people allowed to have their phones out?*”). After setting basic ground rules for the group, we encouraged students to be open and curious about what they were going to learn. For instance, we wrote out the letters “D,” “N,” “A,” and “V” on a whiteboard and invited students to guess what they stood for. Because therapy occurred during the school day, in between class periods, one of our concerns was that students would view the experience like they may view some other academic responsibilities (i.e., “things they have to do”). In our introductory session and throughout treatment, we emphasized group as an “open” space, where students could voice their personal experiences, as well as their doubts, about the DNA-V approach without fear of judgment or reprimand (e.g., asking “*What do you think the possible pros and cons are of DNA-V?*”, “*Were you surprised by what these letters stood for?*”, “*How is this similar or different from things you have been introduced to in the past for anxiety?*”).

**Week 2: Values.** We began discussion of values by asking students their personal reasons for participating in group. As before, we sought to encourage personal meaning-making as opposed to more rule-bound reasons for attending therapy, even if the student was initially encouraged to do so by a school counselor, parent, or teacher. Each group leader shared a personal reason for running the groups and then “popcorned” around the circle until everyone had a chance to share. “Popcorning” is when a person selects the next person to speak after sharing (i.e., the group leader shared their reasons and then passed it on to another student). We also led students in more casual discussions of their personal values through a deck of “conversation cards” which we each drew from, including the two therapists. Students were asked to pair up and to discuss the questions they each drew within their pairs. They then took turns briefly sharing what was discussed with the larger group. The pair sharing then invited broader discussions around questions. Examples from the “conversation cards” include questions such as “*What makes a good life?*”, “*How are you different from your parents?*”, “*Would you rather blend in or stand out?*”

**Week 3: The advisor.** We described the *advisor* as a kind of inner voice who follows us around providing all kinds of comments and advice. To illustrate this concept, we showed students a clip from the Disney film *The Emperor’s New Groove* (Dindal, 2000) in which the character Kronk grapples with an angel and devil version of himself on each shoulder, mocking him with infuriatingly contradictory advice and chatter. Students then were provided with space to discuss personal examples of when they had felt similar to Kronk, or been in a similar situation (i.e., internal conflict).

As the second activity, we invited students to write freely for three minutes anything their *advisor* said to them, in order to recognize how busy our minds are and that not every internal experience needs to be listened to, especially the ones that “push us around.” Students discussed their reactions to this exercise and described other moments from their lives when they had felt their *advisor* was especially chatty (e.g., after an argument with a friend, taking the driver’s license test). Students began to set a weekly behavioral commitment in this week of the protocol.

**Example behavioral commitment:** “Observe what my advisor is saying while I try to study for a test. If my advisor says mean things like ‘just give up,’ remember that I can choose whether or not to listen to it.”

**Week 4: The noticer.** In DNA-V, mindfulness and present moment awareness are taught through embodying the *noticer*, a nonjudgmental perspective on internal and external experiences. Adolescents may be under especially strong pressure to avoid or repress unpleasant emotions, worried that they may affect their school performance or social life (e.g., ability to “fit in”). We asked students in our group to describe “rules” they may have learned from family, friends, or teachers about controlling negative emotions. As in previous groups, students were invited to share personal examples to the broader group or to discuss in pairs.

To experientially contact the noticer, we led students through various brief mindfulness exercises. First, we led the students through a “balloon breathing” meditation, visualizing the diaphragm as gently inflating and deflating like a balloon as they breathed. Students were guided through the mindfulness exercise via a script similar to the following text:

*Close your eyes and take a moment to connect with your noticer. Tap into your senses and notice what it feels like to just be in this room together. If you are willing, move your attention to your body and your breath. Notice how your breath goes in and out. Maybe it is fast, maybe it is slow. Notice the temperature of your breath and how it travels through your body. When you are ready, place one hand on your stomach and one on your chest. As you breathe, notice how your hands move. Maybe your hand on your chest is rising and falling or maybe vice versa, or not at all. Whatever you notice is OK. If your attention is wandering or your advisor is trying to take over, that is OK too—just gently bring yourself back to the noticer space and bring your attention to your breath and hands. Now imagine that you have a balloon in your stomach. When you breathe in, imagine you are filling that balloon up with air. When you breathe out, the balloon is deflating back down. Really imagine the balloon, its color, its shape, and how it grows and deflates. Notice how it feels as you breathe into your stomach and that balloon. Pay attention to your hands again—notice if anything is different or the same. Keep breathing into your stomach in this way for a few more breaths. When you are ready, open your eyes.*

Following this brief exercise, students were encouraged to discuss how they felt before and after breathing into their “balloon.” They also were prompted to consider where and when this breathing might be useful with anxiety (e.g., asking someone out on a date, before making a phone call).

Second, we guided the students to imagine recent events in their lives and to observe what sensations arise without judgment. Students were guided through this exercise via the following script twice, once for a pleasant and unpleasant memory:

*Take a moment and think about a recent happy/unhappy event that happened to you. It can be something that happened in the last week or maybe even today. Imagine that you are back in that moment, as if it were happening again. Let the event or moment unfold just as it did before. What feelings are present with you right now? Notice where those feelings are showing up—some might come in your chest, others your stomach, your head, or somewhere else. If you notice that your advisor is getting talkative, that is totally okay, just gently bring it back to that event and your feelings. Once you have observed those feelings, try and give them a name. It does not have to be anything fancy, maybe you notice that it is a light feeling or maybe you notice sadness. Try to open up to those feelings and breathe into them, letting them be there.*

After this exercise, students were encouraged to discuss what events they imagined and what feelings arose. They were prompted to consider what it was like to just let their emotions be with them, positive or negative, and how that might be useful when anxiety is strong. The noticer session(s) ended with a brief review and discussion of how the noticer is similar and/or different from the advisor (e.g., “*When might you try to connect to your noticer over your advisor?”, “What about your advisor instead of your noticer?”*)

**Example behavioral commitment:** “Practice balloon breathing for five minutes before my audition for the school band, because this is a time when my anxiety is especially loud.”

**Week 5: The discoverer.** While the advisor represents the ongoing flow of mental experience, and the *noticer* a means of stepping back and observing this process objectively, the *discoverer* embodies a healthy sense of curiosity and risk-taking. We invited students to reflect on moments in their lives when they had taken personal risks or followed a new pursuit, and what the consequences were. In addition to reflection, we asked students to spend time looking over their personal photos, videos, and social media posts to “spot” moments when they might have discovered something new about themselves. Students were then asked to write down a few of these moments (or type them into their phones/laptops) and to list the internal and external results (e.g., “*How did you feel right after you tried this new thing?”*) Students shared their personal moments and discussed what the pros and cons of trying something new with their anxiety were.

We also led the group through a “strength spotting” exercise, in which pairs of students chose from a deck of cards containing personal qualities that may have helped them persist through life challenges or trying something new (e.g., teamwork, being grateful, humor). Students took turns sharing the strengths that they chose with each other and how they have relied on their personal strengths during difficult times, particularly related to anxiety. Pairs also took turns noting the strengths they observed in their partner. The students then returned to the larger group to discuss the experience (e.g., “*How did it feel to select a personal strength?*”,“*How can you use the strengths that you or your partner chose when anxiety is big?*”) Similar to the previous week, this week ended with a discussion on how the discoverer compares to the noticer and the advisor (e.g., “*What does the discoverer offer you that the advisor and noticer do not?*”)

**Example behavioral commitment:** “I will try something new this week by asking a friend to the Sadie Hawkins dance. Instead of listening to my advisor tell me ‘No,’ I will follow my discoverer and reflect afterwards on whether I am glad that I tried this.”

**Week 6: Values to action.** To help students translate DNA-V concepts into actionable skills, we taught the practice of BOLD: Breathing deeply, Observing, Listening to values, and Deciding on actions. Students were shown an introductory video on BOLD (Hayes, 2016) and then reviewed each step via an experiential, guided practice:

*First, everybody take a deep Breath. You can close your eyes if you want, but you don’t have to. Try to breathe deeply into that balloon in your stomach. Second, take a moment to Observe what is around you. What do you see? Do you hear or smell anything? Now try to Observe what is going on inside you. What feelings are with you right now? What is your advisor saying? Third, Listen to your values. What kind of person do you want to be right now in group? Lastly, Decide what you want to do for the rest of group—what would your best self choose to do?*

We then discussed how the steps of BOLD can be brought to many situations in daily life, especially those which feel emotionally overwhelming. Students took turns sharing when they might use BOLD to help them engage in meaningful activities (e.g., when responding to an annoying sibling, when applying for a job).

We then asked students to brainstorm some personally meaningful and specific goals (i.e., including where, when, and how the goal will be completed) in the context of using the discoverer with their anxiety (e.g., “*How might this goal help you try something new with anxiety?*”). Students were prompted to consider benefits (e.g., “*How does your goal link to what is important to you?*”,“*What would completing this goal mean to you?*”) and barriers (e.g., “*What might get in the way of you achieving this goal?*”) of their chosen goals. We also encouraged students to brainstorm how they would prepare for the barriers and opportunities related to their goal (e.g., “*When do you think a good time to complete this goal would be?*”, “*Have you had a chance to complete this goal already?*”). Group members also elicited and shared feedback from each other for how to break goals down into tangible steps.

**Example behavioral commitment:** “I will practice the BOLD skill when I feel conflicted about whether to spend time at home with my grandparents or go out with my friends. Because I value both, I could use a mindful pause to decide what feels right to choose in the moment.”

**Week 7: Flexible self-view.** The skills learned in group thus far may, for many students, be wholly new perspectives on how to view their personal challenges and mental health. DNA-V skills can be seen as comprising an overall perspective on life that is driven by personal meaning and views emotional experiences as ever-changing and flexible in how they are related to. We began this week by reviewing all aspects of the DNA-V model, drawing the model on a whiteboard and asking students to describe each character, what skills go with each, and what the overall model can offer them. We also discussed how to move between different characters (e.g., when feeling “stuck” listening to the advisor, trying to practice connecting with the discoverer to try something new instead).

We then led students through a series of experiential activities to inhabit a more flexible stance with their experiences using the DNA-V model. For example, group leaders guided students to practice talking about themselves in their third person while describing a personal challenge, including how they were feeling and what thoughts came up:

*Consider a difficult moment or struggle that you are dealing with in your life. Imagine that this event or struggle is unfolding before you almost as if you are watching it from afar or on a television screen. Try to really distance yourself from the event; you might even speak in third person. So, if it was me, I might say, “I see Julie struggling to finish everything she needs to do at school. I see her worrying that she might not be able to get everything done.” Does that make sense? Now you try it. Asking yourself questions like “Is Julie aware of what she is thinking or feeling?” and “Is Julie doing what is meaningful to her right now?” may help you connect with that observer view.*

Students then discussed the effect of perspective switching and how it might help them with their anxiety and/or other struggles. The discussion also focused on how perspective-taking may help shift between characters to get “unstuck.” As another exercise, students were encouraged to take another step back and view how they have grown and changed via an artistic activity:

*Sometimes we get stuck in how we think about or view ourselves. Take the next few minutes to draw different aspects of your life and experience on a piece of paper. In your drawing, be sure to include multiple roles that you take on in life—maybe things like a sibling or a student—and some negative and positive ways that you view yourself. Draw or express yourself in any way that you want to include these different things.*

Students subsequently shared their drawings and discussed their experience in viewing their self from different angles. They were then prompted to consider how their self-views may change with time (e.g., “*In 10 years, do you think you will have the same roles?*”,“*Do you think you would draw other aspects about your self?*”) Students also discussed how it might be possible to contain all these different roles and positive/negative aspects in themselves at once. For a final discussion, they were presented with a metaphor to consider their self-view:

*Instead of all these different things you drew, imagine that you are the piece of paper instead. I know that sounds weird but stay with me! You are the piece of paper containing all these drawings—positive parts, negative parts, and all different hats that you wear. Even if you gain a new role, learn something negative about yourself, or connect with a new positive perspective, there is always space on the paper—in you—for these things. What does this mean to you?*

**Example behavioral commitment:** “I will practice using my flexible self-view while doing my homework at night. If I notice myself feeling especially stuck, I will imagine watching myself struggle from the outside, like a fly on the wall would see. I will consider what comforting thing I would say to myself in this moment of anxiety.”

**Week 8: Self-compassion and moving forward.** Helping students view their challenges with anxiety in this more flexible manner, ideally, contributes to a stance that is more self-compassionate than the many expectations and roles they inhabit as adolescents. To end treatment, then, we encouraged students to reflect on how they can carry this compassionate view they contacted in therapy into new contexts. For example, we prompted students to consider questions such as *“How do you treat your best friend? How can you be a good friend to yourself?”* We encouraged students to share the skills and concepts they found most helpful in the group and what they felt that wanted to practice more. We also emphasized the shared experience, including for the therapists, of living with an advisor that often increases the suffering inherent in living, and the challenges of “staying on track” in living according to our values. Group members then took turns sharing when they planned on using DNA-V in their daily lives over the next few weeks, along with how they could remind themselves of the skills they had learned (e.g., setting a reminder on their phone).

**Example behavioral commitment:** “I am starting to work on college applications this year. In the months ahead, I will reflect on the DNA-V skills I have learned in therapy, and how they can help me navigate these many steps with wisdom and compassion.”

**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 and has subscales for panic disorder (PN), generalized anxiety disorder (GD), separation anxiety (SP), social anxiety (SC), and school avoidance (SH). Participants are asked to rank each item on a three-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. A score greater than seven for PN, nine for GD, five for SP, eight for SC, and three for SH indicates the potential presence of that specific anxiety disorder. Example items on the SCARED 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 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 four-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; Stockings et al., 2014). The Cronbach’s alpha in the present sample at pretreatment was .88.

**Avoidance and Fusion Questionnaire for Youth**(AFQ-Y; Greco, Lambert, & Baer, 2008). The AFQ-Y is a 17-item questionnaire measuring psychological inflexibility 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, Lambert, & Baer, 2008). The Cronbach’s alpha in the present sample at pretreatment was .79.

**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 six-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 successful use with adolescents (Keyes, 2006; Lamers et al., 2011). The Cronbach’s alpha in the present sample at pretreatment was .82.

**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 four-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 Cronbach’s alpha in the present sample at pretreatment was .93.

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

**Children’s Usage Rating Profile** (CURP; Briesch & Chafouleas, 2009). The CURP is a 21-item measure of method usability for children. Due to experimenter error, only 10 of the 21 items of the CURP were given to participants. Example items include “This is a good way to help students” and “I could see myself using this method again.” Participants rated three items of feasibility, three items on understanding, and four items on desirability on a four-point Likert scale (1 = *I totally disagree*, 4 = *I totally agree*), 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. 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 invited during the final group session to share their perceptions of the acceptability of the intervention orally or via email.

**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, School A students only, and School B students only. 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 ration 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).

**Results**

Demographic characteristics by sample and by condition can be found in Table 1. No differences between conditions were found across all outcome variables and most demographic variables at baseline (all *p*s > .05), with the exception of ethnicity. School B reported 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 School A students attending a mean of 9.7 of 16, half-hour biweekly sessions and School B students attending a mean of 7.25 of 8, one-hour weekly sessions. There were no treatment drop-outs (i.e., participants who missed at least 75% of sessions), but two participants in the ACT condition at School A did not attend any sessions, although they still completed measures at all timepoints. Without the inclusion of these two students at School A, the average session attendance was 12.42 of 16 half-hour biweekly sessions. These two students were included in the reported analyses to present the most conservative approach; however, when removed from the sample, the results were the same. It is also important to note that nine participants (34.6% of the total N) were receiving therapy outside of school and seven (26.9%) were on medication.

**Effect of therapy pre-treatment to post-treatment and one month follow-up**

Means and standard deviations for all measures at all timepoints in the full sample can be found in Table 2. Means and standard deviations for the SCARED subscales 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. There was a significant time by condition effect for the primary outcome of anxiety symptoms (*p* < .05). There was a greater decrease in anxiety in the participants who received group ACT as compared to the waitlist group over time (see Figure 2), with a small group difference from pre- to post-treatment (Hedges’ *g* = -.38) and a medium difference from post-treatment to follow-up (Hedges’ *g* = -0.63). For the subscales, comparable results were found and are thus not reported individually.

There was also a significant time by condition effect for class absences (*p* < .05). There was a greater decrease in missed class periods in the participants who received group ACT as compared to the waitlist group over time (see Figure 3), with a small group difference from pre- to posttreatment (Hedges’ *g* = -0.11). Effect sizes also indicated medium (Hedges’ *g* = -.50) decrease in missed class periods from pre- to post-treatment in the treatment group.

Statistically significant time by condition interactions were not found for other outcomes. Yet within-condition effect sizes indicated medium (*g* = -.59) change in depression from pre- to post-treatment in the treatment group. Medium effect sizes (*g* = -.49) in psychological inflexibility were found from pre- to post-treatment in the treatment group. Similarly, medium effect sizes were found in student well-being (*g* = .53) and positive mental health (*g* = .55) from pre- to post-treatment in the treatment group.

**Treatment acceptability**

Overall, participants reported good treatment acceptability (*M* = 25.5 out of 31, *SD* = 3.4). On the CURP’s scale of one to four (see Measures section), participants gave high positive satisfaction ratings on average for understanding (*M* = 3.2, *SD* = 0.7) and desirability (*M* = 2.8, *SD* = 0.6). For feasibility, participants reported favorable scores (*M* = 1.6, *SD* = 0.5), as lower scores indicate greater feasibility for this subscale. Furthermore, no issues needing revision to the protocol or implementation strategy were identified by participants. 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 (e.g., “[the group] was a great benefit to me,” “I’m really happy you guys decided to do this”).

**Discussion**

This study aimed to assess the acceptability and effectiveness of a school-based group ACT intervention, DNA-V, for adolescents with anxiety as compared to a waitlist control. Small to medium between-group effect sizes across timepoints indicated a significant decrease in total anxiety, as well as the subscales, 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 from past research examining how participation in group ACT may alter or bolster school attendance. However, previous research indicates that anxiety negatively impacts school attendance (de Lijster et al., 2018). Thus, this pilot 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), as well as the potential effect of key ACT processes, like personal values, on class attendance.

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 adolescent 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 2), many participants were struggling with elevated 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 anixety, 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 typically 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, reframing the question to encompass any difficult thoughts or feelings.

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 inconsistent with past larger trials in adults (Bluett et al., 2014). However, previous studies similar in size and population (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 improved more on 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.

**Clinical implications**

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 verbally expressed positive reception for the group itself during the final session and after the group’s completion. While grounded in the same core construct of psychological flexibility, DNA-V is a unique presentation of ACT which personifies key therapeutic skills and additionally incorporates aspects of positive and developmental psychology. The positive effects of DNA-V that we observed, as well as encouraging qualitative feedback, point to the usefulness of creative adaptations of traditional ACT for specific populations.

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). There were slight discrepancies in attendance between the two schools (9.7 of 16 sessions for School A and 7.25 of 8 sessions for School B). It is possible that these different rates stem from when the groups were run. In School A, students had to miss half of their free hour to attend. This free hour was often when students see teachers for extra help, eat their lunch, or practice for after-school activities (e.g., band, the musical, speaking to coaches). On the other hand, students in School B selected to miss a specific class period for the group. It is possible students find it more palatable or feasible to miss a class period for group therapy rather than their only free period, either by personal preference or simply because of what they had to accomplish in their free period. However, participants in both groups expressed enjoying the immediate ability to practice new 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.

Overall, the generally positive attendance rate highlights the successful implementation of groups integrated into the school day and provides some 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, and can allow for students with after-school commitments (e.g., employment, sports, family responsibilities) to receive mental health care in a convenient format. However, clinicians and school counselors should consider the benefits and costs for whether groups should be in a free period or during class, as it may have impacts on attendance.

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. However, it is important to note that the present study was not able to assess true sustainability and feasibility of integrating DNA-V groups into school days, as the groups were run by graduate students with training and supervision from an ACT expert. It would be important for future research and/or clinical work to focus on utilizing this format with a school counselor, health teacher, or peer leaders, particularly in comparison to groups run by graduate students. Such research would provide valuable insight into the true feasibility and sustainability of school-based, DNA-V groups for students with anxiety.

**Limitations**

This study had several limitations. First, there were some significant limitations with the study measurement. For example, 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. Additionally, all outcomes were measured via self-reports, rather than objective (e.g., school attendance records), parental report, or clinician-rated measures. Future research should include data from a variety of sources to provide a better picture of symptom change. Furthermore, as previously stated, the study results would 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. It is also important to note that the study ended at School B during the beginning of the COVID-19 school shut-downs in February and March 2020. This resulted in a significant loss of post-treatment (missing n = 5) and follow-up data (missing n = 6), which likely had an impact with such a small total sample. Additionally, five mid-treatment surveys from School B and all one-month follow-ups from School A were collected during late January 2020. Broadly speaking, the beginning of such an uncertain time may have inadvertently affected outcomes at these post-treatment and follow-up points (e.g., quality-of-life outcomes).

The study was also underpowered with a small, homogenous sample. Although School B was significantly more diverse than School A, the overall sample was predominantly white. Family demographic data was also not collected (e.g., socioeconomic status), leaving some questions about what type of students may be benefiting the most from the intervention. Further research should include diverse students from a range of backgrounds in order to best understand the effectiveness of the intervention.

Additionally, 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. Furthermore, the groups did not include the full protocol from *The Thriving Adolescent* and did not present the “social view” aspect of DNA-V. Because the full protocol was not provided to adolescents, it is important to consider how this may have impacted outcomes such as student well-being and/or positive mental health. As discussed previously, the use of fellow students and/or school employees would likely provide more insight into the sustainability of this approach. Lastly, a good portion of participants were either on medication (26.9%) or concurrently receiving individual therapy (34.6%). Because of this, the results must be interpreted with caution, as we are unable to fully discern the effects of the intervention alone.

**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, along with promising, within-condition medium effect sizes for other outcomes. 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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Figure 1

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

Assessed for eligibility via Qualtrics screener (n=29)

Anxiety below clinical cutoff (n=3)

Post-treatment assessment (n=12)

Post-treatment assessment (n=9)

Allocated to waitlist (n=13)

Randomized (n=26)

One month follow-up (n=11)

One month follow-up (n=9)

Allocated to group ACT (n=13)

Figure 2

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

Chart, line chart

Description automatically generated

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

Figure 3

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

**Chart, line chart

Description automatically generated**

Table 1

*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) |
| Current therapy (%) | 9 (34.6) | 4 (30.8) | 5 (38.5) |
| Current medication (%) | 7 (26.9) | 2 (15.4) | 5 (38.5) |

Table 2

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

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Waitlist | |  |  | Treatment | |  |  |
|  | Pre-treatment  (n = 12) | Mid-treatment  (n = 10) | Post-treatment  (n = 9) | One month  Follow-up  (n = 9) | Pre-treatment  (n = 12) | Mid-treatment  (n = 13) | Post-treatment  (n = 12) | One month  Follow-up  (n=11) |
| SCARED1 | 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) |
| CESD1 | 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-Y1 | 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) |

1 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 3

*Means and standard deviations of SCARED subscales for entire sample.*

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Waitlist | |  |  | Treatment | |  |  |
|  | Pre-treatment  (n = 12) | Mid-treatment  (n = 10) | Post-treatment  (n = 9) | One month  Follow-up  (n = 9) | Pre-treatment  (n = 12) | Mid-treatment  (n = 13) | Post-treatment  (n = 12) | One month  Follow-up  (n=11) |
| PN | 14.8 (4.7) | 13.6 (5.4) | 14.2 (6.8) | 14.0 (6.3) | 13.7 (5.2) | 13.2 (4.8) | 11.8 (5.2) | 10.9 (4.9) |
| GD | 15.1 (1.8) | 15.1 (1.8) | 14.4 (3.6) | 15.2 (2.6) | 14.0 (3.8) | 14.4 (3.8) | 12.6 (4.6) | 12.0 (4.6) |
| SP | 7.6 (4.1) | 6.3 (3.9) | 6.6 (3.0) | 6.2 (3.4) | 6.8 (3.4) | 5.6 (3.6) | 4.3 (3.2) | 3.8 (3.5) |
| SC | 10.2 (3.5) | 8.9 (3.7) | 7.7 (3.5) | 9.3 (3.0) | 10.3 (3.1) | 10.3 (2.5) | 9.4 (3.9) | 9.2 (3.7) |
| SH | 4.7 (2.1) | 4.5 (2.1) | 3.8 (1.4) | 4.3 (1.9) | 4.1 (1.9) | 4.2 (2.1) | 3.9 (1.8) | 2.9 (2.3) |

*Note.* PN = Panic disorder or significant somatic symptoms; GD = generalized anxiety disorder; SP = separation anxiety disorder; SC = social anxiety disorder; SH = significant school avoidance. A score greater than seven for PN, nine for GD, five for SP, eight for SC, and three for SH indicates the potential presence of that specific anxiety disorder.

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-group1 | Between-groups | Within-group1 | 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 |

1 Within treatment group

*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] |
| Condition1 | 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.

1 Relative to waitlist condition.

2 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.