

## Brief Intervention to Reduce Problem Drinking in College Students With ADHD

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*Despite gaining admission to college, many students with attention-deficit/hyperactivity disorder (ADHD) struggle to achieve academic, social, and occupational success. Additionally, college students with ADHD experience higher rates of problem drinking and comorbid psychology (e.g., depression). This paper describes the development of the Students Understanding College Choices: Encouraging and Executing Decisions for Success (SUCCEEDS) program for college students diagnosed with ADHD who are engaging in problem drinking. SUCCEEDS combines ADHD psychoeducation, behavioral activation, and brief motivational intervention treatment elements to help college students with ADHD achieve healthier and more fulfilling lifestyles. SUCCEEDS aims to decrease problem drinking by increasing substance-free, goal-directed behavior allowing for success in college. The iterative treatment development process, two SUCCEEDS illustrative case examples, and reliable change indices are presented. Preliminary results suggest that SUCCEEDS may be effective in reducing problem drinking and functional impairment in areas relevant to college students (e.g., academics).*

**M**ATRICULATING as a student in college represents a key developmental milestone for many emerging adults in the United States. Approximately 40% of individuals ages 18–24 are enrolled in degree-granting postsecondary institutions (National Center for Education Statistics, 2018). Although it was once the case that individuals with attention-deficit/hyperactivity disorder (ADHD) did not represent a significant percentage of college students, recent data indicate that approximately 5% of students entering college today have an ADHD diagnosis (Pryor, Hurtado, DeAngelo, Palucki Blake, & Tran, 2010) and that 2–8% of college students report clinically significant levels of continuous ADHD symptoms (DuPaul, Weyandt, O'Dell, & Varejao, 2009). ADHD is a disorder characterized by age-inappropriate levels of inattention, hyperactivity, and/or impulsivity (American Psychiatric Association, 2013).

Despite enrollment in a 4-year institution, college students with ADHD have more difficulty achieving success than college students without ADHD. Both characteristics

of ADHD (e.g., executive functioning deficits) and lack of preparation and organizational skills increase the risk of college failure for these students. College students with ADHD have a lower grade point average (GPA), withdraw from more classes, and are less likely to complete their degree compared to students without ADHD (Advokat, Lane, & Luo, 2011). Only 7% of young adults with ADHD have graduated from college compared to 24% of young adults without ADHD (Murphy, Barkley, & Bush, 2002). Despite having greater concerns about their academic performance than their non-ADHD peers, college students with ADHD spend less time taking notes, doing homework, studying, and preparing for exams—instead, they spend more time on nonacademic activities, such as playing video games or “partying” (Advokat et al., 2011; Blase et al., 2009; DuPaul, Pinho, Pollack, Gormley, & Laracy, 2017). In addition to academics, students with ADHD encounter other barriers to college success, including difficulty with social skills and emotional adjustment (Blase et al., 2009; Weyandt & DuPaul, 2008), occupational difficulties (Sobanski et al., 2007), and more negative consequences from substance use (Rooney, Chronis-Tuscano, & Yoon, 2012).

Availability of alcohol on college campuses can pose particular difficulty to students with ADHD, a population at risk for substance abuse. Rooney, Chronis-Tuscano, and Huggins (2015) reported significantly elevated rates of

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alcohol abuse and dependence among college students with ADHD; 47% had a history of *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV; American Psychiatric Association, 2000) alcohol abuse and 23% had a history of alcohol dependence compared to college students without ADHD, of whom 17% had a history of alcohol abuse and 10% had a history of alcohol dependence. Furthermore, college students with ADHD experience more drinking-related consequences (e.g., memory loss, regret, hangover, injury), even when drinking the same amount of alcohol as college students without ADHD (Rooney et al., 2012, 2015). Finally, college students with ADHD hold positive alcohol expectancies that further contribute to negative drinking-related consequences (Elmore, Nikolas, & Canu, 2018).

In addition to problem drinking, college students with ADHD experience greater comorbid psychopathology than their non-ADHD peers (DuPaul et al., 2017). In a sample of college students with ADHD, 55.0% had at least one comorbid condition and 31.8% had two or more comorbid conditions. In contrast, only 11.2% of non-ADHD college students met criteria for one psychological disorder and 4.0% had at least two diagnoses (Anastopoulos et al., 2016). Depression, in particular, is highly prevalent in college students with ADHD (Prevatt, Dehili, Taylor, & Marshall, 2015). For example, Rooney et al. (2015) found in their sample of college students that up to 60% had a history of major depressive disorder (MDD), relative to only 12% of college students without ADHD. Both problem drinking and depression can exacerbate academic, occupational, and social difficulties that lead to college failure for students with ADHD (Bravo et al., 2018; Langberg, Dvorsky, Kipperman, Molitor, & Eddy, 2015).

Interventions for college students with ADHD are needed to address their risk for failure. Various interventions are being explored, such as the effects of exercise (LaCount & Hartung, 2018; Neudecker, Mewes, Reimers, & Woll, 2015); organization, time management, and planning skills (LaCount, Hartung, Shelton, Clapp, & Clapp, 2015); and dialectical behavior therapy (DBT; Fleming, McMahon, Moran, Peterson, & Dreesen, 2015). Such interventions for college students with ADHD target cognitive and executive functioning deficits that can lead to college failure. To our knowledge, no intervention aside from ours described herein has been specifically designed to target problem drinking and depressive symptoms that compound the risk for failure in college students with ADHD.

### **Brief Motivational Intervention for Problem Drinking**

Brief motivational interventions (Bridges & Sharma, 2015; Murphy et al., 2012) are commonly used to treat college drinking and have strong research support for

their effectiveness (Larimer & Cronce, 2007). Brief motivational interventions typically last only a few sessions and involve treatment elements such as personalized feedback about drinking delivered in motivational interviewing (MI) style. Brief motivational interventions have demonstrated efficacy and cost-effectiveness in reducing problem drinking and related harm in a variety of high-risk samples (Miller & Rollnick, 2013; Mun et al., 2015).

Despite the effectiveness of brief motivational interventions, the characteristics, comorbidity, and environments typical of college students with ADHD may make these students less responsive to these interventions. Problem drinkers high in impulsivity and sensation seeking—traits that are characteristic of ADHD—are less likely to reduce their drinking following a brief motivational intervention (Ewing, LaChance, Bryan, & Hutchison, 2009). Further, individuals with ADHD have motivational deficits partly due to decreased activity of the reward system in the brain (Volkow et al., 2011). Individuals with less motivation to change prior to treatment may benefit less from brief motivational interventions than those with greater motivation to change. Additionally, depression—occurring more frequently in college students with ADHD than without ADHD—can moderate the effect of brief motivational interventions on substance use outcomes, making them less effective (Clair-Michaud et al., 2016; Stein et al., 2011). Finally, individuals with ADHD generally have a stronger preference for immediate rewards compared to delayed long-term rewards (Rappoport, Tucker, DuPaul, Merlo, & Stoner, 1986), and this may lead these individuals to more immediately rewarding environments and activities, such as alcohol or other substance use, while discounting the long-term risks and consequences associated with such activities. Finally, environments lacking substance-free activities are predictive of increased and maintained substance use (Carroll, Anker, & Perry, 2009) and college drinkers with limited engagement in substance-free activities report poor response to brief motivational interventions (Murphy, Correia, Colby, & Vuchinich, 2005).

Although previous research has not examined brief motivational interventions for college students with ADHD engaged in problem drinking, the research reviewed above supports the need to modify standard brief motivational interventions for college students with ADHD, a population with increased rates of problem drinking and risk factors that may make it challenging for them to follow through with drinking reduction goals. One study examining heavy drinking among college students (not diagnosed with ADHD) found that the addition of a session focused on increasing engagement in substance-free activities associated with delayed reinforcement (e.g., academic and occupational activities) increased the efficacy of a standard brief motivational intervention compared to a brief motivational intervention plus an active control session

(relaxation training; Murphy et al., 2012). An intervention that incorporates brief motivational intervention treatment and engages students with ADHD in substance-free activities related to long-term college success may address the barriers to treatment (e.g., preference for immediate rewards) and reduce problem drinking for this population.

### Behavioral Activation

Behavioral activation (BA) may be a promising approach to address the core deficits and impairments experienced by college students with ADHD, as well as co-occurring problem drinking and depressive symptoms in this population. BA is a treatment approach that helps to alleviate negative mood through decreasing avoidant behaviors and increasing engagement in value-driven activities that are pleasurable and positively reinforcing (Lejuez, Hopko, Acierno, Daughters, & Pagoto, 2011). BA has been successfully adapted and implemented in numerous clinical and community populations with comorbid psychopathology, including for the treatment of problem drinking and depression in college students (Dimidjian, Barrera, Martell, Muñoz, & Lewinsohn, 2011; Reynolds, MacPherson, Tull, Baruch, & Lejuez, 2011). The organizational structure of BA could allow college students with ADHD to identify and structure long-term goals across several life areas (e.g., academics, occupation, relationships) into more short-term, frequent, and immediately rewarding activities, helping to increase the likelihood of follow-through and accomplishment. Choosing substance-free activities for goal achievement can indirectly support the goals of brief motivational interventions by providing alternatives to drinking, by scheduling evening activities that directly compete with drinking, or by creating more structured daytime activities shown to curtail evening-before drinking (Gilbert, Dennhardt, & Murphy, 2014). BA can also allow college students with ADHD to identify a support network (e.g., parents, roommates, friends) that can assist them in completing their value-driven activities. This additional accountability and social support that can help increase follow-through for planned activities is essential for college students with ADHD, who have deficits in self-regulation and planning toward long-term goals (Dimidjian et al., 2011). Despite BA providing a structure to achieve long-term goals using substance-free activities that indirectly support the goals of brief motivational interventions, no known work has examined BA for college students with ADHD.

Our larger program of research seeks to address these gaps in the literature and ultimately help college students with ADHD achieve healthier and more fulfilling lifestyles. We believe our intervention will help allow for college success through engagement in substance-free and goal-directed behavior to help decrease problem drinking and

depressive symptoms. In this paper, we focus on two primary objectives. First, we discuss our iterative process to develop our intervention Students Understanding College Choices: Encouraging and Executing Decisions for Success (SUCCEEDS). SUCCEEDS combines ADHD psychoeducation, BA, and brief motivational intervention treatment elements (such as a brief format, personalized drinking feedback, and MI style). Ultimately, the manner in which we designed SUCCEEDS will allow for delivery in University Counseling Centers (UCCs) and Student Health Centers (SHCs) to maximize its reach and accessibility. Second, we present two case examples to illustrate how the program is applied and to demonstrate the impact of SUCCEEDS on outcomes including alcohol consumption, depressive symptoms, and behavioral activation.

### Method

#### Overview of the SUCCEEDS Manual Development

Two sets of focus groups were held at the outset of the treatment development process with UCC and SHC staff members and psychologists at our university to ensure implementation of the SUCCEEDS program by university mental health providers. Both BA (Lejuez et al., 2011; Reynolds et al., 2011) and brief motivational intervention treatment elements, such as the use of personalized drinking feedback and MI (Miller & Rollnick, 2013), provided the initial framework for SUCCEEDS manuals. In the first focus group, feedback about issues faced by college students with ADHD and the practical issues associated with delivering treatment within the context of university mental health services helped us develop and modify the initial SUCCEEDS manuals. During the second set of focus groups, the UCC and SHC therapists reviewed manual drafts and provided further feedback and comments for integration into the manuals. One recommendation included that SUCCEEDS use an approach that emphasizes responsible drinking and harm reduction, consistent with existing brief motivational intervention approaches with college drinkers (rather than recommending abstinence, which is inconsistent with peer group norms). Following the focus groups, manuals were refined to help achieve transportability to the UCC, SHC, and related settings where SUCCEEDS will be ultimately disseminated.

Following the focus groups, we further refined the SUCCEEDS manuals. One major revision included how to address participants who initially report no/minimal impairment in daily life across all life areas, despite meeting criteria for ADHD and problem drinking. One explanation for this may be that some individuals with ADHD are indeed impaired, yet have poor insight into their impairment, possibly due to positive illusory bias (PIB), or rating oneself as more competent than what is reported by others or by objective measures (DuPaul

et al., 2017; Owens, Goldfine, Evangelista, Hoza, & Kaiser, 2007). To address a participant self-report of no/minimal ADHD-related impairment or no/minimal impairment for problem drinking, use of MI style including use of open-ended questions to elicit participants' experiences with difficulty due to ADHD or asking permission to share difficulties other students with ADHD experience allows therapists to help participants identify areas of impairment that were identified through prior self-report and other reports (e.g., parent report of ADHD symptoms and impairment, academic transcripts). This helped participants identify impairments even if the impairments were not immediately apparent to participants.

### Description of SUCCEEDS Components

The SUCCEEDS program consists of four weekly sessions and one telephone "booster session," scheduled 2 weeks after Session 4. The following paragraphs describe each session, including key components prior to modifications based on our case examples. A summary of key components for each SUCCEEDS session can be found in Table 1. All sessions are delivered using MI style, including engaging participants by establishing and developing rapport, focusing the discussion toward a particular topic, evoking participants' own reasons and arguments for desired change, and developing a commitment and plan to achieve change (Miller & Rollnick, 2013).

#### *Session 1: ADHD Psychoeducation and ADHD Symptom and Impairment Feedback*

Session 1 of SUCCEEDS begins with establishing initial rapport, asking about values (consistent with BA), and a review of ADHD psychoeducation. First, therapists establish rapport and provide participants with the student manual containing a summary of and worksheets for each SUCCEEDS session that participants are free to reference and use during the session. Next, therapists ask about participants' values, or what is important within the "big picture" of their lives. Behavior change in later sessions will be guided by these values by providing alternative activities that may be difficult for participants currently to engage in because they are spending a great deal of time engaging in drinking activities and subsequent negative consequences (e.g., hangovers).

Following this discussion, therapists and participants review ADHD psychoeducation using MI style. Traditionally, psychoeducation can be directive and appear as though therapists are lecturing participants. Use of MI style to review ADHD psychoeducation with participants is less directive and more engaging, placing an emphasis on understanding what participants already know about ADHD and asking permission to share and review additional information with participants. Various topics covered include ADHD symptom presentations, executive

functioning challenges, how ADHD may interfere with college life, comorbidity, and general ADHD treatment options (e.g., stimulant medication).

Next, therapists present using MI style the personalized ADHD symptom and impairment feedback derived from participant responses to self-report surveys about ADHD symptoms and related impairment across various areas of functioning (e.g., academics, self-care). An example video that involves a role play between nonparticipants using hypothetical data is included with this manuscript in Appendix A to demonstrate how a therapist might deliver the ADHD symptom and impairment feedback using MI style. Therapists use the term "difficulties" instead of "impairment" when providing ADHD feedback, given that participants may react negatively to the word "impairment." This phrasing is also more consistent with the nonjudgmental style of MI. After review of the feedback, therapists elicit from participants reasons or motivation for change based on the ADHD feedback. For example, therapists might say "I appreciate you reviewing this feedback with me. Where does this information about your ADHD symptoms leave you?" or "You've expressed some concerns about your academic performance related to your ADHD symptoms. How would you like things to be different? How might you benefit from the changes that you had mentioned before about modifying your schedule to accommodate your ADHD symptoms?"

Finally, given that a large portion of Session 1 is devoted to addressing ADHD-related impairments, a discussion about participant strengths is initiated to learn about their positive qualities and abilities. Therapists reflect these traits and emphasize what has helped them be successful in gaining admission into a 4-year college and what has contributed to their accomplishments thus far.

Table 1  
SUCCEEDS Session Content

Session	Key session components
1	ADHD psychoeducation and personalized ADHD symptom and impairment feedback
2	Decisional balance and personalized drinking consequences feedback
3	Introduction to BA and LAVA and substance-free activity scheduling
4	Scheduling activities that incorporate assists
5	Troubleshooting activity scheduling and assists barriers and reflection on SUCCEEDS progress

*Note.* ADHD = attention-deficit/hyperactivity disorder; BA = behavioral activation; LAVA = life areas, values, and activities; SUCCEEDS = Students Understanding College Choices: Encouraging and Executing Decisions for Success.

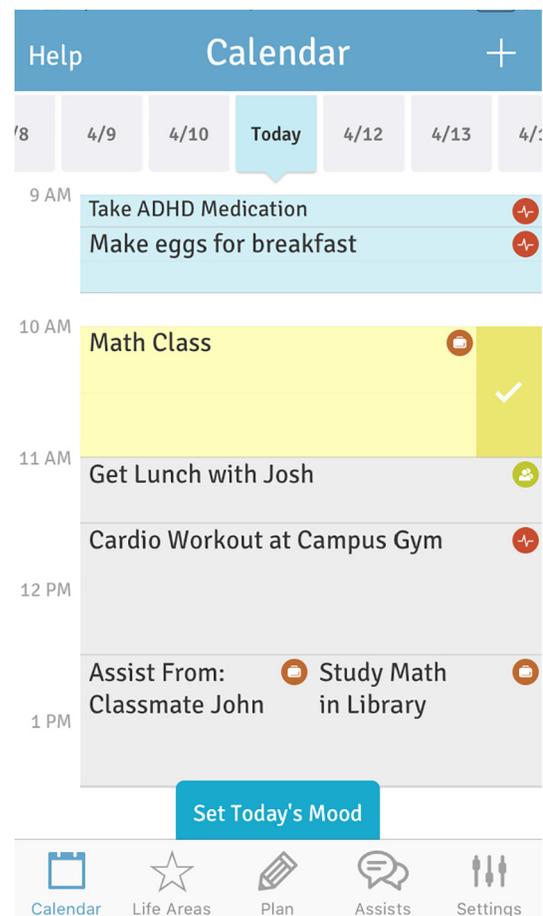


**Video:** Sample ADHD Psychoeducation Feedback Session.

Session 1 concludes by participants learning about activity monitoring and becoming familiar with an activity monitoring tool for use between sessions. There are several activity monitoring tools available, including smartphone applications (apps) and traditional paper activity monitoring forms. Given how ubiquitous smartphone use is, there are many apps, both designed exclusively and not exclusively for BA, that participants may find useful for activity monitoring. Behavioral Appivation (Dahne, Kustanowitz, & Lejuez, 2017) is a paid app that is exclusive to devices using iOS 8.0 or later (e.g., iPod and iPhone).<sup>2</sup> This app allows participants to track and plan activities using a BA framework on a calendar application similar to other available calendar apps (see Figure 1 for a screenshot of the app). Additionally, therapists can view participants' activity monitoring with participant permission. Google Calendar and Apple Calendar are other apps available to participants. These are free apps that allow participants to create and manage calendars. Although these apps were not designed exclusively for BA, participants can within Google Calendar and Apple Calendar create a new calendar specifically for activity monitoring using the BA framework presented in SUCCEEDS and share this calendar with their therapist. Some participants may prefer using one of these apps as an activity monitoring tool if they already use Google Calendar or Apple Calendar. Other calendar apps not mentioned can also be used by participants. If participants do not want to use an app, traditional paper forms are also available.

<sup>2</sup> As of January 2019, Behavioral Appivation is still available in the iOS app store; however, its full functionality cannot be guaranteed for all users.

The use of an app instead of paper forms traditionally used for BA may have many benefits for college students with ADHD. For example, daily use of smartphones or



**Figure 1.** Behavioral Appivation mobile application screenshot of a calendar displaying planned activities.

other electronic devices (e.g., iPods) by college students increase the likelihood that these students will use an app to engage in BA. Additionally, use of an app eliminates the possibility of losing paper activity monitoring forms traditionally used in BA. An additional benefit to using apps is that participants can grant therapists access to view their monitoring so that therapists can review their monitoring prior to each session. This allows therapists to have a snapshot or “window” into the participant’s life between sessions (Cassar et al., 2016). Review of monitoring prior to a session also allows more time during a session for therapists to discuss participants’ experiences from monitoring (instead of using session time to review monitoring). A final benefit to using apps is that many (e.g., Behavioral Appivation, Google Calendar) have reminders that allow participants to create alarms for their scheduled activities.

### *Session 2: Decisional Balance and Drinking Consequences Feedback*

Session 2 begins with a review of activity monitoring completed between sessions. The focus of this review is identifying activities that participants rated as high in enjoyment or importance. Therapists can use this time to praise participants for the completion of monitoring and to solve any difficulties participants had with using an app or remembering to monitor.

Following the review, therapists lead participants in a decisional balance exercise using MI style. This exercise allows participants to verbalize positive and negative aspects of alcohol and other substance use if applicable (e.g., cannabis use). Therapists listen closely for negative consequences, including those influenced by ADHD that will be useful for motivating change later in session. Therapists also listen closely for reported positive aspects of drinking (e.g., spending time with friends) that reflect values (e.g., having close friendships) that in later sessions will aid in the identification of substance-free reinforcing activities (e.g., playing basketball with a friend instead of drinking or smoking marijuana with a friend).

Following the decisional balance, therapists present personalized drinking consequences feedback derived from participant responses to self-report surveys about drinking and other substance use. Components of this feedback include review of participant drinking patterns as compared to those of other college students, discussion of blood alcohol concentration (BAC), and exploring drinking-related consequences. Review of other substance use relevant to the college lifestyle, such as cannabis, may appear in the feedback as well, if applicable to the participant. This discussion also covers how ADHD or ADHD medication might influence and interact with drinking or other substance use. The session concludes

with harm-reduction goal setting and a reminder to continue activity monitoring.

A novel component of SUCCEEDS compared to traditional brief motivational interventions is that therapists incorporate the personalized feedback from the previous session’s discussion of ADHD impairment and values into the current discussion of drinking and other substance use. Therapists often can utilize the information gathered during the initial values discussion to highlight the discrepancy between participants’ values (e.g., being a good student, improving their fitness, being a good friend) and their drinking-related behavior. The following hypothetical dialogue involves a discussion of the interaction between ADHD and drinking and transitions into value-driven goal setting.

THERAPIST (T): How might your ADHD symptoms that we discussed last week, including impulsivity, influence your drinking?

PARTICIPANT (P): When I go out drinking with friends, everyone starts drinking at different times. So if a friend joins us late in the night and only had one drink, I’ll have a drink with him even though I already feel drunk and have had enough drinks for the night. I want to join and be social, so I just do, even though I know I shouldn’t drink more.

(T): So you enjoy being social and being around friends when you’re drinking, but it is difficult for you to limit your drinking despite your desire to do so.

(P): Yes. It really interferes with my ability to do well in my classes, especially since I already have to work harder than other people, and I really need to graduate with a good GPA. I really need to change my drinking habits for this to happen.

(T): By not drinking as many drinks when you go out, it could help improve your GPA, which is something you mentioned last week as being very important to you. You are committed to reducing your drinking in order to improve your GPA.

### *Session 3: Introduction to BA and Substance-Free Activity Scheduling*

In Session 3, participants receive an introduction to the BA framework and an explanation of life areas, values, and activities (LAVA). When introducing the BA framework, therapists inform participants that the activities we engage in can impact how we feel, and that SUCCEEDS focuses on becoming involved in enjoyable and important value-driven activities to achieve a healthier and more

fulfilling lifestyle. The term “importance” is clarified for participants so that they understand that activities other than academics can also be important. For example, spending time with friends can be important if participants are working toward a relationship value. Participants are also provided an explanation of LAVA and told that they will work collaboratively with therapists to schedule value-driven activities allowing for goal-directed behavior across the five life areas of LAVA, including career and education, relationships, recreation, daily responsibilities, and health. Once participants understand the BA framework and LAVA, therapists work with participants to utilize LAVA by identifying values for each life area that are subsequently used to assist with scheduling specific substance-free, value-driven activities for the coming week. Therapists can help facilitate identifying value-driven activities by using prompts, such as “The things people would say about you if you received a Lifetime Achievement Award would represent your values and proof of these values are the activities you completed related to those values.” Therapists can also remind participants of their drinking and substance use reduction goals from Session 2. If required, therapists can help participants break down a task so its components can be scheduled on the calendar. Although therapists may need to briefly address time management when scheduling activities, their focus is consistent with BA placing an emphasis on participants scheduling reinforcing activities with less emphasis on time management.

SUCCEEDS uniquely allows therapists to incorporate the values discussions and personalized feedback provided in Sessions 1 and 2 regarding ADHD and drinking-related consequences when creating activities with participants. Scheduling substance-free activities that are observable, measurable, and broken down into their smallest components helps college students with ADHD complete manageable activities and receive more frequent and immediately reinforcing environmental rewards while achieving progress toward a value-driven, long-term goal.

#### *Session 4: Assists*

One challenging aspect of the transition to college for students with ADHD is the loss of parental support, especially in areas such as academics and self-care (e.g., sleep routines, stimulant medication adherence). During Session 4, therapists help participants identify activities that were either difficult to complete during the previous week or may generally require extra assistance for completion (e.g., a new activity that participants would like to become engaged in, but feel unsure whether they will complete). Participants identify a support network that does not participate with them during sessions.

Therapists and participants schedule activities incorporating these “assists,” including how the identified support system between sessions can assist the participant in goal-directed behavior change through helping complete scheduled activities. Participants using an app may even have the ability to send an electronic invitation to the identified person to assist with the scheduled activity. The following hypothetical dialogue shows how after receiving guidance from a therapist a participant might identify an assist to help complete difficult activities.

(P): I get really distracted when I try to get ready to study for my classes each night. My roommate and I have a lot of the same classes and same assigned readings, so we could work on our homework together. I know that I also sometimes get stressed after doing homework. Instead of playing video games to relax afterwards, I could ask my roommate to start going to the gym with me in order to de-stress and get some exercise that is in line with my value of wanting to be healthy.

Self-regulation deficits are common for those diagnosed with ADHD (Dimidjian et al., 2011). These deficits may decrease the likelihood that college students with ADHD follow through on activities even if they are scheduled. Assists help participants increase follow-through and achieve their scheduled activities by providing support from a network that was lost during the transition to college and ultimately help participants accomplish their value-driven activities.

#### *Session 5: Telephone Booster Session*

Session 5 serves as an over-the-telephone maintenance session 2 weeks after Session 4 allowing therapists to review treatment information presented in the previous two sessions and to continue helping participants schedule activities and identify assists. Further, this session allows therapists and participants to troubleshoot any unresolved barriers to completing scheduled activities and to plan for engagement in value-driven activities after the completion of SUCCEEDS. The session concludes with a reflection that allows participants to consider their progress over the course of treatment; participants verbalize change talk including positive changes toward goal-driven behavior. The following hypothetical dialogue involves a participant reflecting on progress made resulting from SUCCEEDS.

(T): We’ve been working together for several weeks now. I’d like to hear from you if you’ve noticed any changes in your life since beginning the program.

(P): I think there’s a big difference in my life since starting the program. Now that I’m learning to schedule, I can actually plan to get everything done I want to every day. I know what I need to do and when to do it. I still get distracted sometimes, but I get so much more done when

I have everything I need to do scheduled in the app and I have other people encouraging me and keeping me accountable.

(T): The app is really helping you accomplish what you want to do every day.

(P): Yes, I'm just so much more productive and feel great. I set aside a little bit of time each day for each reading and my projects in each class. I know if I can stay focused each time, that I will ultimately get all my projects completed. My roommate and another classmate are both helpful in making sure I attend class, complete my assigned readings, and finish my projects. I am even thinking of participating in an extracurricular activity once a week next semester now that I realize I have enough time in the day to be successful academically. Instead of drinking with friends on the night that the extracurricular activity is normally scheduled, I want to be productive and participate in that activity instead. It feels great to be focused and productive and I'm noticing major changes in my life!

(T): What long-term changes in your life are you noticing?

(P): My grades are improving. I'm able to attend my Friday morning classes now that I'm not hung over from the night before. I should get an A or B in all my classes by the end of this semester and that will improve my GPA. Even my professor commented that my exam performance and grades are improving. I'm feeling a lot less anxious overall and about my college future because of this. I'm noticing that small changes can create a lot of big changes over time.

## Participants and Procedures

Participants were recruited from the University of Maryland campus through various methods, including referrals from the UCC, the SHC, Accessibility and Disability Services (ADS), flyers posted on and around campus, the university participant pool (SONA), classroom speeches, campus events, and campus listservs (e.g., Greek organization, university registrar).

After providing verbal consent, interested participants completed a telephone screen to determine whether they met basic eligibility criteria. In order to advance past the telephone screen, participants must have (a) been between the ages of 18 and 24 years old, (b) been enrolled full-time at the university, (c) been fluent in English, (d) been living independently from their parents (e.g., living in campus housing), (e) endorsed at least three ADHD symptoms on the Barkley Adult ADHD Rating Scale (BAARS; Barkley, 2011a), and (f) had an

elevated Alcohol Use Disorders Identification Test (AUDIT; Saunders, Aasland, Babor, De La Fuente, & Grant, 1993) score of 5 for females and 7 for males (DeMartini & Carey, 2012).

If participants met the eligibility criteria on the telephone screen, they were invited into the laboratory for a 3-hour in-person baseline assessment that included a combination of diagnostic interviews and questionnaires after obtaining participant written consent. Participants were provided the option of providing consent to allow the study to contact a provided parent or guardian to complete several online questionnaires about current and childhood ADHD symptoms and related impairment in order to help determine participant eligibility for the study. However, the participants were allowed to decline letting us contact their parent or guardian without making them ineligible to participate in the study (given the focus on alcohol and related problems). The purpose of this assessment was to conduct diagnostic interviews to determine the presence of adult ADHD and other comorbidities (e.g., mood disorders, anxiety disorders, substance use disorders, psychosis). Stimulant medication misuse and diversion were also assessed. Participants prescribed ADHD medication were included in the study. Participants were asked not to start or to remain on a stable dose of medication for the duration of the study unless clinically contraindicated. Any changes to medication were tracked (e.g., see Background/History for Case Example 1). Additionally, participants were asked not to start psychosocial therapy for the duration of the study. Participants were required to meet full *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (DSM-5; American Psychiatric Association, 2013) criteria for a current diagnosis of adult ADHD, when compiling across parent- and self-report measures of ADHD symptoms and associated impairment, including the BAARS, the Adult ADHD Clinical Diagnostic Scale (ACDS; Kessler et al., 2010), Barkley Functional Impairment Scale (BFIS; Barkley, 2011b), and the Weiss Functional Impairment Scale—Self-Report (WFIRS-S; Weiss, 2000) using the “or rule.” Use of the “or rule” (instead of the “and rule”) counts a current or childhood symptom toward an ADHD diagnosis if at least one informant (either participant or parent) endorses the symptom for the participant (see Rowland et al., 2008; Shemmassian & Lee, 2012, for more information about use of the “or rule”). Consistent with the DSM-5, at least five inattentive symptoms or five hyperactive/impulsive symptoms present within the past year as well as several inattentive or hyperactive/impulsive symptoms present prior to age 12 were required for a current ADHD diagnosis. Impairment included any domain endorsed across the ACDS, BFIS, and WFIRS-S.

Participants were excluded from the study for (a) bipolar disorder or current psychosis that required more immediate

Table 2  
RCI Analyses for Case Examples on Measured Variables

Case		DDQ	BDI-II	BADS Tot	BADS Act	BADS AR	BADS WS	BADS Soc
1	Pre	13	5	97	20	15	10	6
	Post	1 <sup>a</sup>	1	124 <sup>a</sup>	25	6	2 <sup>a</sup>	1 <sup>a</sup>
2	Pre	20	8	109	29	10	17	1
	Post	11 <sup>a</sup>	2	133	36	5	2 <sup>a</sup>	4

*Note.* RCI = Reliable Change Index, DDQ = total number of weekly drinks reported on the Daily Drinking Questionnaire—Weekly, BDI-II = total score reported on the Beck Depression Inventory—II, BADS Tot = total score on the Behavioral Activation for Depression Scale, BADS Act = Behavioral Activation for Depression Scale activation subscale score, BADS AR = Behavioral Activation for Depression Scale avoidance/rumination subscale score, BADS WS = Behavioral Activation for Depression Scale work/school impairment subscale score, BADS Soc = Behavioral Activation for Depression Scale social impairment subscale score.

<sup>a</sup> Significant change from pre- to posttreatment.

or intensive treatment, (b) current engagement in psychosocial therapy that interfered with this study that the participant was not willing to suspend, or (c) current suicidal ideation or behavior that placed the individual at risk beyond the safety procedure available from the research team. All research team members were trained in safety procedures before interacting with participants. If participants expressed current suicidal ideation or behavior, research team members gathered relevant risk information. If participants were in imminent danger, research team members contacted a study supervisor (e.g., licensed clinical psychologist) and took proper action to ensure the participant's safety. For example, a supervisor would ensure the research team member was following all safety procedures and would conduct a risk assessment with the participant. Risk information was discussed at assessment and group supervision meetings. Excluded participants received campus and community resources/referrals.

## Measures

Participants completed before each session the following three measures to measure weekly alcohol consumption, depressive symptoms, and BA.

### *Daily Drinking Questionnaire—Weekly (DDQ)*

The DDQ (Collins, Parks, & Marlatt, 1985) asks participants how many drinks they consumed that week. For each day, participants list the number of drinks consumed across the number of hours they were drinking. For our analyses, we used the total number of weekly drinks. Weekly drinking has been shown to be a reliable indicator of drinking-related problems (Borsari, Neal, Collins, & Carey, 2001).

### *Beck Depression Inventory—II (BDI-II)*

The BDI-II (Beck, Steer, & Brown, 1996) is a 21-item questionnaire that measures depressive symptom severity. All items are rated using a 4-point Likert scale from 0 to 3. A higher total score indicates greater depressive symptom severity. The measure has shown high internal consistency and construct validity in samples of young adults and college students (Dozois, Dobson, & Ahnberg, 1998; Steer & Clark, 1997).

### *Behavioral Activation for Depression Scale (BADS)*

The BADS (Kanter, Mulick, Busch, Berlin, & Martell, 2007) is a 25-item questionnaire measuring change in participants' activation, or engagement in rewarding behaviors that increase the likelihood of obtaining pleasure

Table 3  
RCI Analyses for Case Example 1 for Follow-Up Data

Time	DDQ	BDI-II	BADS Tot	BADS Act	BADS AR	BADS WS	BADS Soc
Post	1	1	124	25	6	2	1
1 month	0	1	83 <sup>a</sup>	29	21 <sup>a</sup>	20 <sup>a</sup>	13 <sup>a</sup>
3 months	3	0	111 <sup>a</sup>	21	7 <sup>a</sup>	6 <sup>a</sup>	5 <sup>a</sup>

*Note.* RCI = Reliable Change Index, DDQ = total number of weekly drinks reported on the Daily Drinking Questionnaire—Weekly, BDI-II = total score reported on the Beck Depression Inventory—II, BADS Tot = total score on the Behavioral Activation for Depression Scale, BADS Act = Behavioral Activation for Depression Scale activation subscale score, BADS AR = Behavioral Activation for Depression Scale avoidance/rumination subscale score, BADS WS = Behavioral Activation for Depression Scale work/school impairment subscale score, BADS Soc = Behavioral Activation for Depression Scale social impairment subscale score.

<sup>a</sup> Significant change from prior time (post to 1 month or 1 month to 3 months).

from the environment, over the course of receiving BA. The BADS includes four subscales including activation, avoidance/rumination, work/school impairment, and social impairment. All items are rated using a 7-point Likert scale from 0 (*not at all*) through 6 (*completely*). A higher total score on the BADS or higher score on the activation subscale indicates a positive outcome of greater activation resulting from BA. A higher score on the avoidance/rumination, work/school impairment, or social impairment subscale indicates a negative outcome of increased impairment in the respective domain. The BADS has been shown as both valid and reliable and has been used in undergraduate samples (Kanter et al., 2007).

## Results

### Analytic Plan

Reliable Change Index (RCI; Jacobson, Follette, & Revenstorf, 1984) analyses were used to examine individual-level changes on measures of weekly alcohol consumption, depressive symptoms, and BA (including subscales measuring impairment, such as work and school) from pre- to posttreatment for each of the following illustrative case examples. The statistical information required for RCI analyses was available for all three measures: DDQ (Foster, Neighbors, & Krieger, 2015), BDI-II (Whisman & Richardson, 2015), and BADS (Kanter et al., 2007). An RCI that is greater than or equal to 1.96 or less than or equal to -1.96 signals reliable change at  $p < .05$ . Each case example is followed with RCI results that can be found in Tables 2 and 3.

### Illustrative Case Examples

To illustrate the implementation of SUCCEEDS, we present the following two case examples. Identifying details, such as names, were changed to protect confidentiality.

#### Case Example 1

*Background/history.* Danny is a 21-year-old Asian male working on his bachelor's degree in business. He enrolled in SUCCEEDS during the fall semester of his fourth year. Prior to college, Danny attended individual therapy during middle school following his parents' divorce. During his first year of college, he attended 10 weeks of individual counseling at the UCC for a depressive episode currently in full remission. Danny began to suspect he may have ADHD during his second year of college and was diagnosed at the SHC with ADHD at the start of the spring semester of his third year. He was prescribed Vyvanse 50 mg once daily as needed typically three to four times per week. He stopped taking Vyvanse at the end of the spring semester of his third year due to the medication being only moderately helpful and because of the presence of side effects, such as appetite loss and

irritability. Three weeks prior to beginning SUCCEEDS in the fall of his fourth year, Danny began taking Adderall 30 mg XR that was adjusted to 10 mg in the morning followed by another 10 mg dose in the afternoon to prevent side effects, such as rapid heartbeat. In addition to ADHD, he met diagnostic criteria for social anxiety disorder (SAD), with age of onset at 14 years old.

*Presenting primary concerns.* Danny indicated impairment in academics, work, and social relationships. Despite the aid of his stimulant medication, he still had difficulty paying attention and keeping focused during class and was highly distracted when trying to complete homework. His distractibility caused him to procrastinate, often not beginning his homework until hours after he had intended to begin. Although he maintained a 3.1 GPA, he believed his academic performance could be better if he could complete his homework within a set time frame. Danny expressed the desire to apply for jobs but had avoided taking any action toward applying due to the anxiety he felt when thinking about the job application process and distractibility when trying to begin the process. This increased his worry further as he contemplated the potential consequences of being unemployed after college or accepting a job he would not enjoy if he did not begin applying soon. Concerning health, Danny was unable to keep a consistent sleep schedule, as he often stayed up until 3 a.m. due to distractions (e.g., smartphone use), trying to complete homework, or feeling worried that during the day he had not made progress toward his long-term goals. This made him unable to establish a morning routine (e.g., preparing a healthy breakfast). He also noted that even though drinking alcohol with friends helped ease his social anxiety in the short term, drinking contributed further to problems with his sleep schedule and avoidance of his important long-term career goals (e.g., applying for jobs). Additionally, he noticed less variety in his diet due to appetite loss from his medication. Finally, he highlighted that his social anxiety prevented him from initiating conversations with new people and from maintaining current friendships. This anxiety prevented him from participating in class discussions beneficial for grade improvement and from attending job fairs. Prior to SUCCEEDS, Danny kept to-do lists of activities he needed to complete such as homework and job applications. Although he initially felt these to-do lists were helpful, he admitted he would forget to add tasks to the lists as they increased in length and ultimately, he was not engaged in important activities including those on his to-do lists that would allow for progress toward his long-term academic and career goals.

*Response to SUCCEEDS.* Danny attended all five sessions and remained open and pleasant while working with his

therapist. After 1 week of activity monitoring, he realized that he was spending a lot of time either bored or engaged in activities that were enjoyable but not important, such as playing video games. On these days, he noticed his mood was “not great” and he expressed a desire to engage in important activities, such as applying to jobs. One major barrier to engagement in goal-directed behavior included having an “in-the-moment” mind-set instead of planning for a long-term goal. He recognized the relation between ADHD and his preference for enjoyable in-the-moment activities, such as video games, despite the desire to engage in more value-driven activities. Over the course of treatment, Danny and his therapist identified values and activities for each life area with an emphasis on career and relationships. Danny’s girlfriend served as his most influential assist, especially concerning health. Danny and his girlfriend developed and maintained a consistent sleep–wake pattern, planned healthy meals, and engaged in exciting activities together. She also provided reminders about long-term tasks, such as job applications.

At the conclusion of treatment, Danny reported he had noticed numerous changes in his life. He had attended an advising session at the career center that led to improving his résumé and writing cover letters for job applications. With steady progress toward job applications, Danny felt less stressed and focused better on academics by completing homework within a planned time frame at night. Due to a consistent sleep–wake time, he had developed a morning routine and no longer felt rushed in the morning, allowing him to prepare a healthy breakfast. Scheduling important activities in the morning helped to facilitate waking up at an earlier and consistent time in the morning on days that Danny had classes in the afternoon. He also made progress with building and strengthening relationships with his girlfriend and friends by planning novel and enjoyable activities, such as day trips to amusement parks or museums. Most notably, Danny felt more productive and confident overall and no longer felt the need to drink as often or as much as he had when he began SUCCEEDS. Drinking often served to decrease his social anxiety and made an experience with friends more reinforcing. By filling his evenings with productive activities, such as applying to jobs and planning enjoyable activities with friends, he had less desire to drink in order to enjoy social interactions. Danny acknowledged that using an app to schedule and track his activities (instead of using to-do lists) allowed him to make progress toward his long-term goals and he expressed desire to continue using an app after the conclusion of SUCCEEDS.

*RCI analyses.* RCI analyses indicated a clinically significant change from pre- to posttreatment for the DDQ, BADS, and two BADS subscales. Pretreatment data were

collected about 1 month after the start of the fall semester and posttreatment data were collected during Thanksgiving break. Danny significantly decreased his total number of drinks per week from 13 drinks at pretreatment to 1 drink at posttreatment (RCI = 4.19). Danny showed a significant increase in BADS total score from 97 at pretreatment to 124 at posttreatment (RCI = –2.02), indicating an increase in engagement in rewarding behaviors. Within the BADS subscales, Danny showed a significant decrease in both work and school impairment (RCI = 2.26) and social impairment (RCI = 1.98). Although his BDI-II total score decreased from 5 to 1 from pre- to posttreatment, this change was not significant. A total score below 14 indicates minimal depressive symptoms, indicating he began and concluded SUCCEEDS below the clinical threshold.

One-month and 3-month follow-up data were available for Danny. One month follow-up data were collected during final exams of the fall semester and 3-month follow-up data were collected about 1 month after the start of the spring semester. He maintained his decreased total number of drinks per week at both 1-month follow-up (zero drinks; RCI = 0.35) and 3-month follow-up (three drinks; RCI = –1.05). From posttreatment to 1-month follow-up, Danny’s total score on the BADS significantly decreased (total score = 83; RCI = 3.06), but significantly increased at 3-month follow-up (total score = 111; RCI = –2.09). A similar pattern of worsening (indicated by a significantly increased impairment score) from posttreatment to 1-month follow-up and improvement (indicated by a significantly decreased impairment score) from 1- to 3-month follow-up was also evident for the avoidance and rumination, work/school impairment, and social impairment BADS subscales.

#### *Case Example 2*

*Background/history.* Kate is a 22-year-old Caucasian female working on her bachelor’s degree in dietetics with a minor in global development. She enrolled in SUCCEEDS during the spring semester of her fourth year. Kate received a diagnosis of ADHD in late elementary school by her pediatrician. She has taken Vyvanse 30 mg since her second year of college, describing it as very helpful despite side effects such as appetite loss, sleep disruption, and feelings of anxiety. During her second year of college, she also received individual counseling at the UCC for a depressive episode currently in full remission. Prior to SUCCEEDS, Kate was receiving individual counseling at the UCC for personal issues—however, she voluntarily withdrew from counseling for the duration of this study. Kate met diagnostic criteria for a current mild alcohol use disorder (AUD). She reported drinking three or four nights each week, having at least

three or four drinks per occasion, and often drinking with friends or sorority members. She reported it was often difficult to stop drinking once started and had experienced some drinking consequences, such as missing class, becoming anxious, and being unable to remember what had happened the night before.

*Presenting primary concerns.* Kate's primary concerns involved time management and finding a balance among all life areas. She did not feel as though she had enough time in the day to accomplish all of her goals, often sacrificing some in order to accomplish others. Kate expressed feeling overwhelmed by her current academic workload. She maintained a 2.95 GPA, but performing well in classes often came at the cost of not engaging in other activities, such as exercising, socializing, and applying for jobs. Kate also recognized that drinking fueled her procrastination, causing her to fall behind on coursework and causing her feelings of guilt and anxiety that kept her awake until late in the night, even if she had enjoyed the drinking occasion. Kate expressed a desire to do well in classes, apply for jobs, and find a balance in her activities across life areas, yet found this difficult to achieve due to difficulty managing her time, planning long-term activities to accomplish her goals, and wanting to enjoy senior year and activities with her sorority, such as drinking at parties. Impulsivity and her desire to engage in enjoyable, but not always important or substance-free activities with friends made achieving her long-term goals difficult. Kate's approach to accomplishing her goals prior to SUCCEEDS involved scheduling a large chunk of time to complete multiple tasks at once. She felt overwhelmed by the multiple tasks she needed to complete during the large chunk of time and that resulted in procrastination and less time for other activities, such as exercising or applying for jobs. Kate admitted her current approach did not allow for her to make progress toward or achieve her long-term goals, causing her a great deal of guilt and anxiety about her future, but felt unsure of how she could improve her situation.

*Response to SUCCEEDS.* Kate attended all five sessions and remained open-minded and willing to examine with her therapist her current presenting problems and the activities she currently engaged in across life areas. During the drinking consequences feedback portion of Session 2, Kate appeared saddened by her drinking and risk of developing alcohol dependence while recalling a story of a family member with ADHD in college who was hospitalized on several occasions from drinking. She admitted that although her drinking had decreased since freshman and sophomore year, she needed to continue the reduction of her drinking and related consequences. She believed that her time could be spent doing more

productive activities other than drinking. Over the course of treatment, Kate and her therapist identified values and activities for each life area, with an emphasis on education and health. She had recognized through activity monitoring that drinking on Wednesday and Thursday nights caused her the most difficulty toward accomplishing her goals. Instead of leaving those nights open for the possibility of drinking, she started planning value-driven activities related to academics, such as working on class projects and studying. Kate also planned to run and make a healthy breakfast in the morning, both activities that she would be unable or less willing to do if she were drinking heavily the previous night. Already surrounded by a support network including family and friends, Kate incorporated them more often into her value-driven activities, such as talking about academics or discussing emotional difficulties over a healthy lunch. This added importance to social activities with friends that did not involve drinking.

At the conclusion of treatment, Kate reported activity planning as an extremely useful skill, noticing positive changes in the enjoyment and importance of her planned activities. She noticed a resulting improvement in her mood, commenting that she felt better on days that she completed her planned activities. She no longer felt as overwhelmed by her classes and had caught up on coursework by planning manageable time frames to study and complete homework that ensured she did not fall behind. Planning academic-related activities proved especially useful on nights she would typically spend drinking. Incorporating running and healthier eating into her routine also allowed for a greater sense of fulfillment and appreciation of her dietetics major coursework. Feeling less overwhelmed by academics, Kate began the process of job searching, aided by the encouragement of her family and friends. With her days and nights now filled with value-driven activities, she felt more accomplished and prepared to handle the day. She felt that she could accomplish values and activities across life areas instead of ignoring some values in order to accomplish other values. She no longer felt the need to go out or drink as much when socializing with friends, finding alternative activities to do with them instead. She had developed a reminder for herself, "What would future Kate want?" when deciding on what activities to plan and whether she felt the impulse to deviate from her plans. Kate had some feelings of regret wishing she had known about activity planning earlier in her college career, but felt humbled by the experience and was eager to continue the progress she had made throughout SUCCEEDS.

*RCI analyses.* RCI analyses indicated a clinically significant change from pre- to posttreatment for the DDQ and

one BADS subscale. Pretreatment data were collected about 2 weeks before spring break and posttreatment data were collected about 1 month before final exams during the same spring semester. Kate significantly decreased her total number of drinks per week from 20 drinks at pretreatment to 11 drinks at posttreatment (RCI = 3.14). Although the increase in BADS score was not clinically significant, she significantly decreased her BADS work/school impairment subscale score from 17 at pretreatment to 2 at posttreatment (RCI = 4.23). Although her BDI-II total score decreased from 8 to 1 from pre- to posttreatment, this change was also not significant. Kate did not complete follow-up measures at either time point—therefore, follow-up data were not available for analysis.

### Discussion

In this paper, we described the iterative process to develop the SUCCEEDS program that combines ADHD psychoeducation, BA, and brief motivational intervention treatment elements into an intervention designed for college students with ADHD engaged in problem drinking. SUCCEEDS is ultimately intended for delivery in UCCs and SHCs to maximize reach and effectiveness. We presented two case examples to illustrate the impact of SUCCEEDS on outcomes, including weekly alcohol consumption, depressive symptoms, and BA. Using RCI analyses, both case examples by the end of treatment showed significant decreases in total number of weekly drinks consumed, which is a reliable indicator of drinking-related problems. Both case examples presented without clinically significant depressive symptoms at the start of SUCCEEDS, indicated by a total score below 14 on the BDI-II. Although both cases showed decreases in depressive symptom severity, these decreases were not clinically significant. Both case examples also showed an overall increase in activation from BA measured by the BADS, but this increase was only clinically significant for one case. Our analyses on the BADS subscales also indicated a clinically significant decrease in work and school impairment for both case examples and a clinically significant decrease in social impairment for one case example.

Follow-up data at 1 and 3 months posttreatment were available for the first case example. The significant decrease in the total number of weekly drinks consumed from pretreatment to posttreatment was maintained at both the 1- and 3-month follow-up. Total score on the BADS showed a significant decrease from posttreatment to 1-month follow-up followed by a significant increase from 1- to 3-month follow-up. A similar pattern emerged for three of the four BADS subscales, indicating a significant increase in impairment from posttreatment to 1-month follow-up followed by a significant decrease in impairment from 1- to 3-month follow-up. It is also important to note that the 1-month follow-up data were

collected during final exams and that when during the semester any data are collected may influence participants' self-reports. Clinicians may want to consider how stress and academic demands change throughout the semester and the impact that may have on response to treatment. For example, additional maintenance/booster sessions related to use of BA skills may be useful for some participants during stressful times, such as final exams.

These results highlight that SUCCEEDS may not only help decrease problem drinking but also help to decrease impairment in domains especially relevant for college students with ADHD. These results help provide preliminary evidence that the SUCCEEDS program may support college students with ADHD in achieving healthier (e.g., decreased problem drinking) and more fulfilling lifestyles (e.g., decreased impairment in areas such as school, relationships, and work through engaging in goal-directed, substance-free activities).

### Feasibility and Satisfaction With SUCCEEDS

Therapists implementing SUCCEEDS included a combination of master's and doctoral students in clinical psychology, full-time research staff, and postdoctoral fellows in clinical psychology. Therapists completed training in both MI and BA provided by experts in their respective fields. In addition to receiving workshops provided by the experts, therapists were also required to read MI and BA treatment manuals and watch mock training sessions. Prior to beginning treatment with participants, therapists were cleared by senior research personnel who reviewed recordings of mock sessions. Therapists could be trained within a semester, often completing their training prior to the semester they implemented SUCCEEDS with participants. Therapists received weekly group supervision from licensed psychologists, including audiotape review and ongoing review of MI and BA skills by expert consultants during group supervision. Thus, therapist training and supervision procedures were efficient and feasible.

Both Danny and Kate completed satisfaction surveys 1 month after completing SUCCEEDS. Overall, Danny found SUCCEEDS "somewhat helpful." He reported feeling extremely comfortable with his therapist throughout SUCCEEDS. He also reported that he was likely to continue to apply what he learned in SUCCEEDS to his life and would recommend SUCCEEDS to a friend. Overall, Kate found SUCCEEDS "somewhat helpful." She also reported feeling extremely comfortable with her therapist throughout SUCCEEDS. Like Danny, Kate reported she was likely to continue to apply what she learned in SUCCEEDS to her life and would recommend SUCCEEDS to a friend. These preliminary data from the case examples appear to support client satisfaction with SUCCEEDS.

### Subsequent Modifications to SUCCEEDS

Based on what we learned from the two case examples, we have continued to make further and ongoing revisions to the SUCCEEDS manuals. The following provides an outline of revisions.

#### *Implementation of Treatment*

We learned that students should start the treatment program between the beginning of the academic semester and halfway through the semester in order to complete treatment within the course of a semester. Students are generally less available over both summer and winter breaks, making it difficult to implement SUCCEEDS with fidelity.

#### *Addressing Participant Resistance to Drinking Consequences Feedback*

In Session 2, we learned that participants may become defensive when presented with the drinking consequences feedback, so revisions were made to encourage therapists to engage in a general discussion about the more relevant drinking consequences for the participant. Many participants also endorsed symptoms of alcohol dependence (e.g., finding it difficult to limit drinking during a drinking session; Rooney et al., 2015). Therapists are encouraged to ask not only how drinking may affect living a life in accordance with one's values but also about the long-term influence that alcohol dependence can have on their values (e.g., how missing a family party due to a hangover aligns with their value of being a good son).

#### *LAVA Forms*

Manuals now include five LAVA forms with one form for each life area. Participants work with therapists during Session 3 (and Session 4 if needed) to complete each of these forms. These forms serve as a visual aid—a recommendation from the UCC—reminding participants of their values and the activities to accomplish those values.

### Limitations

Although there are several strengths to our intervention, there are some limitations that should be noted. First, we focused only on college students with ADHD and problem drinking. Although some participants did meet diagnostic criteria for other comorbid disorders (e.g., social anxiety disorder, depression), the main focus of our treatment was only this specific population that could limit the applicability of our treatment findings. Additionally, SUCCEEDS may help decrease depressive symptoms due to BA as one of its components—however, both presented case examples began SUCCEEDS without clinically significant depressive symptoms. Further research will help determine whether SUCCEEDS helps

decrease depressive symptoms, an important outcome given that up to 60% of college students with ADHD have a history of MDD (Rooney et al., 2015). Stimulant medication misuse or diversion is a concern on college campuses (Hartung et al., 2013). Although we do ask about stimulant misuse during assessment, our treatment may benefit from more careful consideration of this problem behavior in addition to drinking and illicit drug use. Additionally, our treatment may benefit from careful consideration of the positive alcohol expectancies that college students with ADHD may hold that could further contribute to negative drinking-related consequences (Elmore et al., 2018). Other health behaviors that may improve outcomes for college students with ADHD (e.g., exercise, sleep) were not factored into our analyses, although they were often listed as values consistent with the life area of health. Future investigations of the efficacy of SUCCEEDS may benefit from considering how specific activities participants are engaging in may influence outcomes. Despite the benefits of a brief treatment, our treatment may be too short and could potentially benefit from additional booster/maintenance sessions to enhance sustained outcomes for students with ADHD. Finally, therapists should be aware of the theoretical and practical similarities and differences between BA and organization, time management, and planning skills that make SUCCEEDS unique from existing, organization-based or academic interventions for ADHD.

### Conclusion

SUCCEEDS combines ADHD psychoeducation, BA, and brief motivational intervention treatment elements to decrease problem drinking in college students with ADHD. Ultimately, engagement in substance-free, goal-directed behavior leading to these changes helps college students with ADHD achieve healthier and more fulfilling lifestyles, contributing to college success. This paper presents the iterative process development of SUCCEEDS in collaboration with the UCC and SHC and two illustrative case examples. These case examples illustrated the heterogeneous population of college students with ADHD we are treating and the potential utility of this program for reducing problem drinking and functional impairment (e.g., academics). We are now testing the efficacy of SUCCEEDS compared to MI, the gold-standard intervention for college drinking, for college students with ADHD using a randomized controlled trial design.

### Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.cbpra.2019.02.003>.

## References

- Advokat, C., Lane, S. M., & Luo, C. (2011). College students with and without ADHD: Comparison of self-report of medication usage, study habits, and academic achievement. *Journal of Attention Disorders, 15*(8), 656–666. <https://doi.org/10.1177/1087054710371168>
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.
- American Psychiatric Association (2000). *Diagnostic and statistical manual of mental disorders*, 4th ed. Washington, DC: Author.
- Anastopoulos, A. D., DuPaul, G. J., Weyandt, L. L., Morrissey-Kane, E., Sommer, J. L., Rhoads, L. H., . . . Gudmundsdottir, B. G. (2016). Rates and patterns of comorbidity among first-year college students with ADHD. *Journal of Clinical Child and Adolescent Psychology, 47*(2), 1–12. <https://doi.org/10.1080/15374416.2015.1105137>
- Barkley, R. A. (2011a). *Barkley Adult ADHD Rating Scale-IV (BAARS-IV)*. New York, NY: Guilford Press.
- Barkley, R. A. (2011b). *Barkley Functional Impairment Scale (BFIS)*. New York, NY: Guilford Press.
- Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Manual for the Beck Depression Inventory-II*. San Antonio, TX: Psychological Corporation.
- Blase, S. L., Gilbert, A. N., Anastopoulos, A. D., Costello, E. J., Hoyle, R. H., Swartzwelder, H. S., & Rabiner, D. L. (2009). Self-reported ADHD and adjustment in college: Cross-sectional and longitudinal findings. *Journal of Attention Disorders, 13*(3), 297–309. <https://doi.org/10.1177/1087054709334446>
- Borsari, B., Neal, D. J., Collins, S. E., & Carey, K. B. (2001). Differential utility of three indexes of risky drinking for predicting alcohol problems in college students. *Psychology of Addictive Behaviors, 15*(4), 321–324. <https://doi.org/10.1037/0893-164X.15.4.321>
- Bravo, A. J., Pilati, A., Pearson, M. R., Mezquita, L., Ibáñez, M. I., & Ortet, G. (2018). Depressive symptoms, ruminative thinking, drinking motives, and alcohol outcomes: A multiple mediation model among college students in three countries. *Addictive Behaviors, 76*, 319–327. <https://doi.org/10.1016/j.addbeh.2017.08.028>
- Bridges, L. S., & Sharma, M. (2015). A systematic review of interventions aimed at reducing binge drinking among college students. *Journal of Alcohol and Drug Education, 59*(3), 25–47.
- Carroll, M. E., Anker, J. J., & Perry, J. L. (2009). Modeling risk factors for nicotine and other drug abuse in the preclinical laboratory. *Drug and Alcohol Dependence, 104*, S70–S78. <https://doi.org/10.1016/j.drugalcdep.2008.11.011>
- Cassar, J., Ross, J., Dahne, J., Ewer, P., Teesson, M., Hopko, D., & Lejuez, C. W. (2016). Therapist tips for the Brief Behavioural Activation Therapy for Depression—Revised (BATD-R) treatment manual practical wisdom and clinical nuance. *Clinical Psychologist, 20*(1), 46–53. <https://doi.org/10.1111/cp.12085>
- Clair-Michaud, M., Martin, R. A., Stein, L. R., Bassett, S., Lebeau, R., & Golembeske, C. (2016). The impact of motivational interviewing on delinquent behaviors in incarcerated adolescents. *Journal of Substance Abuse Treatment, 65*, 13–19. <https://doi.org/10.1016/j.jsat.2015.09.003>
- Collins, R. L., Parks, G. A., & Marlatt, G. A. (1985). Social determinants of alcohol consumption: The effects of social interaction and model status on the self-administration of alcohol. *Journal of Consulting and Clinical Psychology, 53*(2), 189–200. <https://doi.org/10.1037/0022-006X.53.2.189>
- Dahne, J., Kustanowitz, J., & Lejuez, C. (2017). Development and preliminary feasibility study of a brief behavioral activation mobile application (Behavioral Appivation) to be used in conjunction with ongoing therapy. *Cognitive and Behavioral Practice, 25*(1), 44–56. <https://doi.org/10.1016/j.cbpra.2017.05.004>
- DeMartini, K. S., & Carey, K. B. (2012). Optimizing the use of the AUDIT for alcohol screening in college students. *Psychological Assessment, 24*(4), 954–963. <https://doi.org/10.1037/a0028519>
- Dimidjian, S., Barrera, M. J., Martell, C., Muñoz, R. F., & Lewinsohn, P. M. (2011). The origins and current status of behavioral activation treatments for depression. *Annual Review of Clinical Psychology, 7*, 1–38. <https://doi.org/10.1146/annurev-clinpsy-032210-104535>
- Dozois, D. A., Dobson, K. S., & Ahnberg, J. L. (1998). A psychometric evaluation of the Beck Depression Inventory-II. *Psychological Assessment, 10*(2), 83–89. <https://doi.org/10.1037/1040-3590.10.2.83>
- DuPaul, G. J., Pinho, T. D., Pollack, B. L., Gormley, M. J., & Laracy, S. D. (2017). First-year college students with ADHD and/or LD: Differences in engagement, positive core self-evaluation, school preparation, and college expectations. *Journal of Learning Disabilities, 50*(3), 238–251. <https://doi.org/10.1177/0022219415617164>
- DuPaul, G. J., Weyandt, L. L., O'Dell, S. M., & Varejao, M. (2009). College students with ADHD: Current status and future directions. *Journal of Attention Disorders, 13*(3), 234–250.
- Elmore, A., Nikolas, M., & Canu, W. (2018). Positive alcohol expectancies mediate associations between ADHD behaviors and alcohol-related problems among college students. *ADHD Attention Deficit and Hyperactivity Disorders, 10*(1), 65–75. <https://doi.org/10.1007/s12402-017-0231-z>
- Ewing, S. F., LaChance, H. A., Bryan, A., & Hutchison, K. E. (2009). Do genetic and individual risk factors moderate the efficacy of motivational enhancement therapy? Drinking outcomes with an emerging adult sample. *Addiction Biology, 14*(3), 356–365. <https://doi.org/10.1111/j.1369-1600.2009.00149.x>
- Fleming, A. P., McMahon, R. J., Moran, L. R., Peterson, A. P., & Dreesen, A. (2015). Pilot randomized controlled trial of dialectical behavior therapy group skills training for ADHD among college students. *Journal of Attention Disorders, 19*(3), 260–271. <https://doi.org/10.1177/1087054714535951>
- Foster, D. W., Neighbors, C., & Krieger, H. (2015). Alcohol evaluations and acceptability: Examining descriptive and injunctive norms among heavy drinkers. *Addictive Behaviors, 42*, 101–107. <https://doi.org/10.1016/j.addbeh.2014.11.008>
- Gilbert, L. G., Dennhardt, A. A., & Murphy, J. G. (2014). A behavioral economic analysis of the effect of next day responsibilities on drinking. *Psychology of Addictive Behaviors, 28*(4), 1253–1258. <https://doi.org/10.1037/a0038369>
- Hartung, C. M., Canu, W. H., Cleveland, C. S., Lefler, E. K., Mignogna, M. J., Fedele, D. A., . . . Clapp, J. D. (2013). Stimulant medication use in college students: Comparison of appropriate users, misusers, and nonusers. *Psychology of Addictive Behaviors, 27*(3), 832–840. <https://doi.org/10.1037/a0033822>
- Jacobson, N. S., Follette, W. C., & Revenstorf, D. (1984). Psychotherapy outcome research: Methods for reporting variability and evaluating clinical significance. *Behavior Therapy, 15*, 336–352. [https://doi.org/10.1016/S0005-7894\(84\)80002-7](https://doi.org/10.1016/S0005-7894(84)80002-7)
- Kanter, J. W., Mulick, P. S., Busch, A. M., Berlin, K. S., & Martell, C. R. (2007). The Behavioral Activation for Depression Scale (BADS): Psychometric properties and factor structure. *Journal of Psychopathology and Behavioral Assessment, 29*(3), 191–202. <https://doi.org/10.1007/s10862-006-9038-5>
- Kessler, R. C., Green, J. G., Adler, L. A., Barkley, R. A., Chatterji, S., Faraone, S. V., . . . Van Brunt, D. L. (2010). Structure and diagnosis of adult attention-deficit/hyperactivity disorder: Analysis of expanded symptom criteria from the Adult ADHD Clinical Diagnostic Scale. *Archives of General Psychiatry, 67*(11), 1168–1178. <https://doi.org/10.1001/archgenpsychiatry.2010.146>
- LaCount, P. A., & Hartung, C. M. (2018). Physical exercise interventions for emerging adults with attention-deficit/hyperactivity disorder (ADHD). *The ADHD Report, 26*(5), 1. <https://doi.org/10.1521/adhd.2018.26.5.1>
- LaCount, P. A., Hartung, C. M., Shelton, C. R., Clapp, J. D., & Clapp, T. W. (2015). Preliminary evaluation of a combined group and individual treatment for college students with attention-deficit/hyperactivity disorder. *Cognitive and Behavioral Practice, 22*(2), 152–160. <https://doi.org/10.1016/j.cbpra.2014.07.004>
- Langberg, J. M., Dvorsky, M. R., Kipperman, K. L., Molitor, S. J., & Eddy, L. D. (2015). Alcohol use longitudinally predicts adjustment and impairment in college students with ADHD: The role of executive functions. *Psychology of Addictive Behaviors, 29*(2), 444–454. <https://doi.org/10.1037/adb0000039>
- Larimer, M. E., & Cronce, J. M. (2007). Identification, prevention, and treatment revisited: Individual-focused college drinking prevention strategies 1999–2006. *Addictive Behaviors, 32*(11), 2439–2468. <https://doi.org/10.1016/j.addbeh.2007.05.006>

- Lejuez, C. W., Hopko, D. R., Aciermo, R., Daughters, S. B., & Pagoto, S. L. (2011). Ten year revision of the brief behavioral activation treatment for depression: Revised treatment manual. *Behavior Modification, 35*(2), 111–161. <https://doi.org/10.1177/0145445510390929>
- Miller, W. R., & Rollnick, S. (2013). *Motivational interviewing: Helping people change* (3rd ed.). New York, NY: Guilford Press.
- Mun, E., de la Torre, J., Atkins, D. C., White, H. R., Ray, A. E., Kim, S., . . . Huh, D. (2015). Project INTEGRATE: An integrative study of brief alcohol interventions for college students. *Psychology of Addictive Behaviors, 29*(1), 34–48. <https://doi.org/10.1037/adb0000047>
- Murphy, J. G., Correia, C. J., Colby, S. M., & Vuchinich, R. E. (2005). Using behavioral theories of choice to predict drinking outcomes following a brief intervention. *Experimental and Clinical Psychopharmacology, 13*(2), 93–101. <https://doi.org/10.1037/1064-1297.13.2.93>
- Murphy, J. G., Skidmore, J. R., Dennhardt, A. A., Martens, M. P., Borsari, B., Barnett, N. P., & Colby, S. M. (2012). A behavioral economic supplement to brief motivational interventions for college drinking. *Addiction Research and Theory, 20*(6), 456–465. <https://doi.org/10.3109/16066359.2012.665965>
- Murphy, K. R., Barkley, R. A., & Bush, T. (2002). Young adults with attention deficit hyperactivity disorder: Subtype differences in comorbidity, educational and clinical history. *Journal of Nervous and Mental Disease, 190*(3), 147–157. <https://doi.org/10.1097/00005053-200203000-00003>
- National Center for Education Statistics. (2018). Table 302.60: Percentage of 18- to 24-year-olds enrolled in degree-granting postsecondary institutions, by level of institution and sex and race/ethnicity of student: 1970 through 2015. In *Digest of education statistics* (52nd ed.). Washington, DC: U.S. Department of Education, National Center for Education Statistics. Retrieved from [https://nces.ed.gov/programs/digest/d16/tables/dt16\\_302.60.asp](https://nces.ed.gov/programs/digest/d16/tables/dt16_302.60.asp)
- Neudecker, C., Mewes, N., Reimers, A. K., & Woll, A. (2015). Exercise interventions in children and adolescents with ADHD: A systematic review. *Journal of Attention Disorders, 1*–18. <https://doi.org/10.1177/1087054715584053>
- Owens, J. S., Goldfine, M. E., Evangelista, N. M., Hoza, B., & Kaiser, N. M. (2007). A critical review of self-perceptions and the positive illusory bias in children with ADHD. *Clinical Child and Family Psychology Review, 10*(4), 335–351. <https://doi.org/10.1007/s10567-007-0027-3>
- Prevatt, F., Dehili, V., Taylor, N., & Marshall, D. (2015). Anxiety in college students with ADHD: Relationship to cognitive functioning. *Journal of Attention Disorders, 19*(3), 222–230. <https://doi.org/10.1177/1087054712457037>
- Pryor, J. H., Hurtado, S., DeAngelo, L., Palucki Blake, L., & Tran, S. (2010). *The American freshman: National norms fall 2010*. Los Angeles, CA: Higher Education Research Institute, UCLA.
- Rappoport, M. D., Tucker, S. B., DuPaul, G. J., Merlo, M., & Stoner, G. (1986). Hyperactivity and frustration: The influence of control over and size of rewards in delaying gratification. *Journal of Abnormal Child Psychology, 14*(2), 191–204. <https://doi.org/10.1007/BF00915440>
- Reynolds, E. K., MacPherson, L., Tull, M. T., Baruch, D. E., & Lejuez, C. W. (2011). Integration of the Brief Behavioral Activation Treatment for Depression (BATD) into a college orientation program: Depression and alcohol outcomes. *Journal of Counseling Psychology, 58*(4), 555–564. <https://doi.org/10.1037/a0024634>
- Rooney, M., Chronis-Tuscano, A., & Yoon, Y. (2012). Substance use in college students with ADHD. *Journal of Attention Disorders, 16*(3), 221–234. <https://doi.org/10.1177/1087054710392536>
- Rooney, M., Chronis-Tuscano, A. M., & Huggins, S. (2015). Disinhibition mediates the relationship between ADHD and problematic alcohol use in college students. *Journal of Attention Disorders, 19*(4), 313–327. <https://doi.org/10.1177/1087054712459885>
- Rowland, A. S., Skipper, B., Rabiner, D. L., Umbach, D. M., Stallone, L., Campbell, R. A., . . . Sandler, D. P. (2008). The shifting subtypes of ADHD: Classification depends on how symptom reports are combined. *Journal of Abnormal Child Psychology, 36*(5), 731–743. <https://doi.org/10.1007/s10802-007-9203-7>
- Saunders, J. B., Aasland, O. G., Babor, T. F., De La Fuente, J. R., & Grant, M. (1993). Development of the Alcohol Use Disorders Identification Test (AUDIT): WHO Collaborative Project on Early Detection of Persons With Harmful Alcohol Consumption—II. *Addiction, 88*(6), 791–804. <https://doi.org/10.1111/j.1360-0443.1993.tb02093.x>
- Shemmassian, S. K., & Lee, S. S. (2012). Comparing four methods of integrating parent and teacher symptom ratings of attention-deficit/hyperactivity disorder (ADHD). *Journal of Psychopathology and Behavioral Assessment, 34*(1), 1–10. <https://doi.org/10.1007/s10862-011-9262-5>
- Sobanski, E., Brüggemann, D., Alm, B., Kern, S., Deschner, M., Schubert, T., . . . Rietschel, M. (2007). Psychiatric comorbidity and functional impairment in a clinically referred sample of adults with attention-deficit/hyperactivity disorder (ADHD). *European Archives of Psychiatry and Clinical Neuroscience, 257*(7), 371–377. <https://doi.org/10.1007/s00406-007-0712-8>
- Steer, R. A., & Clark, D. A. (1997). Psychometric characteristics of the Beck Depression Inventory—II with college students. *Measurement and Evaluation in Counseling and Development, 30*(3), 128.
- Stein, L. R., Lebeau, R., Colby, S. M., Barnett, N. P., Golembske, C., & Monti, P. M. (2011). Motivational interviewing for incarcerated adolescents: Effects of depressive symptoms on reducing alcohol and cannabis use after release. *Journal of Studies on Alcohol and Drugs, 72*(3), 497–506. <https://doi.org/10.15288/jsad.2011.72.497>
- Volkow, N. D., Wang, G., Newcorn, J. H., Kollins, S. H., Wigal, T. L., Telang, F., . . . Swanson, J. M. (2011). Motivation deficit in ADHD is associated with dysfunction of the dopamine reward pathway. *Molecular Psychiatry, 16*(11), 1147–1154. <https://doi.org/10.1038/mp.2010.97>
- Weiss, M. D. (2000). *Weiss Functional Impairment Rating Scale (WFIRS) Self-Report*. Vancouver, Canada: University of British Columbia Retrieved from [naceonline.com/AdultADHDtoolkit/assessmenttools/wfirs.pdf](http://naceonline.com/AdultADHDtoolkit/assessmenttools/wfirs.pdf)
- Weyandt, L. L., & DuPaul, G. J. (2008). ADHD in college students: Developmental findings. *Developmental Disabilities Research Reviews, 14*(4), 311–319. <https://doi.org/10.1002/ddrr.38>
- Whisman, M. A., & Richardson, E. D. (2015). Normative data on the Beck Depression Inventory—Second Edition (BDI-II) in college students. *Journal of Clinical Psychology, 71*(9), 898–907. <https://doi.org/10.1002/jclp.22188>

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