

EFFICACY AND ACCEPTABILITY OF AN ONLINE GROUP INTERVENTION FOR
ADHD IN COLLEGE STUDENTS

A Thesis
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Abstract

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Research on Attention-Deficit/Hyperactivity Disorder (ADHD) in adults is growing as the chronic nature of its course and development is more understood. Those with ADHD tend to have deficits in executive functioning (EF), which particularly affects college students who experience academic and life challenges that rely on EF. Relatively little research exists documenting evidence-based treatments of ADHD for this population. Recent research suggests that internet-based interventions (IBI) can generally be beneficial for young adults, but more work is needed to support this claim with regards to ADHD, in particular. The current study examines an IBI adaptation of a recently developed intervention for college students with ADHD that focuses on organizational, time management, and planning (OTMP) skills in a group format. Students with ADHD at three universities ($n = 38$; 65.8% biologically female; M age 23.64; 78.9% White; 94.7% Not Hispanic or Latino) completed a battery of self-report measures of ADHD symptoms, impairment, and OTMP skills pre- and post-treatment. Most participants reported a previous ADHD diagnosis ($n = 28$) and all others reported at least five symptoms of inattentive symptoms at pre-treatment (M for all participants = 6.55). The manualized intervention consisted of six group and three individual sessions. Pre-post differences in symptom severity and functional impairment due to ADHD-related symptoms suggest that the intervention has a positive effect, and students endorsed generally high satisfaction with many aspects of their treatment experience. Overall, one-tailed, paired t -tests comparing pre- and post-

treatment scores indicated significant improvements in inattentive (IA) and hyperactive-impulsive (Hyp/Imp) ADHD symptoms, family-, school-, life skills-, and self-concept-related impairment, impairment related to self-management to time, self-motivation, and emotional self-regulation, and use of OTMP skills. Additionally, participants generally reported satisfaction with the IBI-adapted intervention. In sum, results suggest that the online adaptation of this intervention had promise to be efficacious; more extensive study of the intervention is needed.

Keywords: ADHD, college students, treatment, OTMP, online intervention, IBI

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Dedication

To my father, whom I cherish and who has made my life brighter simply through the privilege of knowing and admiring him. He inscribed the following in a book he gifted me in 2011: “Never take anything at face value... never accept secondhand thought. Demand explanation. Demand the best!” Dad, your words have had an enduring impact on me, and you are the reason I continuously strive to learn, understand, appreciate, and endeavor in my academic, professional, and personal life. I have and will forever view you as the exemplar of hard work and perseverance. Many of my fondest memories are those in which you play an integral role, and I would not be half the woman I am today without your love and inspiration. I love you.

Table of Contents

Abstract.....	iv
Acknowledgments.....	vi
Dedication.....	vii
List of Tables	x
Introduction.....	1
ADHD and Executive Functioning.....	1
Internet-Based Interventions.....	3
OTMP Interventions for College Students with ADHD.....	6
Methods.....	8
Participants.....	8
Measures	9
Procedure	14
Analytic Plan.....	16
Results.....	16
ADHD Symptoms.....	17
ADHD-Related Impairment.....	17
Organizational, Time Management, and Planning Skills	18
Treatment Satisfaction and Feasibility.....	18
Discussion.....	24
Limitations and Future Directions	29
References.....	32
APPENDIX A: Satisfaction and Feasibility Survey.....	44

APPENDIX B: Qualitative Responses – Satisfaction and Feasibility Survey53
Vita.....63

List of Tables

Table 1. Schedule and structure of presented topics during ADHD intervention..... 40

Table 2. Pre- and post-intervention scores on ADHD and impairment measures.....41

Table 3. Treatment satisfaction and feasibility survey responses: TAQ and IRP..... 42

Table 4. Other satisfaction and feasibility items.....43

Efficacy and Acceptability of an Online Group Intervention for ADHD in College Students

Attention-Deficit/Hyperactivity Disorder (ADHD) is classified in the *Diagnostic and Statistical Manual of Mental Disorders (5th edition text revision, DSM-5-TR)* as a neurodevelopmental disorder with characteristic impairments of inattention, disorganization, hyperactivity, and impulsivity that often continue into adulthood, impacting an individual's functioning in many domains, including social, academic, and occupational (American Psychiatric Association [APA], 2022). In fact, while research suggests that up to two-thirds of childhood ADHD diagnoses will persist into adulthood only around 10% of those adult cases are treated (Adler & Alperin, 2018, p. 501). Until the 1990s, ADHD symptoms and impairment seen in childhood were commonly believed to remit by adolescence, and an adult presentation of the disorder was not seriously considered (Barkley, 2018, p. 32). Accordingly, it is not that surprising that there is a relative lack of well-researched interventions for treating ADHD in the adult population, compared to that for children (Hartung et al., 2022). Of the adult interventions that exist, very few are specifically tailored for college students, as they do not focus on academic adjustment, an area that is largely irrelevant in non-student adults but is a common domain of impairment for college students with ADHD (Hartung et al., 2022). The intention of the current study is to examine the potential of an internet-based intervention for college students with ADHD which focuses on executive function (EF) deficits by utilizing organizational, time management, and planning (OTMP) skills training (Canu et al., 2021; Hartung et al., 2022).

ADHD and Executive Functioning

Adults with ADHD experience a range of negative outcomes including lower quality of life, higher perceived stress (Combs et al., 2014, 2015), and significant impairment in various life domains such as family and marital relationships, social life, education, occupation, and

finances (Fedele et al., 2012). Although not explicitly included in the *DSM-5-TR* criteria for the disorder, research has also shown a reliable association between ADHD and difficulties in EF (Fedele et al., 2010; LaCount et al., 2018; Roselló et al., 2020; Stavro et al., 2007). EF is described as a set of higher-order cognitive abilities related to self-regulation and planning for future goal achievement that is made up of three components: response inhibition (i.e., ability to resist an impulse), working memory (i.e., ability to hold and manipulate information in short-term memory), and set shifting (i.e., ability to move back and forth between multiple tasks; Barkley, 2018, pp. 405, 257-258). A recognized expert on the subject, Russell Barkley, developed a theory of ADHD as a disorder of EF and self-regulation, even suggesting an alternative name of executive function deficit disorder (EFDD) in which diminished EF is associated with higher levels of impairment (2018, p. 406).

The presence of EF difficulties manifests differently across the lifespan. This is evidenced in childhood by behavioral problems due to low inhibition and effortful control, erratic and impulsive response styles on measures of attention (Ezpeleta & Granero, 2015), and a higher occurrence of accidental injury due to increased risk-taking behaviors, errors in judgement, and inattention (Barkley, 2018, p. 287). During the transition into adulthood, which is marked by loss of external support and increased demands on autonomy, the executive dysfunction of those with ADHD, unsurprisingly, is associated with further difficulties in organization, planning, interpersonal relationships, academic and occupational domains, self-concept, and risky behavior (LaCount et al., 2018; Roselló et al., 2020). It is also notable that, of the symptoms associated with ADHD, only those related to inattention (IA) have evidenced an association with EF and impairment, and IA persists into adulthood more often than hyperactivity-impulsivity (Hyp/Imp; Stavro et al., 2007).

ADHD and EF in College Students

Students with ADHD represent between 2%–8% of the overall college student population, and around one-quarter of the population that receives disability services in college (LaCount et al., 2018). Given that post-secondary education requires more effective EF (Hartung et al., 2016), it is not shocking that academic impairment is a common experience among college students with ADHD (Anastopoulos et al., 2020; Combs et al., 2014; Fedele et al., 2012; Roselló et al., 2020; Stavro et al., 2007), but this population often has maladjustment related to alcohol and other substance use, conduct issues on and off campus, and balancing both academics and social life, too (Ramsay, 2018, p. 484). Even students endorsing clinically subthreshold symptoms (i.e., per *DSM-5-TR*, < 5 in IA and/or Hyp/Imp; APA, 2022) often still experience significant impairment, comparable to those that meet the *DSM-5* threshold (Hartung et al., 2019). It is important to note that the academic difficulties seen in this population are primarily linked to those IA symptoms which map onto EF dysfunction; this combination of traits obstructs the use of skills that are important for academic achievement such as organization, time management, and planning skills (OTMP; LaCount et al., 2018).

Internet-Based Interventions

Due to nationwide restrictions on in-person interactions in the COVID-19 pandemic, the current intervention was adapted to use online videoconferencing (i.e., Zoom for telehealth) to deliver treatment sessions to participants. Given that this is a significant change from a previous version (Hartung et al., 2022), it is important to understand the potential impact by reviewing other existing electronically administered interventions, or internet-based interventions (IBI). Potential benefits of IBIs include better cost-effectiveness, better access to evidence-based treatment, efficient collection and integration of survey or questionnaire data, and flexibility on

the level of guidance provided by the therapist. The most heavily researched IBI model is internet-delivered cognitive behavioral therapy (CBT), which has demonstrated outcomes comparable to in-person CBT interventions for depression, insomnia, and post-traumatic stress disorder (PTSD; Andersson & Titov, 2014; Hassija & Gray, 2011; Scogin et al., 2018). Other advantages of IBIs include generally high client-perceived efficacy and satisfaction (ter Huurne et al., 2013). Indeed, research suggests a high likelihood (91%) that participants would recommend the IBI format to others (Hassija & Gray, 2011; ter Huurne et al., 2013).

Still, IBIs have some clear disadvantages to in-person intervention, at least to date. There is still scant research regarding the type of clients that could benefit from IBI or what its possible iatrogenic effects may be. The lack of in-person interaction between the client and therapist in an entirely IBI model means that official diagnoses are more difficult to make reliably, which may not be ideal for favorable treatment outcomes (Andersson & Titov, 2014). In contrast to clients, therapists tend to view online formats more negatively, including a perceived weaker therapeutic alliance (Geller, 2020). In addition, emotional reactions by the therapist to client experiences are also more likely, as client fear and anxiety related to the COVID-19 pandemic may activate similar distress in the therapist, resulting in an interference with the therapist's presence and responsiveness to client concerns (Geller, 2020). Additionally, one must deal with fatigue related to more screen time, technical difficulties, and client perceptions of the online interaction as a privacy risk (Geller, 2020). As such, at least conceptually, an IBI client could experience *increased* stress or dysphoria that has an iatrogenic basis, which could amplify psychological symptoms and related impairment.

Some of these drawbacks to IBIs can be mitigated with careful planning. For instance, suggestions to increase the chance of establishing a positive alliance include ensuring the client

is participating from a safe, confidential location, confirming that the security and confidentiality of the online platform is compliant with the Health Insurance Portability and Accountability Act (HIPAA, 1996), and having a consistent setup across sessions with good lighting, professional dress, and an appropriate distance from the screen (Geller, 2020; Haddouk, 2015).

IBIs for ADHD

Although there is not yet much research specifically concerning IBIs for college students with ADHD, the narrow literature regarding IBIs for ADHD conducted with other age groups provides some useful perspectives. A common online intervention for children with ADHD is behavioral parent training (BPT). Across online BPT studies, improvements were seen in both parental knowledge of ADHD as well as child symptoms, reaching levels comparable to typical effect sizes seen in face-to-face (F2F) formats (DuPaul et al., 2018; Myers et al., 2015; Shah et al., 2019). For delivery method, participants considered IBIs acceptable even when aware of a F2F option (DuPaul et al., 2018). Parents reported no significant problems with internet connection or interpreting body language online (although clinicians cited both as a fundamental issue); one study specifically noted that parents appeared more relaxed and willing to participate in discussion in the online format (Shah et al., 2019).

For IBIs intended for adolescents and young adults with ADHD, their perceptions of treatment efficacy and acceptability are important to ensure commitment to the treatment (i.e., fidelity). Given that treatment adherence is a hallmark barrier for treating ADHD (Fedele et al., 2010; Sehlin et al., 2018), particularly given its frequent combination of cognitive impulsivity and EF difficulties with initiative and planning, a specific advantage of an IBI is the ease of accessing treatment from the comfort of home, which has been associated with fewer appointment cancellations (Sehlin et al., 2018). Another significant barrier to treatment in this

age group is stigma associated with ADHD and psychotherapy, generally. Utilizing a coaching or training model in an IBI may be more acceptable to young adults and diminish self-stigma, since this model is perceived more as guidance from a supportive, knowledgeable person, rather than therapy (Sehlin et al., 2018). Many young adults with ADHD have limited knowledge regarding the disorder and its treatment (Sehlin et al., 2018), and IBIs that include psychoeducation tend to be perceived as acceptable by participants and have evidenced success in reducing maladaptive thinking and anxiety, increasing knowledge of the disorder, and encouraging the use of adaptive behavioral strategies, accommodations, and medication to manage their ADHD (Anastopoulos et al., 2020; Sehlin et al., 2018; Shah et al., 2019; Shelton et al., 2022).

OTMP Interventions for College Students with ADHD

Training in OTMP skills can help manage IA-related problems across a variety of settings (LaCount et al., 2018; Shah et al., 2019). Research suggests that EF impairments, commonly experienced with ADHD, are a result of failing to utilize skills rather than a lack of skill comprehension; therefore, compensatory OTMP strategies that focus on skill *implementation* are integral to effective ADHD treatment to help manage EF difficulties in young adults (LaCount et al., 2018). Evidence-based treatments (EBT) for ADHD in adulthood have only recently emerged, and among them individual- and group-based CBT that includes OTMP skills training and psychoeducation are the most encouraging (Hartung et al., 2022). However, certain aspects of treatment must be tailored to fit the experience of a college student (e.g., duration of intervention, time commitment, cost). Notably, the F2F version of the current intervention has a heavy emphasis on OTMP skills training and was designed to be administered in a single academic semester (Hartung et al., 2022). Along with four OTMP sessions, it includes

two psychoeducation sessions to educate participants about ADHD and EBTs, as well as an academic study skills session to teach strategies for notetaking, increasing motivation through self-reinforcement, and creating a distraction-free work or study area. This manualized treatment spans six group and three individual meetings, including screening and follow-up consultation (Hartung et al., 2022).

In an initial pilot study, this F2F protocol resulted in significant improvements in IA, self-concept, memory, attentiveness, and use of OTMP skills in a group of college students with ADHD ($n = 30$; Hartung et al., 2022). In qualitative feedback following the intervention, participants expressed satisfaction with this model and noted many specific aspects they deemed “most helpful” (Hartung et al., 2022), including the task and calendar system, the one-on-one check-ins, and the combination of individual and group interaction (p. 11). To evaluate the potential use of this method as an IBI, Shelton et al. (2022) presented participants with a hypothetical outline of the treatment modules and gathered feedback on perceived feasibility and acceptability, expected treatment outcomes, and preferences for degree of clinician interaction and online versus F2F administration. Participants expressed a preference for a method that involves clinician interaction (i.e., guided), expected the IBI to be effective, and perceived the described IBI as relevant and acceptable. Notably, even those that initially endorsed a preference for F2F rated the IBI as moderately acceptable (Shelton et al., 2022). It is important to reiterate that this research did not involve administration of the intervention itself, but rather involved participants rating a detailed outline of possible intervention content.

Following the Hartung and colleagues (2022) F2F intervention for ADHD in college students and the findings of the Shelton et al. (2022) research, the current study examined the efficacy and perceived acceptability of the Hartung et al. intervention when adapted as an IBI. It

was hypothesized that participants will evidence (a) reductions in ADHD symptoms and (b) ADHD-related impairment, and (c) improvements in OTMP skills, post-treatment. It was also hypothesized that participants will report moderate levels of perceived acceptability and satisfaction with the treatment.

Methods

Participants

Participants in this study were students from Appalachian State University (ASU), University of Wyoming (UW), and University of South Carolina (USC). Advertisement for the intervention primarily included distribution of information through (a) student organizations on campus (e.g., Student Success Services, Office of Disability Resources), (b) university psychology clinics (i.e., messages to former, current, and waitlisted clients), and (c) campus health services and counseling centers; other means on specific campuses included (d) advertisement via specific colleges (e.g., Graduate School, Honors, Law, Medicine) to their respective students, (e) flyers posted in campus buildings, (f) electronic flyers distributed via Facebook to local groups and posts by local pediatrician's offices, and (g) university-wide targeted student announcements. Interested individuals directly contacted their campus' principal investigator or designated graduate assistant via email or contacted the affiliated university Psychology Clinic via telephone to express interest. Students were admitted into the group if there was evidence of ADHD based on a screening interview, self-report measures, collateral-reports measures, and/or a past diagnostic assessment report. Participants paid \$50-80 for the intervention, the amount varying according to standards across campus psychology clinics.

The final sample consisted of 38 students (65.8% biological females, 34.2% biological males) who were seeking treatment for ADHD or related impairment. Participants ranged in age

from 18 to 39 years ($M = 23.61$, $SD = 4.78$) and were 78.9% White, 13.2% Black, 2.6% Native American/American Indian/Alaska Native/Indigenous, and 2.6% Asian (the remaining 2.7% either did not report their race or responded “other”). Regarding ethnicity, 94.7% of participants identified as Not Hispanic or Latino. Participants consisted of 24 undergraduate students, 12 graduate students, and 1 student who identified their student status as “other.” One participant did not respond regarding their specific student status. All participants completed the treatment in a combined group and individual format. Twenty-eight participants had a previous diagnosis of ADHD, and many of those with and without reported ADHD indicated other disorders (e.g., internalizing, autism spectrum, posttraumatic stress, learning disorders, bipolar disorder) as part of their history. Based on a self-report *DSM-5-TR* (APA, 2022) ADHD symptom checklist, the average number of current IA symptoms reported by participants at baseline was above the *DSM-5-TR* cutoff of five required for an ADHD diagnosis in adults ($M = 6.55$, $SD = 2.33$). The average number of Hyp/Imp symptoms reported by participants at baseline was subthreshold ($M = 3.53$, $SD = 2.35$). On the Conners’ Adult ADHD Rating Scale’s (CAARS; Conners et al., 1999) *DSM-IV-TR* (APA, 2000) Total ADHD Score, the mean for females ($n = 25$) was 28.2 ($SD = 7.57$) and the mean for males ($n = 13$) was 26.38 ($SD = 8.87$).

Measures

Demographic information

Demographics were obtained online prior to the first group session via self-report, and included items related to age, biological sex (i.e., sex assigned at birth), gender identity, sexual orientation, racial identity, ethnicity, academic year and major, diagnostic history, and use of psychotropic medication.

DSM-5 Checklist: Current

This 18-item checklist is directly adapted from the *DSM-5* criteria for ADHD and was used in the Hartung et al. open trial (2022). It was included to assess for changes in the presence of ADHD symptoms from pre- to post-treatment. Participants rated how often they experienced each symptom during the past six months on a scale from *Never or Rarely* (0) to *Very Often* (3). Items answered as (2) or (3) were considered positively endorsed symptoms. In previous research (Lefler et al., 2020), internal consistency reliability was excellent for IA ($\alpha = .93$) and Hyp/Imp ($\alpha = .88$) symptoms. In the current sample ($N = 38$), the internal consistency was satisfactory for IA ($\alpha = .78$) and good for Hyp/Imp ($\alpha = .83$).

Weiss Functional Impairment Rating Scale (WFIRS)

This measure consists of 70 items designed to assess current ADHD-related impairment across seven domains of functioning (i.e., Family, Work, School, Life Skills, Self-Concept, Social, and Risk). Respondents indicate how often they experience impairment by rating the items on a four-point scale from *Never/Not at all* (0) to *Very Often or Very Much* (3). Only participants that were currently employed at the time of completing this measure ($N = 25$) responded to items for the Work domain. In addition, one participant was excluded from the analysis for School ($n = 37$) due to responding “Not Applicable” to all items at post-treatment although the pre-treatment School items were completed. The psychometric properties of this measure were examined in a large-scale study of college students ($n = 2,093$) by Canu et al. (2020), who found this measure to have excellent internal consistency for the total score ($\alpha = .96$), and very good to excellent internal consistency for the subscales ($\alpha = .85$ to $.94$). In the current sample, the internal consistency for the subscales ranged from satisfactory (i.e., Family, School, Life Skills, Social; $\alpha = .73$ to $.78$) to good (i.e., Work; $\alpha = .87$).

Organization, Time Management, and Planning (OTMP) Self-Report

This measure contains 21 items regarding how often respondents have used various OTMP strategies within the past week. Sample items include “During the last week, how often did you add a task to your to-do list system (e.g., phone call, do laundry)?” and “During the last week, how often did you look at your appointment scheduling system to check your schedule?” Response options range from *Never* (0) to *Very Often* (3). One item is reverse scored. In the previous study (Hartung et al., 2022), the internal consistency was satisfactory ($\alpha = .77$). In the current sample ($N = 38$), the internal consistency was good ($\alpha = .85$).

Barkley Deficits in Executive Functioning Scale (BDEFS)

This 20-item scale (Barkley, 2011) was included as an outcome variable to complement the OTMP Self-Report scale since there is reason to believe that this OTMP-focused intervention could have an impact on executive functions (Hartung et al., 2022). The scale measures EF deficits in daily life across five subscales: self-management to time, self-organization/problem solving, self-restraint, self-motivation, and emotional self-regulation. Participants rated the frequency of experiencing certain problems during the past six months on a four-point scale ranging from *Never or Rarely* (1) to *Very Often* (4). In previous research (Knouse et al., 2019), internal consistency was excellent ($\alpha = .94$). In the current sample ($N = 38$), the internal consistency of the total scale was good ($\alpha = .87$), and subscales ranged from satisfactory (self-motivation; $\alpha = .72$) to good (self-management to time, self-organization/problem-solving, emotional self-regulation; $\alpha = .81$ to $.85$), except in the case of the self-restraint subscale ($\alpha = .65$, marginal).

Conners' Adult ADHD Rating Scale Self-Report: Long Version (CAARS-S: L)

The CAARS (Conners et al., 1999) is a measure of symptoms consistent with a diagnosis of ADHD and is included to assess change in overall and current ADHD symptoms from pre- to post-treatment with a normed measure. Scores on this measure are provided as *T*-scores ($M = 50$, $SD = 10$), with *T*-scores greater than 60 (84th percentile) considered to be elevated. *T*-scores of 70 or higher are equivalent to the 98th+ percentile. Participants rated the frequency of various “recently” (Conners et al., 1999) experienced behaviors on the 66 items range from *Not at all, never* (0) to *Very much, very frequently* (3). In the normative sample, both test-retest reliability and internal consistency were very good (α or Pearson $r > .80$) for the CAARS scales and indices. In the current sample ($N = 38$), the internal consistency for the *DSM-IV* Total ADHD Symptoms was good ($\alpha = .84$).

Beck Anxiety and Beck Depression Inventories (BAI, BDI-II)

These are self-report measures of anxiety (Beck, Epstein, et al., 1988) and depression (Beck, Steer, et al., 1988), respectively. Respondents rate how affected they are by 21 common anxiety or depression symptoms on a range from *Not at all* (0) to *Severely – it bothered me a lot* (3). Participants responded based on symptoms experienced during the past week or the past two weeks on the BAI and BDI-II, respectively. Since comorbidity of ADHD and anxiety and mood disorders is relatively common, these measures are included to provide descriptive information about the sample. These measures demonstrated excellent internal consistency ($\alpha = .92$; $\alpha = .86$) in previous research (Beck, Epstein et al., 1988; Beck, Steer et al., 1988). Internal consistency in the current sample was good for the BAI ($\alpha = .87$) and excellent for the BDI-II ($\alpha = .91$).

Satisfaction and Feasibility Survey

This post-treatment survey consists of 42 items. Eight items were adapted from Hunsley's Treatment Acceptability Questionnaire (TAQ; 1992) and have responses on a seven-point scale with higher scores indicating more positive perceptions of the treatment. Participant responses ranging from five to seven (e.g., "How ethical did you think this treatment was?" with ratings from *Unethical* (1) to *Fully Ethical* (7); ratings of (5) and (6) do not have specific labels)) were considered highly positive ratings. Example items include, "How effective did you think this treatment was?" and "Overall, how acceptable did you find the treatment to be?" In the current study, internal consistency on this subscale was acceptable ($\alpha = .74$). Sixteen items correspond to the Intervention Rating Profile (IRP; Comprehensive, Integrated Three-Tiered Model of Prevention, 2015; Witt et al., 1984), and they assess treatment acceptability with responses on a six-point scale ranging from *Strongly Disagree* (1) to *Strongly Agree* (6). Higher scores were associated with higher levels of acceptability and participant responses ranging from four to six were considered highly positive ratings. In the current study, internal consistency on this subscale was good ($\alpha = .84$). The remaining 18 items address intervention logistics (e.g., cost, time commitment, online format), use and quality of videos as a component of the group sessions, relevance of the intervention content, and preference of both online or F2F and guided or unguided modalities (i.e., involving therapist contact or no therapist contact) in order to collect information regarding participant's perceptions of the structure and content of the current intervention (Shelton et al., 2022; ter Huurne et al., 2013). In the current study, internal consistency for this subscale was excellent ($\alpha = .94$). Participants were also given the opportunity to provide additional, qualitative comments (see Appendix A for full measure).

Procedure

The group sessions of this intervention were delivered by licensed psychologists and clinical psychology Ph.D. or Psy.D. students, with individual sessions led by the graduate clinicians. In general, group and individual interaction with clients was via a HIPAA compliant online platform (e.g., Zoom for telehealth). Further, measures were generally administered via a secure online survey platform (e.g., Qualtrics). Participants completed pre-treatment self-report measures following the intake and, following the intervention program, completed post-treatment measures. Pre-treatment measures included the *DSM-5* ADHD Childhood and Current Checklist, WFIRS, BDEFS, OTMP Self-Report, CAARS, BAI, and BDI-II. At post-treatment, participants completed the *DSM-5* ADHD Current Checklist, WFIRS, CAARS, BDEFS, OTMP Self-Report, and Satisfaction and Feasibility Survey.

Table 1 depicts the sequence of treatment sessions. Three individual meetings occur: The first is the intake session, which includes a screening interview and an overview of the group. The second occurs after the first group meeting, and helps participants choose and implement a calendar and task list system of their choice. The third individual session occurs after the final group meeting and includes reinforcement and review of the skills and strategies implemented during the intervention, discussion of post-treatment data collected after the final group meeting, and collection of post-treatment satisfaction and feasibility measures. The information presented in the intervention is organized into three modules: OTMP skills, psychoeducation, and academic skills, as detailed further below. Group leaders followed the protocol outlined in a treatment manual (Canu et al., 2021); each session lasts between 75 to 90 minutes and consists of the same general structure: review homework from the previous session, introduce an agenda and present and discuss didactic content for the current session, and assign homework for the upcoming

week. Presentation of didactic material was standardized across campuses and groups via use of pre-recorded online videos that were screen-shared with participants.

OTMP skills are the focus of sessions 1, 2, 4 and 5, and revolve around practices that are effective for success in academic settings: consistent use of a calendar and task list system, effective prioritization of tasks, breaking up larger tasks to avoid procrastination, and utilizing a reward system to increase motivation for completing tasks. In the first OTMP session, participants chose a calendar and task list to implement for the duration of the intervention and were encouraged to continue doing so following the conclusion of the intervention. Subsequent OTMP sessions focused on troubleshooting and improving the regular, consistent use of these systems, effective task prioritization, use of reward contingencies, and breaking down large tasks into “chunks.”

Psychoeducation was presented in sessions 3 and 7 and consists of a discussion of the symptoms, history, etiology, and course of ADHD, EF deficits and other issues that may impact concentration, interventions and training as psychotherapy, and medication as a treatment of ADHD. Participants were encouraged during these sessions to review their medication history and obtain and review a copy of their diagnostic report (if applicable) to gain an understanding of their personal experience with this disorder. The final module, Academic Skills, was presented in session 7 and focused on various skills and strategies for notetaking during lectures and reading assignments, studying for exams, choosing an optimal location for studying, and effective communication with professors, teaching assistants, and peers in academic settings.

Canu et al. (2021) detail the importance of not only teaching the strategies throughout these three distinct modules (i.e., OTMP, psychoeducation, academic skills), but also regularly checking in to ensure that the participants are implementing them in order to increase the

likelihood of success. Weekly check-ins with individual participants between sessions were primarily conducted by graduate student therapists via email and Zoom follow-up on an as-needed basis. These focused on successful implementation of their calendar and task list systems, the current week's therapeutic "homework," and general troubleshooting of strategies learned. The sequential format of the intervention specifically allows for this, especially during the first "step" of each session, in which the group leader reviews the homework from the last week.

Analytic Plan

There were a small number of missing item responses that were addressed by replacing the single missing item value with the participant's mean for the other items on the same subscale. A series of one-tailed, paired *t*-tests (17 total) were conducted to assess for significant differences between pre- and post-treatment measures in: (a) ADHD IA and Hyp/Imp symptoms on the *DSM-5* ADHD Current Checklist and overall ADHD symptomatology on the CAARS; (b) ADHD-related impairment on the WFIRS and BDEFS; and (c) OTMP skills on the OTMP Self-Report measure. Effect sizes for these comparisons are reported using Cohen's *d* to illustrate the magnitude of the differences, as well. Bonferroni corrections were performed for each group of *t*-tests (i.e., ADHD symptoms, ADHD-related impairment on the WFIRS, and ADHD-related impairment on the BDEFS).

Results

This study was designed to detect medium treatment effect sizes ($d = 0.50$).¹ Utilizing matched pairs *t*-tests as have been used in prior research (Hartung et al., 2022), a power analysis (G-power) indicated that an adequate sample size is 27 participants (Faul et al., 2009). A total of

¹ For Cohen's *d*, a small effect size is $d = 0.2$, a medium effect size is $d = 0.5$, and a large effect size is $d = 0.8$ (Cohen, 1988).

38 students participated in the intervention and completed both pre- and post-intervention measures. Thus, the current sample size was better than adequate for detecting a medium effect.

ADHD Symptoms

Two one-tailed, paired *t*-tests were conducted to determine whether participants' report of ADHD symptoms using the *DSM-5* ADHD Symptoms Checklist changed from pre- to post-intervention. A Bonferroni correction resulted in an alpha cutoff of $p < .017$ ($.05/3 = .017$). Both ADHD IA symptoms ($t = 2.74, p = 0.01, \text{Cohen's } d = 0.53$) and Hyp/Imp symptoms ($t = 3.86, p < .001, d = 0.46$) decreased from pre- to post-intervention. Next, a one-tailed, paired *t*-test was conducted to determine whether self-reports of ADHD symptoms using the CAARS *DSM-IV* ADHD Total Symptoms changed from pre- to post-intervention. Total ADHD Symptoms decreased significantly ($t = 3.36, p < .001, d = 0.49$).

ADHD-Related Impairment

A series of one-tailed paired *t*-tests were conducted to determine whether participants' ADHD-related impairment, based on the WFIRS and BDEFS, changed from pre- to post-intervention. A Bonferroni correction for the WFIRS scales resulted in an alpha cutoff of $p < .007$ ($.05/7 = .007$). Participants evidenced significantly decreased impairment from pre- to post-intervention on their WFIRS Family ($t = 3.23, p = 0.001, d = 0.49$), Life Skills ($t = 2.91, p = 0.003, d = 0.32$), and Self-Concept domains ($t = 3.03, p = 0.002, d = 0.48$). Decreases observed on the Work ($t = 1.97, p = 0.03, d = 0.41$), School ($t = 2.07, p = 0.02, d = 0.33$), Social ($t = 1.72, p = 0.05, d = 0.27$), and Risk ($t = 1.14, p = 0.13, d = 0.11$) domains were not statistically significant. However, it is likely that the lack of statistical significance for Work is due to a small subset of the sample responding ($n = 25$), and a potential ceiling effect in which Risk scores were low at pre-treatment may interfere with observing change at post-treatment.

For the BDEFS variables, Bonferroni correction resulted in an alpha cutoff of $p < .01$ ($.05/5 = .01$). Participants evidenced significantly decreased impairment from pre- to post-intervention on the self-motivation ($t = 4.01, p < .001, d = 0.58$) subscale. Decreases observed on the self-management to time ($t = 2.18, p = 0.02, d = 0.40$), emotional self-regulation ($t = 2.17, p = 0.02, d = 0.31$), self-organization/problem-solving ($t = 0.17, p = 0.44, d = 0.03$), and self-restraint subscales ($t = 0.62, p = 0.27, d = 0.11$) and total BDEFS score ($t = 2.24, p = 0.02, d = 0.39$) were not statistically significant.

Organizational, Time Management, and Planning Skills

A one-tailed paired *t*-test was conducted to determine whether OTMP skill usage, based on the OTMP self-report measure, changed from pre- to post-intervention. As predicted, participants' OTMP skill use increased from pre- to post-intervention ($t = 8.20, p < .001, d = 1.21$).

Treatment Satisfaction and Feasibility

Given that measures of acceptability and satisfaction were only administered post-treatment, descriptive and anecdotal data is reported for satisfaction and acceptability measures (e.g., mean, maximum, and minimum ratings on these measures; Levanon-Erez et al., 2019). For the TAQ (i.e., 7-point Likert-type scale), ratings of 5 to 7 are considered high ratings of the respective concepts (e.g., acceptability, effectiveness, knowledge and trustworthiness of therapist). Similarly, for the IRP (i.e., 6-point Likert-type scale), ratings of 4 to 6 are considered high ratings. Qualitative comments from participants were examined for further information regarding satisfaction with the intervention. Three of the participants that completed the pre- and post-intervention measures of ADHD symptoms and related impairment did not complete the satisfaction and feasibility survey. Therefore, a total of 35 participants completed this measure.

TAQ.

An analysis of the responses to the TAQ revealed participants' average responses regarding the intervention's acceptability ($M = 6.31, SD = 0.80$), ethics ($M = 6.8, SD = 0.58$) and effectiveness ($M = 5.77, SD = 1.14$) were all high (i.e., from 5 to 7). Regarding the group and individual therapist(s), participants rated them highly on how knowledgeable (individual $M = 6.49, SD = 0.78$; group $M = 6.71, SD = 0.57$) and trustworthy (individual $M = 6.83, SD = 0.38$; group $M = 6.80, SD = 0.47$) they seemed. See Table 3 for the frequencies of participants' responses to the TAQ items.

IRP.

Participants' IRP responses also showed, on average, that they rated the acceptability of this intervention highly ($M = 4.91$ to $5.57, SD = 1.20$ to 0.56). For only two items related to participating in this intervention again in a F2F format (i.e., item 8; $M = 3.94, SD = 1.59$) and rating if this intervention was consistent with previously received interventions for ADHD (i.e., item 11; $M = 3.91, SD = 1.17$), participants' average responses were below the threshold to be considered high ratings. See Table 3 for the frequencies of participants' responses to the IRP items.

Other Satisfaction and Feasibility Items.

The remaining quantitative and qualitative data from the post-intervention satisfaction and acceptability survey were analyzed to better understand participants' perceptions of various aspects of the intervention (e.g., cost, time commitment, online format, use of videos during sessions, etc.). On average, rating on a scale from 1 (*Very low*) to 10 (*Very high*), participants perceived this intervention in an online format as effective ($M = 7.83, SD = 1.60$), and were likely to recommend the group to others ($M = 8.83, SD = 1.36$). They also provided high ratings

for how pleasant (group $M = 9.34$, $SD = 1.14$; individual $M = 9.57$, $SD = 0.88$), personal ($M = 8.46$, $SD = 1.70$; $M = 8.77$, $SD = 1.48$), and safe ($M = 9.43$, $SD = 1.07$; $M = 9.69$, $SD = 0.72$) their communications were with their group and individual therapist(s). On a scale from 1 (*Not at all*) to 5 (*Extremely*), participants also highly rated the acceptability of the intervention's cost ($M = 4.60$, $SD = 0.74$), time commitment ($M = 4.46$, $SD = 0.78$), online format ($M = 3.94$, $SD = 1.00$), and relevance of the modules ($M = 4.34$, $SD = 0.73$). Given that this intervention follows a skills-based format, it is promising that the average response was high regarding how much participants were able to implement the skills learned ($M = 4.26$, $SD = 0.66$). Regarding the pre-recorded videos utilized during group sessions, participants highly rated the acceptability of their use ($M = 4.40$, $SD = 0.55$), satisfaction with content ($M = 4.51$, $SD = 0.70$) and overall production quality ($M = 4.43$, $SD = 0.65$), and how much they were personally helped by the videos ($M = 4.20$, $SD = 0.68$). Additionally, 65.7% of participants indicated that they would prefer the use of these videos for future intervention groups such as this one.

Regarding the online-based, group format of this intervention, several items targeted participants' preferences for individual or group, online or F2F, and guided or unguided. Specifically, 65.7% of participants responded with a preference for a group format with some individual sessions. Overall, participants appeared to perceive the online format utilized in the current study as effective and acceptable; 85.7% indicated a high likelihood of utilizing this intervention again in an online format (i.e., IRP item 7; see Table 3). However, seemingly in contrast, 60% indicated a *preference* for a F2F intervention in the future; only 28.6% preferred online over F2F, and 12.4% responded "other" that included free response, which generally endorsed a hybrid online/F2F format. Of those that preferred an online format ($n = 10$), 100% indicated a preference for a guided intervention (i.e., includes therapist-client interaction) rather

than unguided. The precise preferences of the current sample regarding online versus F2F intervention seems hard to interpret. In part, some aspects of this ambiguity may be better understood by examining qualitative comments regarding this preference.

Free Response Data

There are various methods for analyzing qualitative data, such as Interpretative Phenomenological Analysis (Lefler et al., 2016), which are typically used with larger sets of qualitative data (e.g., focus groups, transcribed interactions). In future research involving more data, approaches to analyzing and interpreting qualitative responses such as this may be employed; however, a simple examination of common themes and notable statements within the participants' limited free responses was judged as sufficient for the current study.

In reviewing participants' responses to various questions on the Satisfaction and Feasibility survey (see Tables 3 & 4), several general themes emerged, including (a) perceptions of the online, group approach, (b) use of pre-recorded videos, (c) overall, subjective experiences, (e) what could have been covered in more or less detail, and (d) other strengths and weaknesses.

Preference for Online vs. F2F and Group vs. Individual. One participant indicated an interest in a combination of online and F2F format since they, “feel heard better online but in person gives more a since [sic] of community especially within a group.” When asked about perceived weaknesses of the treatment, six participants identified the online format; unfortunately, free responses that nominated the online format as a weakness were rather bereft of detail (e.g., “online,” “online format”). Regarding the group format, sixteen participants mentioned the interaction with other group members as a strength. For example, participants indicated appreciation for “the openness of the group,” “discussing what does and doesn’t work with others who are experiencing similar difficulties,” “having other people who share these

experiences and hearing their lived lessons,” and “having the space to talk openly.” The influence of the COVID-19 pandemic and related in-person restrictions was acknowledged, as one participant wrote, “I think the preference for online-based treatment applies considering Covid concerns.” Some remarks expressed a balance of positive and negative impressions regarding the group format. One participant noted: “I think that the online format made it more difficult to connect with other members of the group but also made it easier to attend the meetings consistently and on time.” Additionally, other responses included: “the group was extremely effective, but I feel as though it could be even more effective if it were in person,” and “the online format was very convient [*sic*; convenient] but... I found myself getting more distracted than I probably would have in person.”

Pre-recorded Videos. The overall high ratings for the pre-recorded videos were supported by qualitative responses. One participant noted that “the videos were clear and concise.” Another participant reported, “during the videos I found that having each of the OTMP techniques explained helped me understand why it was helpful. Having the ‘why’ helped me understand each skill better.” However, five participants also expressed concerns with the videos. One group member stated, “it might be even more beneficial if [the group therapist] presented the information.” Other responses included, “sometimes it was harder to focus [whereas] it would’ve been more interactive without the videos,” and “I found that most of the content in the videos was information that I was already familiar with.”

Participants’ Subjective Experiences. Qualitative data on participants’ personal, emotional experiences with the intervention are worth examining in the consideration of treatment acceptability. Participant comments regarding their experience included “insightful,” “positive,” “comforting,” and “alleviating.” One participant responded:

A big feeling/emotion I experienced while in this group was the sense of being seen (in a good way). From the symptoms and strategies laid out in the videos, to everyone's testimonials, to the clinicians' continued support, I felt like what I was going through was being validated and listened to.

Another group member noted that it was "validating to hear that some of the things that I was questioning if they were symptoms are things that others with official diagnoses experience too. It has motivated me to seek further help and potentially get a diagnosis."

Level of Detail in Content. In the interest of considering future modifications, questions probed participants' opinions on what information in the intervention could have been covered in more and less detail. Three participants indicated that more information regarding ADHD symptoms, specifically those that are "overlooked" or that people "may not realize [they] have" would have been helpful. Additionally, two group members indicated an interest in learning more about common comorbidities associated with ADHD; one mentioned anxiety, specifically. Other related individual comments included "emotional dysregulation [*sic*]" or the "emotional aspects of ADHD."

Regarding information that could have been covered in less detail, a few identified the first OTMP skills (i.e., calendar and task list systems). One participant specifically noted, "although the schedule was a main focus of the group, I do feel that a lot of time was spent talking about it that could have been allocated to other things after the first meeting." Another indicated their preference for less focus on OTMP skills, stating, "I felt like I got a good grasp on them usually 2 or 3 sessions after." However, this same participant elaborated, "but I do realize consistency is key to success."

Other Strengths and Weaknesses. Some qualitative responses reflected positive impressions of specific OTMP skills that were of focus. Participants indicated those that were “most helpful,” including “breaking the steps down into small sections,” the “calendar system,” and “taking advantage of time cracks.”

Qualitative responses also revealed that some participants perceived certain aspects of the intervention to be weaker than others. Along with the online format (mentioned previously), and despite most participants endorsing high acceptability of the intervention’s time commitment, seven participants cited concerns with the duration of the weekly group sessions. Comments included it was “too long,” (i.e., between 75 to 90 minutes) which made it “hard to focus.” One participant elaborated that the information included in the videos would be improved by “adapting some of the video lessons by either expanding or condensing some of the information [which] might help cater more to what the group is struggling with.” Additionally, one participant noted that “not as much reliance on the video[s]” would be preferred.

Discussion

Overall, the findings suggest that this organizational and study skills intervention designed specifically for college students with ADHD is potentially efficacious when administered online. Significant improvements in core symptoms as well as aspects of impairment were observed, post-treatment. Specifically, participants reported diminished IA and Hyp/Imp symptoms, and lower family, life skills, and self-concept-related impairment. In addition, participants also reported decreased impairment in regard to self-motivation. The effect sizes for change in these areas were medium or small. Medium effects were also realized on reductions of ADHD symptoms, impairment in the domains of family and self-motivation, and executive functioning (i.e., family, life skills, self-concept, and self-motivation domains).

Smaller effects were seen on impairment reductions in the domains of family and life skills. Notably, results also yielded significant improvements in the use of OTMP skills, with a large effect size. Overall, these findings bolster the evidence for the current intervention that was established by Hartung et al. (2022). Although significant changes were not observed in the social and risk domains of impairment, the significant reduction in impairment for family interactions seen in the current study was perhaps particularly notable. Hartung et al. (2022) did not include family relations in their analyses since it was reasoned that the intervention would not have a positive impact on this domain, given a lack of focus on such issues during sessions. One might speculate that improvement in organization, or perhaps just noted effort on the students' parts to that end, might have yielded positive responses from concerned (or frustrated) loved ones. It will be beneficial for future research to continue examining the intervention's possible effects in this domain.

The results of this study are important given that, despite evidence that the majority of cases of ADHD diagnosed in childhood will endure into adulthood (Adler & Alperin, 2018, p. 501), there are very few empirically tested treatments for college students with ADHD (Anastopoulos et al., 2020). Adults with ADHD are likely to experience EF difficulties, which lead to impairment in many aspects of life, including organization, planning, school, and self-concept (Combs et al., 2014, 2015; Fedele et al., 2010, 2012; LaCount et al., 2018; Roselló et al., 2020). Improvements in these areas realized in the current sample support the online intervention's use with the underserved population of college students. Additionally, research suggests that IA symptoms of ADHD tend to persist into adulthood more often than Hyp/Imp symptoms (Stavro et al., 2007), and OTMP skills training has evidenced benefits for IA-related difficulties in adults (LaCount et al., 2018; Shah et al., 2019). Interestingly, in the current sample

consisting of both undergraduate and graduate students, the group as a whole evidenced a significant reduction in IA and Hyp/Imp, despite a potential confound of developmental differences between undergraduate students in emerging adulthood (i.e., ages 18 to 25; Arnett, 2000) and graduate students in young adulthood (i.e., late twenties to thirties; Arnett, 2000). This is a departure from prior research (Hartung et al., 2022), but a welcome one, as it suggests the possibility that both core symptom dimensions of ADHD may be addressed, at least in part, by this intervention.

In addition to the quantitative results, qualitative feedback from the participants reinforces this online intervention's potential utility. Participants found the intervention to be highly acceptable and effective, and endorsed that it was ethically delivered. Regarding the latter, participants may have considered both the content of the sessions as well as the interactions with the group and individual therapists, who were perceived as knowledgeable, trustworthy, pleasant, personal, and safe. It also suggests that neither the information presented in the pre-recorded videos nor directly by the therapists was seen as dishonest or disrespectful to the dignity and rights of the group members. Perhaps the emphasis on psychoeducation, as well as the post-treatment feedback and advice for follow-up, especially contributes to this positive perception. Mid-week check-ins, such that students might not have felt "abandoned" between sessions, might also have been perceived as an ethical aspect.

High ratings were also observed regarding the intervention's cost, time commitment, and relevance of content, including the pre-recorded videos. Such ratings are supported by more open-ended, positive feedback regarding specific aspects of the intervention, which described the treatment experience as "insightful," "positive," "comforting," and "alleviating." It may be that the high levels of satisfaction with the content of the sessions are in part because the treatment

occurs during a single academic semester. Thus, the skills taught during sessions likely have a direct impact on their ongoing college coursework, and the commitment of time in therapy is short. However, the limited treatment duration may reduce the possible generalization of skills to non-academic domains, as there is no planned focus on direct applications to other domains of life. Realistically, however, it may be that conducting this intervention during a single academic semester is a critical component of its success; and participants may be more likely to immediately see its value and usefulness and become invested, and at least some dropout would seem likely if the treatment stretched across two academic terms (vs. 100% completion noted herein).

While research supports many positive features of IBIs (e.g., cost effectiveness, efficiency, flexibility, perceived efficacy, and satisfaction; ter Huurne et al., 2013) and the current online treatment was rated as effective and acceptable, some results suggested that a F2F format may ultimately still be preferred (DuPaul et al., 2018; Shelton et al., 2022). As a result of the COVID-19 pandemic, many mental health care providers, universities, and other service providers are still offering and/or opting for online formats for psychotherapy, classes, meetings, and other group gatherings, so non-online options may be few, and there are growing concerns of online-related exhaustion (i.e., “Zoom fatigue”; Shoshan & Wehrt, 2021). At the time of data collection, the COVID-19 pandemic necessitated increased use of online platforms (i.e., Zoom for telehealth) in lieu of F2F meetings, including for college classes. It is important to interpret participants’ responses in this light: Indications that F2F would be preferred could reflect frustration and Zoom fatigue. Participants may simply desire a return to in-person interactions and gatherings as the norm. However, it is important to note, even with this in mind, that participant feedback suggests that the preference for F2F rather than online may not be

unyielding, as a majority also endorsed willingness to utilize an IBI format of the current intervention in the future.

Generally positive ratings of the IBI coupled with reductions in symptoms and impairment suggests that, in the future, dissemination of this treatment beyond college students on a university campus may be an important and fruitful direction. In fact, dissemination of a group-based treatment like the current one may be far more viable as an IBI rather than F2F. For example, this would allow for a licensed therapist to lead the group without being in the same physical location as the participants, which could reach areas lacking the resources needed to support this intervention (e.g., rural locations, small schools with limited counseling options, other universities without psychology graduate training programs). While mid-week check-ins used in this treatment were conducted primarily by the graduate student facilitators (i.e., individual therapists), these occurred only once per week and tended to be brief. Thus, it seems feasible for a group therapist to conduct these check-ins, which is important since most mental health professionals do not have access to the assistance of graduate students.

Notable obstacles for more traditional, F2F treatment of ADHD include inconsistent session attendance and stigma, and research supports that IBI formats may alleviate these concerns by increasing accessibility and adopting a “coaching” model, which reduces perceived stigma (i.e., versus “seeing a therapist”; Fedele et al., 2010; Sehlin et al., 2018). Indeed, other common themes among qualitative responses centered around feeling supported and encouraged by both therapists and other group members and perceiving the planned content of the intervention to be helpful. It seemed that interpersonal connection was one of the most notable benefits of the group, and session attendance may have been high in that it allowed participants

to share common struggles and successes, potentially also addressing stigma related to an ADHD diagnosis (Canu et al., 2008).

In sum, Hartung et al. (2022) provided initial evidence that this intervention is a viable option as a treatment for college students with ADHD. The current study takes this line of research a step further; it provides evidence that this treatment can be effective when delivered entirely online, and, importantly, that it can be positively perceived by clients.

Limitations and Future Directions

Although the results of this study are promising, there are several limitations that need to be considered. First, this was an open trial with no control group. In future studies, it would be optimal if participants were randomly assigned to the online or F2F treatment group, and that a waitlist control group also be utilized. Next, the outcome measures used in this study were self-reports and only referenced immediate, post-treatment outcomes. It would be helpful for future investigations to include objective and other outcome measures such as collateral reports, academic and other outcome data (e.g., individual course grades, grade point averages [GPA], credits attempted versus credits completed, long-term measures of anxiety- and depression-related symptoms, etc.), as well as post-treatment follow-up measures (e.g., at 6 months). In addition, this treatment was largely implemented across treatment sites by graduate students under the supervision of licensed therapists. As previously mentioned, this reliance on graduate student trainees limits direct dissemination of the intervention; adaptation would have to be made, for instance, for use in a small, liberal arts college counseling center. Furthermore, the current sample was small and lacked ethnic diversity (i.e., majority White, Not Hispanic or Latino sample). Additionally, no analyses were conducted to examine possible differences across sex or gender. Studies with larger and more diverse college student samples should be conducted

in order to assess if the high ratings of acceptability and feasibility displayed in the current sample apply equally to all demographic groups. Finally, the intervention examined in this study generally demonstrated small to medium effects on symptom and impairment reduction. This could indicate that a more extensive intervention package might be needed to produce larger, and possibly longer-lasting, results, which should be attempted in the future. However, it is of note that there are distinct advantages to maintaining a treatment duration that fits within a single academic semester so that college students can complete it without unwieldy, long interruptions (i.e., during winter or summer breaks).

It is of note that females outnumbered males in the current sample. This is perhaps not so surprising, given that research has found higher levels of both IA and Hyp/Imp symptoms of ADHD in female college students compared to male college students (Fedele et al., 2012). Additionally, Fedele et al. (2012) found higher levels of impairment in females than males in a college student sample. Additionally, research suggests that gender differences in ADHD symptoms (i.e., females more likely to have the IA than Hyp/Imp presentation) results in a lower likelihood of identification and diagnosis in girls, due to less prominent, disruptive behavior symptoms (Skogli et al., 2013). Together, this suggests that the burden of young women in college may be greater, as might be their interest in an ADHD-tailored intervention, which may explain the disparate composition of the sample, at least to some extent.

To my knowledge, this type of evidence-based intervention for college students with ADHD is likely only currently available on a handful of campuses across the nation (Hartung et al., 2022). Future research should examine the acceptability and feasibility of various intervention modalities (e.g., F2F group, F2F individual, IBI group-individual hybrid, asynchronous IBI without regular therapist interaction) in an effort to determine how we can

most effectively make this and similar interventions more widely available. In particular, future research should examine modalities that require less clinician labor, such as asynchronous, online, and self-guided programs using the pre-recorded videos, with mid-week check-ins performed by a single, licensed therapist (i.e., no graduate student assistance). Additionally, it would be meaningful to explore implementation outside the traditional, 4-year college setting, with community college students and even advanced high school students (i.e., juniors or seniors) with ADHD being prime target audiences. Specifically, given the research evidencing negative outcomes and impairment in academic pursuits for individuals with ADHD in high school and college (Barkley, 2018, pp. 316-317), an adaptation of the current treatment group for use as an early intervention in high school students would be an important direction for future research. Finally, although the skills communicated in this treatment are selected to help college students in their academic pursuits, these same skills have robust potential for being helpful outside of the academic realm. If this treatment were conducted outside of an academic semester or with a non-student population, such as emerging adults engaged in the workforce, improvements may be observed in non-school related life areas and/or in those areas in which improvements were non-significant in the current study (i.e., work, social, risk). As such, adaptation of the intervention to potentially reach this population is also a possible future direction.

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Table 1*Schedule and Structure of Presented Topics During ADHD Intervention*

Session	Topic	Format	Topic and Activities
Intake	Pre-program data	Individual	Individual intake session (e.g., collection of pre-program data and program overview)
1	OTMP skills	Group	Choosing and beginning to use calendar and task list system (e.g., putting all appointments including recurring classes in your calendar to promote better time management)
2	OTMP skills	Individual	Continuing to use a calendar and task list system (e.g., integration of course assignments and deadlines; regularly checking grades to ensure no assignments are missing from task list)
3	Psychoeducation	Group	Discuss ADHD and evidence-based assessment (EBA) procedures (e.g., describe EBA and ask group members to share whether they have had an EBA in recent years)
4	OTMP skills	Group	Effective academic task prioritization, rewards, and accountability (e.g., urgency and importance grid, study or accountability partners, self-rewards)
5	OTMP skills	Group	Addressing procrastination (e.g., getting started and finishing term papers, breaking large and aversive assignments down into smaller steps)
6	Academic skills	Group	Effective study skills and learning strategies for post-secondary education (e.g., note-taking skills, exam preparation, effective communication with professor)
7	Psychoeducation	Group	Psychosocial and medication treatments for ADHD (e.g., which treatments are research-supported for ADHD in college students; how to be a good consumer of your ADHD medication) and collection of post-program data
8	Individual feedback	Individual	Individual follow-up session (e.g., check-in on OTMP strategies, share pre- and post-program data with clients, and provide recommendations about OTMP booster sessions and possible treatment for comorbid difficulties)

Note. OTMP = organizational, time management, and planning. This table shows required group and individual sessions. Optional individual sessions, in addition to group, were offered in the same weeks of Sessions 4, 5, and 6.

Table 2*Pre- and Post-intervention Scores on ADHD and Impairment Measures*

Dependent variable	<i>n</i>	Pre-test M (SD)	Post-test M (SD)	<i>t</i>	<i>p</i> (one-tailed)	Cohen's <i>d</i>	95% Confidence interval (<i>d</i>)
<i>DSM-5 Current Checklist</i>							
Inattention	38	6.55 (2.33)	5.32 (2.34)	2.74	0.005	0.53	[0.11, 0.78]
Hyperactivity	38	3.52 (2.35)	2.32 (2.01)	3.86	<.001	0.46	[0.27, 0.97]
<i>CAARS Long Version</i>							
DSM-IV Total ADHD	38	27.58 (7.97)	23.71 (7.87)	3.36	<.001	0.49	[0.20, 0.88]
<i>WFIRS Self-Report</i>							
Family	38	0.90 (0.56)	0.64 (0.50)	3.23	0.001	0.49	[0.19, 0.87]
Work	25	0.89 (0.58)	0.69 (0.37)	1.97	0.03	0.41	[-0.02, 0.80]
School	37	1.42 (0.46)	1.25 (0.53)	2.07	0.02	0.33	[0.01, 0.67]
Life Skills	38	1.74 (0.71)	1.51 (0.75)	2.91	0.003	0.32	[0.13, 0.81]
Self-Concept	38	2.06 (0.77)	1.67 (0.82)	3.03	0.002	0.48	[0.15, 0.83]
Social	38	0.79 (0.51)	0.66 (0.51)	1.72	0.05	0.27	[-0.05, 0.60]
Risk	38	0.41 (0.39)	0.37 (0.39)	1.14	0.13	0.11	[-0.14, 0.50]
<i>BDEFS</i>							
Self-management to time	38	13.89 (2.35)	12.87 (2.81)	2.18	0.02	0.40	[0.02, 0.68]
Self-organization/problem-solving	38	10.34 (3.32)	10.24 (3.00)	0.17	0.44	0.03	[-0.29, 0.35]
Self-restraint	38	7.65 (2.26)	7.39 (2.59)	0.62	0.27	0.11	[-0.22, 0.42]
Self-motivation	38	10.82 (2.99)	9.12 (2.92)	4.01	<.001	0.58	[0.30, 1.00]
Emotional self-regulation	38	10.50 (3.27)	9.45 (3.42)	2.17	0.02	0.31	[0.02, 0.68]
Total	38	53.21 (9.99)	49.05 (11.41)	2.24	0.02	0.39	[0.03, 0.69]
<i>OTMP Self-Report</i>							
Skills Use	38	26.63 (10.14)	39.18 (10.58)	8.20	<.001	1.21	[-1.76, -0.89]

Note. For Cohen's *d*, a small effect size is $d = 0.2$, a medium effect size is $d = 0.5$, and a large effect size is $d = 0.8$ (Cohen, 1988).

Table 3*Treatment Satisfaction and Feasibility Survey Responses; TAQ and IRP*

Measure	<i>n</i>	<i>M (SD)</i>	% of responses in “high” range
<i>*TAQ – scale from 1-7</i>			
1. Overall, how acceptable did you find the treatment to be?	35	6.31 (0.80)	100
2. How ethical did you think this treatment was?	35	6.80 (0.58)	100
3. How effective did you think this treatment was?	35	5.77 (1.14)	91.5
4. How likely do you think it is that the treatment may have negative side effects?	35	5.14 (2.34)	97.2
5. How knowledgeable did you think the individual session therapist was?	35	6.49 (0.78)	97.2
6. How trustworthy did you think the individual session therapist was?	35	6.83 (0.38)	100
7. How knowledgeable did you think the group therapist(s) was/were?	35	6.71 (0.57)	100
8. How trustworthy did you think the group therapist(s) was/were?	35	6.80 (0.47)	100
<i>**IRP – scale from 1-6</i>			
1. This was an acceptable intervention for my needs.	35	5.20 (0.76)	97.1
2. Most college students with ADHD would find this intervention appropriate for their similar needs.	35	5.23 (0.73)	100
3. This intervention proved effective in supporting my needs.	35	5.03 (0.79)	97.2
4. I would suggest the use of this intervention to other college students with ADHD.	35	5.34 (0.73)	100
5. My needs were severe enough to warrant use of this intervention.	35	5.57 (0.56)	100
6. Most college students with ADHD would find this intervention suitable for themselves.	35	5.09 (1.01)	97.1
7. I would be willing to use this intervention again in an online format.	35	4.91 (1.20)	85.7
8. I would be willing to use this intervention again, but not in an online format.	35	3.94 (1.59)	65.7
9. This intervention did not result in negative side effects for me.	35	5.46 (0.66)	100
10. This intervention would be appropriate for a variety of college students.	35	5.31 (0.68)	100
11. This intervention was consistent with those I have had in the past for ADHD.	35	3.91 (1.17)	74.3
12. The intervention was a fair way to handle my needs.	35	5.06 (0.84)	97.2
13. This intervention was reasonable for my needs.	35	5.29 (0.71)	100
14. I liked the procedures used in this intervention.	35	5.11 (0.99)	94.3
15. This intervention was a good way to handle my needs.	35	5.09 (0.95)	91.4
16. Overall, this intervention was beneficial for me.	35	5.54 (0.70)	100

Note. Of the original sample ($n = 38$), three participants did not complete the satisfaction and feasibility survey. *TAQ ratings of 5-7 considered high, (e.g., item 2: rating of 1 [Unethical] to 7 [Fully Ethical]). **IRP ratings of 4 (*Slightly agree*), 5 (*Agree*), and 6 (*Strongly agree*) considered high.

Table 4*Other Satisfaction and Feasibility Items*

Item	<i>n</i>	<i>M (SD)</i>
<i>On a scale from 1 (very low) to 10 (very high):</i>		
1. How effective was the online-based format of this group for you?	35	7.83 (1.60)
2. How likely is it that you would recommend this group to others?	35	8.83 (1.36)
3. How pleasant were your communications with the group therapist(s)? (i.e., the people leading the group meetings)	35	9.34 (1.14)
4. How pleasant were your communications with your individual session therapist? (i.e., the person interacting with you in individual sessions and mid-week check-ins)	35	9.57 (0.88)
5. How personal were your communications with the group therapist(s)? (i.e., the people leading the group meetings)	35	8.46 (1.70)
6. How personal were your communications with your individual session therapist(s)? (i.e., the person interacting with you in individual sessions and mid-week check-ins)	35	8.77 (1.48)
7. How safe were your communications with the group therapist(s)?	35	9.43 (1.07)
8. How safe were your communications with the individual session therapist?	35	9.69 (0.72)
<i>On a scale from 1 (not at all) to 5 (extremely):</i>		
9. How acceptable was the cost of this group?	35	4.60 (0.74)
10. How acceptable was the time commitment for this group?	35	4.46 (0.78)
11. How acceptable is an online-based treatment for ADHD for you personally?	35	3.94 (1.00)
12. How acceptable was the use of pre-recorded videos during the group sessions?	35	4.40 (0.55)
13. How satisfied were you with the content of these videos?	35	4.51 (0.70)
14. How satisfied were you with the overall production quality of these videos?	35	4.43 (0.65)
15. How much were you personally helped by the content of the videos used during the group sessions?	35	4.20 (0.68)
16. How relevant were the treatment modules to your experiences in life?	35	4.34 (0.73)
17. How much were you able implement the skills covered during the group and individual sessions?	35	4.26 (0.66)
18. How important was it that this group allowed you to talk with other students who were having struggles similar to your own?	35	4.20 (0.93)

Note. Of the original sample (*n* = 38), three participants did not complete the satisfaction and feasibility survey.

APPENDIX A

Satisfaction and Feasibility Survey

Survey 1 Part 1

Based on your overall perception of the ADHD skills training group, on a scale from 1 (*very low*) to 10 (*very high*):

	1 (Very low)	2	3	4	5	6	7	8	9	10 (Very high)
How effective was the online-based format of this group for you?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How likely is it that you would recommend this group to others?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Any additional comments? _____

Based on your perception of the therapist/group leader(s) for the ADHD skills training group, on a scale from 1 (*very low*) to 10 (*very high*):

	1 (Very low)	2	3	4	5	6	7	8	9	10 (Very high)
How pleasant were your communications with the group therapist(s)? (i.e., the people leading the group meetings)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How pleasant were your communications with your individual session therapist(s)? (i.e., the person interacting with you in individual sessions and mid-week check-ins)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How personal were your communications with the group therapist(s)? (i.e., the people leading the group meetings)

How personal were your communications with your individual session therapist(s)? (i.e., the person interacting with you in individual sessions and mid-week check-ins)

How safe were your communications with the group therapist(s)? (i.e., the people leading the group meetings)

How safe were your communications with the individual session therapist? (i.e., the person interacting with you in individual sessions and mid-week check-ins)

Any additional comments? _____

Based on your perception of the logistics of the ADHD skills training group, on a scale from 1 (*Not at all acceptable*) to 5 (*Extremely acceptable*):

	1 (Not at all acceptable)	2	3	4	5 (Extremely acceptable)
How acceptable was the cost of this group?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How acceptable was the time commitment for this group?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How acceptable is an online-based treatment for ADHD for you personally?

Any additional comments? _____

Based on your perception of the pre-recorded videos used during the sessions of the ADHD skills training group:

	1 (Not at all acceptable)	2	3	4	5 (Extremely acceptable)
How acceptable was the use of pre-recorded videos during the group sessions?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How satisfied were you with the content of these videos?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How satisfied were you with the overall production quality of these videos?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How much were you personally helped by the content of the videos used during the group sessions?

1 (Not at all helpful)	2	3	4	5 (Extremely helpful)
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Based on the sessions you attended, which would you prefer for future ADHD skills training groups?

- Using these videos for instruction during group sessions (no change to the current group format)
- Having the same information presented by the group leader (no use of pre-recorded videos during the group)

Any additional comments? _____

Survey 1 Part 2

Please answer these questions based on your overall experience with the ADHD skills training group:

How relevant were the treatment modules to your experiences in life?

- | | | | | |
|-------------------------|-----------------------|-----------------------|-----------------------|------------------------|
| 1 (Not at all relevant) | 2 | 3 | 4 | 5 (Extremely relevant) |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

How much were you able to implement the skills covered during the group and individual sessions?

- | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1 (Not at all) | 2 | 3 | 4 | 5 (Very much) |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

How important was it that this group allowed you to talk with other students who were having struggles similar to your own?

- | | | | | |
|--------------------------|-----------------------|-----------------------|-----------------------|-------------------------|
| 1 (Not at all important) | 2 | 3 | 4 | 5 (Extremely important) |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

If you were to seek treatment for ADHD in the future, what session format would you prefer?

- Just individual treatment (you and a therapist)
- Group treatment with some individual treatment, like this group
- Just group treatment
- Other (please specify) _____

Based on your answer to the previous question, why would you prefer this format? _____

If you were to seek treatment for ADHD in the future, what administration format would you prefer?

- In-person based treatment (face-to-face)
- Online-based treatment
- Other (please specify) _____

Which type of Internet-based treatment would you prefer?

- Guided – involves contact with therapist (via phone, email, or through an online treatment interface), similar to this group
- Unguided – involves no contact with therapist; treatment modules would be self-guided
- Other (please specify) _____

Why would you prefer this format? _____

Please describe your emotional experience while participating in this ADHD skills training group. _____

What part of this treatment program was the most helpful to you? _____

What topics, content, or concepts could be covered in *more* detail? _____

What topics, content, or concepts could be covered in *less* detail? _____

In your opinion, what are the strengths of this treatment group (e.g., what did you like about it)?

In your opinion, what are the weaknesses of this treatment group (e.g., what could be improved)?

How did you hear about this group? _____

Any additional comments? _____

Treatment Acceptability Questionnaire

Please answer these questions that deal with your reactions to the ADHD group treatment. Circle the number that best describes your reactions.

Overall, how acceptable did you find the treatment to be?

1 (Very Unacceptable) 2 3 4 5 6 7 (Very Acceptable)

How ethical did you think this treatment was?

1 (Unethical) 2 3 4 5 6 7 (Fully Ethical)

How effective did you think this treatment was?

1 (Very Ineffective) 2 3 4 5 6 7 (Very Effective)

How likely do you think it is that the treatment may have negative side effects?

1 (Very Unlikely) 2 3 4 5 6 7 (Very Likely)

How knowledgeable did you think the individual session therapist (i.e., the person interacting with you in individual sessions and mid-week check-ins) was?

1 (Not Knowledgeable) 2 3 4 5 6 7 (Very Knowledgeable)

How trustworthy did you think the individual session therapist (i.e., the person interacting with you in individual sessions and mid-week check-ins) was?

1 (Very Untrustworthy)	2	3	4	5	6	7 (Very Trustworthy)
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How knowledgeable did you think the group therapist(s) (i.e., the people leading the group meetings) was/were?

1 (Not Knowledgeable)	2	3	4	5	6	7 (Very Knowledgeable)
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How trustworthy did you think the group therapist(s) (i.e., the people leading the group meetings) was/were?

1 (Very Untrustworthy)	2	3	4	5	6	7 (Very Trustworthy)
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Intervention Rating Profile (IRP)

Please answer these questions that deal with your reactions to the ADHD group treatment. Circle the number that best describes your reactions on a scale from 1 (*Strongly disagree*) to 6 (*Strongly agree*).

	1 (Strongly disagree)	2 (Disagree)	3 (Slightly disagree)	4 (Slightly agree)	5 (Agree)	6 (Strongly agree)
This was an acceptable intervention for my needs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Most college students with ADHD would find this intervention appropriate for their similar needs.

This intervention proved effective in supporting my needs.

I would suggest the use of this intervention to other college students with ADHD.

My needs were severe enough to warrant use of this intervention.

Most college students with ADHD would find this intervention suitable for themselves.

I would be willing to use this intervention again in an online format.

I would be willing to use this intervention again, but not in an online format.

This intervention did not result in negative side effects for me.

This intervention would be appropriate for a variety of college students.

This intervention was consistent with those I have had in the past for ADHD.

The intervention was a fair way to handle my needs.

This intervention was reasonable for my needs.

I liked the procedures used in this intervention.

This intervention was a good way to handle my needs.

Overall, this intervention was beneficial for me.

APPENDIX B

Qualitative Responses – Satisfaction and Feasibility Survey

Based on your overall perception of the ADHD skills training group... additional comments:

- I really enjoyed it and it helped me
- The group could cover how to deal with in the moment overacting of emotions. I still struggle with that.
- I loved how open and welcoming everyone and the leaders were
- I think that the online format made it more difficult to connect with other members of the group but also made it easier to attend the meetings consistently and on-time
- I enjoyed the online format!!
- Some great information and tricks
- The clinicians were very kind, understanding, insightful and knowledgeable, and gave great advice that helped our individual concerns.
- Being able to discuss so many topics related to ADHD with a supportive group turned each session into such a positive learning experience!

Based on your perception of the therapist/group leader(s) for the ADHD skills training group... (additional comments):

- Everyone involved was always friendly and personable
- Esther and Dr. Canu have been super helpful during this and were always flexible as well as welcoming.
- Enjoyed the dual interaction
- I wish I would have taken advantage of the individual sessions more.
- This was one of my initial concerns when first joining the group, worrying about feeling safe to communicate, but from session one, each therapist opened the space to share and I immediately felt at ease.
- Everyone was very professional and knowledgeable

Based on your perception of the logistics of the ADHD skills training group... (additional comments):

- I think that the cost was reasonable for myself but could see it being a little difficult for others.
- At the beginning, I was told the sessions take an hour and I missed another meeting because they go way over an hour.
- The group was extremely effective, but I feel as though it could be even more effective if it were in person
- I've found the online setting to be a stress reliever because I don't have to worry about travel time
- Sometimes the 1.5 hour meetings felt inconvenient, but still necessary.
- I may not be the person for online in this kind of thing.
- I feel like my life has changed so much from this group. I will miss it tremendously and am so thankful I got to participate

- The online format was very convenient but there were a couple of sessions where I found myself getting more distracted than I probably would have in person. It was worth it tho, being online

Based on your perception of the pre-recorded videos used during the sessions of the ADHD skills training group... which would you prefer for future ADHD skills training groups? (i.e., using videos/no change or information presented by group leader/no pre-recorded videos)... (additional comments):

- I liked the structure with the prerecorded lectures and the ability to discuss with the group leader after.
- I thought the videos were clear and concise. Although I think it might be even more beneficial if Dr. Canu presented the information
- If possible, a link to the videos would be helpful. Sometimes I'll miss something during the video and it would be helpful to be able to rewatch the video afterwards and see what I missed
- I appreciated the videos, but sometimes it was harder to focus where as it would've been more interactive without the videos.
- Was well done
- A mix is good. The videos can be a bit dull and a bit like there was a low expectation of the audience
- I don't know if my experience is the same as others, but while I did find the group helpful overall, I found that most of the content in the videos was information that I was already familiar with. The "homework" exercises were helpful though!

If you were to seek treatment for ADHD in the future, what session format would you prefer? (i.e., just individual, group with some individual, just group, other)

- *Other (please specify):*
 - I would enjoy individual and group treatment
 - Independent Group and Individual treatments
- **Based on your answer to the previous question, why would you prefer this format?**
 - *Selected "just individual"*
 - I feel like I can get more personalized treatment
 - I like the individualized focus of one-on-one therapy.
 - I didn't dislike the group format, I just think I prefer one on one work.
 - Although hearing that I am not the only one was nice, I think that some of the specific logistics of my problems would be better solved one on one.
 - The group sessions were too long which compounded pre-existing inattention and was time-consuming
 - *Selected "just group"*
 - It's easier for me to dilute myself a bit in a group setting. One on one I'm simply too intense to focus on one item
 - *Selected "group with some individual"*
 - I think being able to talk to others with the same issues is helpful, because we can learn from each other, and then doing individual lets you comment on more personal issues.
 - Because I liked hearing about others experience and different approaches to the resources given and that I was able to share things with the group leader that I don't know if I would share well in the group meetings.

- Its nice to have people to relate to
- It helps to have a group for connecting with others, but I appreciate individual sessions to troubleshoot.
- I like being in the group setting and talking amongst each other.
- I think it worked well
- The individual session allowed more personal discussion and introspection for private matters, while the group session provided skills.
- Group format reaffirms you're not alone while individual allows you to focus on yourself more and be privately engaged
- I feel more comfortable if I have other people to bounce my words off of when I express my feelings. If I am in just a session by myself, I won't know where to start with relaying how my symptoms affect me. So after others speak, I have a good starting place with getting my thoughts out, if that makes sense. Plus, it feels nice to hear experiences from people going through the same thing you are.
- It's nice to hear from others who are feeling the same symptoms, but also being able to talk individually is necessary.
- It was nice to compare experiences with other students and listen to other ideas and suggestions they had for combating issues.
- The group sessions provided an opportunity to share ideas and hear what others were experiencing. Supplementing the individual sessions helped me to work through some of the challenges I was facing when implementing a technique.
- I enjoyed being able to hear the experiences and struggles of others and having the individual time to be a bit more personalized
- Hearing how other people managed similar symptoms was invaluable. The other people also had unique solutions that I found really helpful that I wouldn't have thought up on my own
- *Selected "other"*
 - Individual would help me hit more of my specific problems, a group would help me bond with others and use introduce new methods of coping from someone else with ADHD
 - I think the strength of group treatment is to be able to relate to similar struggles within the group while individual treatment is better for personalized symptom management

If you were to seek treatment for ADHD in the future, what administration format would you prefer? (i.e., in-person/F2F or online-based)

- *Other (please specify):*
 - A mix of both because I feel heard better online but in person gives more a since of community especially within a group.
 - both
 - I think the preference for online-based treatment applies considering Covid concerns, but I do tend
 - Either

Which type of internet-based treatment would you prefer? (i.e., guided, unguided, or other). Why would you prefer this format?

- *Selected "guided"*
 - Its nice to have human interaction

- People with ADHD tend to need guidance
- Guided will help keep myself accountable of getting my treatments done. Otherwise, I will just procrastinate getting them done and forget about them.
- It brought a sense of accountability for completing each task and also allowed me to hear the ways in which other group members were addressing the tasks or similar issues they were facing.
- Again the one-on-one connection between a client and therapist.
- ease of access
- I think having someone to keep up with my progress is very helpful, especially if I forget to do something like a task list or if something is no longer working.
- Guided format provides built in accountability
- If it was self-guided I wouldn't do it

Please describe your emotional experience while participating in this ADHD skills training group:

- Excited to be learning skills that have given me a better sense of control
- It was relieving to discuss things that I struggled with frequently.
- change is hard so, in the beginning the group was really hard
- Benefitted me mentally!
- I think I was very nervous to talk throughout the session just because of my social anxiety and being around other people, but I answered when I needed to and participated.
- It was interesting to know more about myself and to know that I'm not alone in trying to be a successful with ADHD and sometimes I would feel guilty for forgetting the "HW" but it pushed me to want to used the skills more.
- I'm more confident in myself and my abilities thanks to this group which makes me a happier person in general
- Near emotional baseline
- Overall positive, and it was nice to be in a group of people who went through the same focus strategies.
- I appreciated it a lot and felt better majority of the time after group.
- Was a safe place to express any emotions.
- I had fun it was informative.
- Good
- Good
- good
- overall insightful
- Helpful
- fine
- First-off, it was alleviating to see others going through similar experiences to mine. I didn't feel
- Not very emotional. But the bit about symptoms of ADHD was enlightening, and related to my life more
- It felt good to hear from other students with similar struggles
- Fairly positive during, regardless of other emotional states.
- I was very comfortable throughout the process I felt no one invalidated feelings and that was supportive and encouraging

- A big feeling/emotion I experienced while in this group was the sense of being seen (in a good way). From the symptoms and strategies laid out in the videos, to everyone's testimonials, to the clinicians' continued support, I felt like what I was going through was being validated and listened to.
- Overall, it was rough because I had a lot going on personally, but also, my concentration difficulties were impacting my moods.
- It was definitely a positive experience, I felt supported and all of my struggles were validated so I never felt like I couldn't be helped or was going through something alone.
- It felt good to have folks I relate with.
- It was an incredibly positive experience- from session 1! I felt so much support from each group member and therapist.
- It was overall comforting, mainly to see that there were manageable and simple ways to correct ADHD related problems.
- It was validating to see others struggling like I am.
- It was validating to hear that some of the things that I was questioning if they were symptoms are things that others with official diagnoses experience too. It has motivated me to seek further help and potentially get a diagnosis.
- Good
- I felt very understood and at ease
- felt a little alone
- I felt seen. Hearing about other people in these rigorous courses struggling made me feel like I wasn't alone

What part of this treatment program was the most helpful to you?

- The OTMP skills and how to implement them
- The broken down modules focusing on specific issues and relevant skills.
- the timer, white noise, study space
- Listening to what others with ADHD suggested to do as a coping method, one on one convos with either Dr. Canu or Maggie, breaking the steps down into small sections and taking them one step at a time to avoid overwhelming feelings
- Being able to go over skills and implement them into my daily needs and then focusing on them also with my therapist was helpful, because I basically got two accountabilities and skill helpers.
- Trying to trace back my diagnosis because I would have never known until then and the OTMP skills resources
- Daily planner by far
- The scheduling and task education
- The strategies we learned
- The group part, connecting with others.
- The techniques and skills we learned throughout the videos.
- Having other people with ADHD to talk with.
- Time management
- The new tools
- specific methods of study
- lessons
- Techniques to organize life

- organizational skills
- I can't really speak on any specific part since the collective program itself was helpful.
- Skill based organization
- Individual sessions
- Individual Sessions, but they would have been hampered without prior knowledge of the skills.
- Learning new skills and seeing how others applied them.
- Whenever we would take breaks from the video and have guided discussions based on what we watched in the video. I just liked that we were all able to share our experiences and feel a sense of solidarity, and also get some helpful feedback after we shared.
- Talking with the leaders and other students
- calendar system
- Taking advantage of time cracks.
- During the videos I found that having each of the OTMP techniques explained helped me understand why it was helpful. Having that 'why' helped me understand each skill better and I think that depth made me appreciate each skill more and therefore pushed me to put more effort into developing them.
- Individual therapy
- Group meetings.
- The help implementing schedules and writing out all tasks that need to be done.
- The content of the videos as well as the one on one sessions.
- Listening to the ideas of everyone else in my group
- one on one
- Learning all of the different coping mechanisms to hack my brain

What topics, content, or concepts could be covered in *more* detail?

- Maybe more general focus outside of school work, like communicating better and more social aspects.
- dealing with more intense than needed emotional reactions in the moment
- ADHD and its relation with anxiety, is medication truly safe?
- I think all the topics were covered in good detail, the videos from the lady and then explanation from the group leaders was helpful.
- Symptoms that are overlooked and affirmations for motivation
- self regulation/sticking to your own plan
- Procrastination
- N/A I thought everything was covered well
- I can't think of anything right off.
- More talk about planners and apps used that help students to stay organized and on top of work.
- Emotional dysregulation
- Not sure
- Not sure
- other symptoms of ADHD that we may not realize we have
- how to work in detail when work on team oriented items
- Unsure

- how to seek treatment if you've not been diagnosed but would like to be
- I've already talked with my personal therapist on this but more detail on the "recollection" studyin
- More about symptoms of ADHD
- DBT skills
- Probably individual time management concepts, some of the skills modules could be covered for longer.
- Minimizing Distractions
- A little bit more about places to get diagnosed for ADHD
- ADHD in conjunction with other illnesses.
- N/A
- N/A
- Depending on the age of the group (grads vs undergrads), I think covering more of the psychoeducation in more detail could've been helpful to better understand the medications that are available, but also how the skills learned can overtime help to rewire parts of the brain.
- the emotional aspects of ADHD. Effects on not only professional life, but personal and daily life.
- None

What topics, content, or concepts could be covered in *less* detail?

- Maybe not as intense upon some of the OTMP skills, I felt like I got a good grasp on them usually 2 or 3 sessions after, but I do realize consistency is key to success.
- The week before the timer week did not work well with out the timer. Those weeks could be combined.
- None that I can think of
- I think they were all covered evenly.
- none
- When-Then contracts
- Reporting back experiences with homework
- N/A I thought the program went at an overall good pace
- See above.
- I think everything was covered in good detail.
- N/a
- I'm not sure
- I thought all were needed
- N/A
- All was helpful
- N/A
- N/A
- I think this also depends on the group and how much experience they've had in school, but I think a group largely consisting of graduate students, some of the information on academic skills could've been condensed.
- Maybe not such an extended focus on studying/organization tips. Maybe a few sessions, but not having it be the main focus.

- none
- Although the schedule was a main focus of the group, I do feel that a lot of time was spent talking about it that could have been allocated to other things after the first meeting.
- None!!!
- how to format emails
- time cracks
- nothing
- I came to the group mainly for help studying but was already familiar with the pomodoro method. Other study techniques would be nice. I think it would also be helpful if you could add in some talks on how to manage home life and chores.
- I think that maybe more troubleshooting about the motivational part of the process would be helpful.
- Notetaking
- getting started, failing
- I feel like everything was pretty well covered, maybe more on how to recover after you don't meet a goal or are finding it especially difficult to integrate a new technique

In your opinion, what are the strengths of this treatment group (e.g., what did you like about it)?

- The focus on life skills that go beyond just school/work
- I really enjoyed the general structure and format in which it was delivered.
- well done
- The openness of the group, how anyone could chime in at anytime
- I liked being able to learn about things I had already been working on a little with my therapist, and expand on them to get more help and learn how to use the skills better. I think its also nice to be able to do a group to hear other people's issues and then private to discuss more personal matters about ADHD and the skills and issues.
- That in the videos multiple resources are given to better OTMP skills and that Dr. Knouse and the group leaders use them personally and the group members being able to talk about each others experiences.
- Discussing what does and doesn't work with others who are experiencing similar difficulties
- The education of the group/personal therapists
- Group meetings & 1 on 1 meetings, it was a good balance, liked having a place to talk along with being able to listen to others
- Talking with others and having an individual check in every week.
- Get along with the people in my group well and the teachers.
- It was well organized
- online format made it very accessible, and didn't reduce interaction in individual sessions
- Group aspect, I liked that everyone shared struggles and wins even group leaders and therapist.
- The talking/sharing components and the tailored advice after our sharing
- The space was very acceptable and it allowed everyone to get personal.
- I liked how it wasn't too demanding, meeting 1-2 times a week is doable. I also liked how we set goals for new tactics each week, it helped with the implementation of these tactics in everyday life.

- Having other people who share these experiences and hearing their lived lessons.
- I would say the welcoming environment as well as having the space to talk openly. I felt supported by each group member and therapist and the positive energy coming from the group each week made me look forward to each session.
- The combo of individual and group sessions. Pairing participants with an individual therapist.
- group sessions
- I liked hearing other people's experiences on topics and the time spent with the individual therapist.
- I really liked the group therapists that were involved - they made sure that everyone was engaged, and
- Group discussions, getting to know other group members, learning about my disorder and why I do the things I do, as well as how to manage it
- one on one
- I liked how we got to spitball ways to solve each others problems

In your opinion, what are the weaknesses of this treatment group (e.g., what could be improved)?

- Probably the meeting duration, it drew a lot of my focus and the meetings seemed somewhat long at times. I would typically tend to lose focus towards the end. It may be more helpful to break it up into two shorter weekly sessions.
- small, online
- Maybe adding more one on one time with Dr. Canu, I would like to hear what he would specifically say about my struggles in particular
- I think that it may have been better in person, but I know that is hard due to COVID. Otherwise, I think the group was great!
- More attentive mid week check ins
- the online format makes it difficult to connect with other group members
- The weekly time commitment was inconsistent
- N/A, sometimes the longer meetings but there's not much you can do about that
- After being on Zoom for school all day, it was often hard to focus on the videos.
- Staying organized and could have talked more.
- i'm not motivated to do things without an accountability buddy
- First couple of group sessions were a bit basic and def explanatory
- The online format made interpersonal connections with the other group members harder
- The length of the session sometimes felt too long, but other times it was needed.
- Personally, the time of the group was a bit of a problem for me, since I got to the group 20 minutes after my Korean class ended and went straight to Korean Language Table after the session ended.
- Couldn't see everyone
- N/A
- Online format
- Depending on the group, I think adapting some of the video lessons by either expanding the content or condensing some of the information might help cater more to what the group is struggling with, based on the stage of their career.

- Group may have had to many members, that way more people could have more freedom to talk and share.
- maybe not as much reliance on the videos
- Some of the videos seemed a little too basic and drawn out in my opinion, making them hard to stay engaged with.
- The only thing would be the popcorn style of the group, only because I would be trying to think about who to call on next
- Nothing that I can think of
- group sessions too long
- I can't think of anything

Any additional comments?

- I think my only complaint would be the meetings seemed long and especially towards the end I would lose focus, I think if they were broken down into two shorter weekly sessions it could be more effective.
- slide show prevented us from seeing each other when we were sharing our experiences especially when it was less necessary
- Thank you!
- This group has helped me to actually use the OTMP skills that before I would know I needed but never went about using them and I hope to get better at frequently using most if not all the skills and Thank you.
- Thank you so much! This group has made a very positive impact on my life and future
- Thank you! The work you are doing is so important!
- Having other people with ADHD to talk with.
- Time management
- The new tools
- specific methods of study
- lessons

Vita

Maggie Witherspoon Johnson was born in Wilkesboro, North Carolina to parents Wendy Poe and John Witherspoon II. She graduated from Ashe County High School in June 2015. The following fall, she entered Appalachian State University to study psychology, and in May 2019 she was awarded a Bachelor of Science degree. In the fall of 2020, she entered the Doctoral Program in Clinical Psychology (Psy.D.) at Appalachian State University and began study towards concurrent Master of Arts and Doctor of Psychology degrees. She resides in Jefferson, North Carolina with her husband and their two dogs.