# A campus-based spiritual-mind-body prevention intervention against symptoms of depression and trauma; an open trial of awakened awareness

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ABSTRACT

Increasing prevalence and severity of undergraduate psychopathology alongside evidence linking spiritual well-being to the prevention of psychopathology has led to the development of campus-supported spiritual-mind-body (SMB) wellness interventions, which have yet to be formally tested in either open or controlled clinical trials. The primary aim of this open trial was to evaluate the feasibility and acceptability of an eight-session SMB wellness intervention, Awakened Awareness for Adolescents (AA-A), to support the developmental task of spiritual development and individuation. Undergraduates aged 18–24 ($N = 77$) from two sister universities participated in an open trial study. Clinical and spiritual well-being variables were assessed before and after delivery of the AA-A intervention. Paired samples t-tests were conducted to examine pre-to-post-intervention differences. Multiple regression models were conducted to estimate if post-intervention psychopathology symptoms were predicted by a change in spiritual well-being across the intervention. Analyses of student self-reported psychopathology indicated significant improvements in depression, anxiety, and post-traumatic stress (PTS) symptoms as well as spiritual well-being variables from pre-to-post-intervention. Furthermore, improvements in spiritual well-being predicted improvements in depression, anxiety, and PTS. AA-A appears feasible and acceptable within a culturally, racially, and religiously diverse sample of college students in a secular university. Additionally, this study suggests that AA-A may initiate recovery from moderate forms of psychological distress by addressing pre-existing spiritual distress. SMB interventions may offer novel targeted prevention approaches by providing support for the developmental tasks of identity development and spiritual individuation within the college environment.

## 1. Introduction

### 1.2. Undergraduate mental health and identity formation

Three-quarters of first onset of lifetime mental health disorders coincide with a developmental period during which 42% of 18–25-year-olds attend college (Institute for Health Metrics & Evaluation, 2015; Kessler et al., 2005; McGorry & Goldstone, 2011). Recent epidemiological data suggest that one-fifth of college students meet the criteria for a 12-month DSM-IV/ICD diagnosis, yet over 80% of these mental illnesses go untreated (Auerbach et al., 2018). Across undergraduate generational cohorts, rates of mental illness have significantly increased over the past two decades. Reported increases in psychopathology have led to current rates of anxiety (60.7%), depression (48.6%), and

moderate to severe psychological distress (59.3%), binge drinking (39.3%), illicit substance use (26.3%), symptoms of bipolar disorder (24%), and suicidal thoughts (20.9%) (American College Health Association [ACHA], 2018; American Psychological Association [APA], 2018; Center for Collegiate Mental Health [CCMH], 2019; Lipson et al., 2019; Ross et al., 2017). Further, the rates of students who reported being severely depressed, engaging in intentional self-injury, and active suicidal ideation or attempting suicide doubled between 2012 – 2018 (Duffy et al., 2019). In 2017, suicide was the leading cause of death among late adolescent and emerging adults (age 15 - 24) at 14.46%, and the second leading cause of death on college campuses in the U.S., with 1,100 students taking their lives (Jed Foundation, 2020).

The etiologies of these mental health disorders have been linked to challenges within the developmental stage between adolescence and

adulthood known as "emerging adulthood" that is marked by a prolonged period of growth, uncertainty, change, and developmental processes such as individuation and identity development (Arnett, 2000; Arnett, 2014; Arnett & Tanner, 2006; Bettmann et al., 2016; Henin & Berman, 2016; Jung et al., 2013; Seiffge-Krenke & Weitkamp, 2019; Sussman & Arnett, 2014; Tanner, 2015). Within this identity formation, a normative developmental process of spiritual individuation can be fostered or undermined by the environment. Spiritual individuation is conceptualized as the "integration of existential and spiritual experience" (Miller & Barton, 2015, p. 817) in the developmental initiation of deeply personal beliefs, including searching for meaning and an upending of individual anchors of familial, ethical, spiritual, and religious beliefs (Arnett, 2000; Barry & Abo-Zena, 2014; Benson et al., 2012; Braskamp, 2008; Desrosiers et al., 2011; Fowler, 1981; Hardy et al., 2011; Marcia, 1980). However, facing the existential and transitional questions inherent to many individuals' experiences during emerging adulthood without support or guidance may contribute to related mood changes that appear as the first onset of psychiatric illness (Barton & Miller, 2015; Miller, 2013). Supported emerging adults forge a sense of personal spirituality - conceptualized here as an awareness of a two-way relationship with a Higher Power and living in a sacred world (Barton & Miller, 2015) – which is recognized as adaptive in the context of healthy and intact identity formation (Ebstyne King, 2003; McNamara Barry et al., 2010; Oppong, 2013) and may confer protection against recurrent forms of psychopathology. Thus, creating on-campus opportunities for emerging adult undergraduates to explore and expand their sense of personal spirituality may support spiritual individuation and enhance overall student wellness.

### 1.3. Spiritual-mind-body wellness

A Spiritual-Mind-Body (SMB) model of health promotion is an integrative approach to health and well-being that includes the spiritual dimension (Chan et al., 2002). Navigating emerging adult developmental processes can be supported by building inner resources through SMB wellness interventions (Fenzel & Richardson, 2021; Idoate et al., 2019; Mastropieri et al., 2015; Park et al., 2018; Wood et al., 2017), yet, to date, no studies have formally tested these interventions in either open or controlled clinical trials on college campuses.

Of immediate relevance to the utility of SMB wellness interventions for emerging adult college students is the recognition of spirituality as the fourth dimension of health alongside social, emotional/mental, and physical domains (Michaelson et al., 2016), with robust evidence that personal spirituality is positively associated with increased life satisfaction and well-being and offers resilience against risk for psychiatric and behavioral problems (Gerson, 2018; Nadal et al., 2018; Yonker et al., 2012; Yotter & Swank, 2017). Clinical science has shown personal spirituality during emerging adulthood to be a highly protective factor against the risk for depression, associated with a 40 - 80% decrease in risk for clinical depression later in life (Bonelli et al., 2012; Miller, 2013; Miller et al., 2000; Svob et al., 2016). The effects of spirituality in college students have been negatively and significantly correlated with suicidal behaviors via mechanisms of reduced anxiety and depression symptoms (Burlaka et al., 2020). The biological substrates of this protective benefit have been studied among emerging adults with fMRI studies that elucidate a common neurobiology of personal spirituality whether experienced within the religious tradition (in prayer, ceremony) or outside of it (spirituality found in nature, family, or art) (Miller et al., 2019) as well as studies that show a shared neuroanatomical profile of risk for depression and conferral of protection by spirituality (Miller & Barton, 2015).

Additionally, spirituality may offer long-term recovery from and prevention against the chronicity of recurrent psychiatric and behavioral health conditions among emerging adults. For example, highly spiritual emerging adults with co-occurring substance use disorders are at reduced risk for relapse and more likely to achieve sustained recovery

than less spiritual peers (Laudet et al., 2015; Salas-Wright et al., 2013; Sukhwal & Suman, 2013; Tonigan et al., 2013; Witkiewitz et al., 2016). Indeed, spirituality has been identified as a buffer between trauma exposure and the sequelae of PTSD among college students (Fenzel & Richardson, 2021; Vieselmeyer et al., 2017; Zhang et al., 2020; Zhang et al., 2021). Further, spirituality may indirectly prevent trauma-related morbidity and mortality, as it is consistently positively associated with post-traumatic growth among emerging adults, which, in turn, moderates suicide risk among trauma-exposed undergraduates (Meyerson et al., 2011; Tedeschi & Calhoun, 1995; Sheline & Rosen, 2017; Zamora et al., 2017). This evidence suggests a spiritual, ameliorative response to trauma, which, if supported, may have long-term positive health outcomes (Brooks et al., 2018; Michaelson et al., 2016).

We add to this rationale for on-campus interventions that promote and support spiritual development and individuation, the evidence that emerging adulthood is perhaps the most critical period for healthy spiritual development (Finkelstein-Fox et al., 2018; Roming & Howard, 2019). Despite notable drops in religiosity among American co-eds, 49% of emerging adults report feeling "a sense of spiritual peace and well-being" at least once a week, a trend increasing over time and age (Pew Research Center, 2015).

Given the protection that spirituality offers against psychological distress during emerging adulthood and the unique and critical opportunity for a healthy emergence of personal spirituality during this period, campus-supported SMB wellness interventions may function as a prevention approach to support spiritual health and, subsequently, undergraduate mental health and well-being.

### 1.4. SMB wellness intervention as on-campus prevention

The long-term prognosis of unprevented or untreated mental illness in college students includes adverse proximal and distal academic, economic, and interpersonal consequences (Alonso et al., 2018; Bruffaerts et al., 2018), with the risk for these outcomes significantly improved by prevention or early treatment (Arango et al., 2018; Kessler et al., 2001). However, the consistently increasing matriculation rates and prevalence of clinical and subclinical levels of distress combined with the potential for impulsive and fatal self-harm have overburdened campus mental health services (Auerbach et al., 2016; CCMH, 2019; Oswalt et al., 2020). Low rates of care utilization and compliance, particularly among undergraduates from ethnic/racial minorities, combined with this bottleneck of services have resulted in calls for innovative, inclusive, and low-threshold prevention approaches for undergraduate students (Bruffaerts et al., 2019; Ebert et al., 2019).

College administrators are working to address deficiencies in mental health services with the expansion of on-campus resources that include prevention approaches (Downs et al., 2018; Mitchell et al., 2019; O'Brien et al., 2013). Because of the emergent mental health crisis, targeted prevention programs are needed in mental health services on college campuses (Burke et al., 2020; Cooper et al., 2008; Golightly et al., 2017). According to Gordon (1983) prevention is defined as measures that occur before the first onset of a disease, aimed to reduce risk of disease. Prevention can be divided into "universal" and "targeted" groups (Mrazek & Haggerty, 1994; Munoz et al., 1996). Prevention programs are either delivered universally (to a whole group) or are targeted towards those with increased risk factors. Meta-analytic reviews have shown significant health benefits of targeted prevention approaches (e.g., mental health skills, stress management courses, mindfulness) for emerging adults, including reductions in rates of academic, social, and behavioral impairment (Conley et al., 2017; Halladay et al., 2019; Singh et al., 2020; Winzer et al., 2018). In recent years, universities have expanded wellness initiatives with aims to ameliorate subclinical symptoms of psychopathology and promote meaning and resilience (Aller et al., 2021; Bruffaerts et al., 2019; Dvořáková et al., 2017; Wolf et al., 2014). This cultural shift has expanded mental health and wellness services on college campuses to include prevention

approaches that integrate spirituality into mind-body practices such as contemplative, body-based and visualization practice (Adams et al., 2000; Ewing et al., 2007; Oman et al., 2008). These efforts have provided emerging evidence that SMB wellness interventions as targeted prevention within university settings may help to reduce the prevalence of disease and somatization and enhance overall mental and physical health among students (Baldwin et al., 2017; Lothes, 2020; Novak et al., 2020; Slavin et al., 2014). A recent open trial of aggregate spiritual wellness interventions offers support for: 1) utility of wellness programming on college campuses; 2) importance of on-campus models of wellness to include spiritual wellness and 3) the use of spiritual wellness interventions as a response to psychological and spiritual distress (Scalora et al., 2020). Thus, we propose Awakened Awareness for Adolescents (AA-A), an intervention targeting enhancing spiritual wellness and perception among adolescents and emerging adults, may foster healthy spiritual development among undergraduates who may otherwise be at risk for developmentally relevant psychopathology.

### 1.5. Awakened awareness for adolescents

Confusion in our broader culture between innate personal spirituality and purely environmental religious observance (Kendler et al., 1997, 1999) has slowed the proliferation of spiritually-based treatment and prevention for youth, despite strong evidence of protective benefits. fMRI research now identifies common neural correlates of the seat of perception of personal spirituality across religious and nonreligious expressions of spiritual life (McClintock et al., 2019; Miller et al., 2019) that might be supported or stimulated by foundationally SMB interventions. Awakened Awareness (Miller, 2005, 2011) aims to enhance perception and awareness, thereby promoting a personal spirituality that is inclusive of any religious tradition as well as those who identify as Spiritual But Not Religious (SBNR) and humanists (who find spirituality in relationships with fellow human beings). Based upon twenty years of development in a secular and diverse setting, the foundational AA model has been delivered to private and public organizations, treatment settings, teachers and school administrators, mental health and addiction professionals, and homeless young adults (Mastropieri et al., 2015; Miller, 2011; Miller & Athan, 2007; Schussel & Miller, 2013).

Common to AA and AA-A is a profound perceptual shift from a narrow perception emphasizing external achievement to an enhanced capacity to interact with an awakened perspective (Miller, 2011). Awakened Awareness is framed as a way of seeing, being, and connecting built on the perceptual building blocks of neuroscience and related epidemiological findings on the protective benefits of personal spirituality. AA emphasizes *in vivo* practices that:1) attune participants to an expanded sense of the self as connected with one's higher self and Higher Power/Transcendent (Awakened Awareness), 2) build awareness of the confluence between "inner life" and "outer life" events, and 3) cultivate spiritual awareness as a guide in perception and decision making. In its full model, AA draws on six progressive phases: 1) validity of internal awareness of experience, 2) appreciation of whole self and whole other, 3) synchronicity: sacred symbolic living, 4) building transcendent capacity through guided spiritual visualization and practices, 5) awareness of a sacred, loving, and guiding universe, in and through daily life, and 6) dialectical living in the universe, to move and to act on Awakened Awareness. With these six phases in mind, the AA model was adapted to target undergraduate students' developmental needs.

The adaptation of AA to AA-A is informed by empirical research on spiritual development that suggests adolescence and emerging adulthood are periods marked by spiritual individuation. Accordingly, AA-A focuses intensely on building a personal spiritual identity and more substantive interconnectedness with others — working on spiritual individuation both individually and in dialogue with peers and group facilitators. AA-A targets spiritual individuation through the formation of a spiritual ontology; that is, the development of a spiritual perspective

**Table 1**
Baseline sample characteristics.

| Demographics | M | SD | /n |
|---|---|---|---|
| Age | 19.5 | 1.5 | 77 |
| | n | % | /n |
| Gender | | | |
| Female | 62 | 80.5 | 77 |
| Male | 12 | 15.6 | 77 |
| Non-binary | 3 | 3.9 | 77 |
| Sexual Orientation | | | |
| Straight | 48 | 62.3 | 77 |
| Gay | 6 | 7.8 | 77 |
| Bisexual | 16 | 20.8 | 77 |
| Questioning | 2 | 2.6 | 77 |
| Queer/Pansexual | 8 | 4 | 77 |
| Prefer not to answer | 6 | 3 | 77 |
| Grade Point Average | | | |
| 1.0-1.99 | 1 | 1.3 | 77 |
| 2.0-2.99 | 1 | 1.3 | 77 |
| 3.0-3.99 | 53 | 68.9 | 77 |
| 4.0-4.99 | 3 | 3.9 | 77 |
| n/a | 19 | 24.7 | 77 |
| Employment | | | |
| Yes | 32 | 41.6 | 77 |
| No | 45 | 58.4 | 77 |
| Household Income | | | |
| Above 200,000 USD | 15 | 19.5 | 77 |
| 100,000-200,000 USD | 11 | 14.3 | 77 |
| 75,000-100,000 USD | 14 | 18.2 | 77 |
| 50,000-75,000 USD | 9 | 11.7 | 77 |
| 30,000-50,000 USD | 13 | 16.9 | 77 |
| 15,000-30,000 USD | 8 | 10.4 | 77 |
| Less than 15,000 USD | 3 | 3.9 | 77 |
| NA | 4 | 5.2 | 77 |
| Marital Status | | | |
| Married | 1 | 1.3 | 77 |
| Single – Never Married | 76 | 98.7 | 77 |
| International Status | | | |
| Yes | 17 | 22.1 | 77 |
| No | 60 | 77.9 | 77 |
| Race/Ethnicity | | | |
| American Indian | 1 | 1.3 | 77 |
| African American/Black | 14 | 18.2 | 77 |
| Asian | 13 | 16.9 | 77 |
| Latino/a | 6 | 7.8 | 77 |
| White/Caucasian | 32 | 41.6 | 77 |
| Multiracial | 10 | 13 | 77 |
| Other | 1 | 1.3 | 77 |
| **Clinical Characteristics** | | | |
| Elevated depression[a] | 27 | 35.1 | 77 |
| Elevated anxiety[b] | 29 | 37.7 | 77 |
| Elevated post-traumatic stress[c] | 57 | 74 | 77 |
| **Spiritual Characteristics** | | | |
| Religious Affiliation | | | |
| Buddhist | 1 | 1.3 | 77 |
| Eastern Orthodox | 2 | 2.6 | 77 |
| Hindu | 1 | 1.3 | 77 |
| Jewish | 4 | 5.2 | 77 |
| Muslim | 2 | 2.6 | 77 |
| Protestant Christian | 9 | 11.7 | 77 |
| Roman Catholic | 9 | 11.7 | 77 |
| Other | 10 | 13 | 77 |
| None | 39 | 50.6 | 77 |
| Importance of Religion or Spirituality | | | |
| Highly Important | 13 | 16.9 | 77 |
| Moderately Important | 24 | 31.2 | 77 |

*(continued on next page)*

**Table 1** (*continued*)

| Demographics | *M* | SD | /n |
|---|---|---|---|
| Slightly Important | 22 | 28.6 | 77 |
| Not Important at All | 18 | 23.4 | 77 |
| | | | |
| Importance of Religion | | | |
| Highly Important | 3 | 11.1 | 27 |
| Moderately Important | 6 | 22.2 | 27 |
| Slightly Important | 4 | 14.8 | 27 |
| Not Important at All | 14 | 51.9 | 27 |
| | | | |
| Importance of Spirituality | | | |
| Highly Important | 8 | 29.6 | 27 |
| Moderately Important | 9 | 33.3 | 27 |
| Slightly Important | 5 | 18.5 | 27 |
| Not Important at All | 5 | 18.5 | 27 |

[a] PHQ-9 score $\geq$ 10.
[b] GAD-7 score $\geq$ 10.
[c] PCL-C score $\geq$ 30.

that is core to a student's personal lived reality to broaden awareness from solely material outcomes and outward accomplishments (Achievement Awareness) to include Awakened Awareness, a recognition of the essential significance of all life experiences, for improved functioning and health.

### 1.6. Current study

The primary aims of this study were to assess the feasibility and acceptability of an eight-week SMB wellness intervention delivered on two religiously and culturally diverse college campuses to undergraduate students. The secondary aim was to examine pre-post changes in psychopathology and spiritual wellbeing variables across the intervention. As an exploratory aim to provide support of the association between participation in AA-A and improvements in psychological wellbeing, we examine associations between changes in spiritual wellbeing variables and post-test scores on psychopathology symptom measures.

## 2. Methods

### 2.1. Study design

An open trial format (Craig & Austin, 2016; Ward-Ciesielski, 2013) was utilized due to the gaps in extant SMB wellness intervention literature, to evaluate the feasibility and acceptability of the delivery of an SMB wellness intervention that incorporated a pre-post analysis of a treatment group without a control group. Assessments were administered at the pre-intervention orientation (week 0) and post-intervention (week 9) following the last group session.

Eight AA-A groups were offered across Fall 2018, Spring 2019, and Fall 2019 semesters.

### 2.2. Participants and procedures

Participant demographics are presented in Table 1. Participants were undergraduates ages 18-24, attending two sister undergraduate universities in the urban northeast of the United States. The exclusionary study criterion was previous participation in the AA-A intervention study. Participants (AA-A group; *N* = 77) were non-clinically referred and recruited through university wellness emailers, tabling at residence lounges, and university social media. Students registered for free on Eventbrite (an online event management platform) for a required informational orientation session to learn about the AA-A program and participation in the research study. At the end of the informational session, students were given the option to participate in the intervention

and enroll in the study. To increase ecological validity and based on findings at the national level showing: 1) difficulties in engaging and retaining undergraduates in prevention efforts in mental health centers (Czyz et al., 2013; Eisenberg et al., 2011; Pedrelli et al., 2015; Stebleton et al., 2014) and 2) the established feasibility and indicated dosage of other indicated prevention programs (Bai et al., 2020; Burke et al., 2020; Conley et al., 2017; Dvořáková et al., 2017; Rohde et al., 2018), AA-A groups were conducted in residence halls and student centers in the evening. AA-A sessions were conducted by four pre-doctoral authors (S. S., M.A., A.C., & E.M.), all of whom had previous training in teaching contemplative practice and were supervised by a licensed clinical psychologist. Institutional Review Board approval was obtained to conduct this research with university students, and all participants provided written informed consent.

### 2.3. AA-A intervention

AA-A is an eight-session, 90-minute, in-person SMB group wellness intervention. Foundational to the AA-A intervention are 1) guided meditation, 2) spiritual visualization (SV), 3) group process, dyadic practices with peers (becoming "spiritually multi-lingual"), and the practice of sharing challenges within the interconnectedness of peers, and 4) building a spiritual dialectical stance (i.e., coping with difficult experiences and relationships alongside a perception of a higher self, Higher Power/ultimate life force (within or outside of a faith tradition). Each session consisted of: (a) grounding meditation; (b) written reflection about the meditation practice and the previous week's material; (c) didactic on primary content; (d) experiential practice related to didactic; (e) dyad sharing (f) group reflection (g) summary and closing.

### 2.4. Measurement

#### 2.4.1. Clinical measures

The Patient Health Questionnaire (PHQ-9; Kroenke et al., 2001) was used to assess depression symptom severity during the past two weeks. This 9-item self-report measure has a clinical cutoff of $\geq$ 10 to screen for moderate and higher levels of depressive symptoms. This scale has shown evidence of good reliability, validity, and sensitivity to change. High internal consistency ($\alpha$ = .86 -.89) and test-retest reliability, ($r$ = .84), across 48 h were found in two validation studies in health care settings (Kroenke et al., 2001). In this study, the PHQ-9 demonstrated high internal consistency ($\alpha$ = .82).

The Generalized Anxiety Disorder Questionnaire (GAD-7; Spitzer et al., 2006) was used to assess the severity of generalized anxiety symptoms. This 7-item self-report measure has been validated and shown to be sensitive and specific (.82) to Generalized Anxiety Disorder (cut point $\geq$ 10) (Williams, 2014). This scale has shown evidence of high internal consistency ($\alpha$ = .89) (Löwe et al., 2008). In this study, the GAD-7 demonstrated high internal consistency ($\alpha$ = .92).

The PTSD Checklist-Civilian (PCL-C; Weathers et al., 1993) was used to assess post-traumatic stress (PTS) symptoms. This 17-item self-report measure has shown high internal consistency ($\alpha$ = .94) and test-retest reliability ($r$ = .88–.92) (Ruggiero et al., 2003). Cut points $\geq$ 30 in a civilian population indicate an elevation for screening in primary care settings (Weathers et al., 1993). In this study, the PCL-C demonstrated high internal consistency ($\alpha$ = .90).

#### 2.4.2. Spiritual well-being measures

The Delaney Spirituality Scale (SS; Delaney, 2005) was used to assess levels of personal spirituality. Scores indicate how important spirituality is to an individual. The SS has shown high internal consistency ($\alpha$ = .94) (Delaney, 2005). In this study, the SS demonstrated high internal consistency ($\alpha$ = .94).

The Spiritual Transformation Scale (STS; Cole et al., 2008) was used to assess spiritual growth (SG) and spiritual decline (SD) as a response to life events. This 40-item self-report measures spiritual changes across

time; higher scores on each subscale represent increased spiritual growth and spiritual decline. The STS has shown high internal consistency for both SG (α = .98) and SD (α = .86). In this study, the STS demonstrated high internal consistency on SG (α = .98) and SD (α = .86).

A measure was developed to assess Achievement and Awakened Awareness oriented perspectives, as no scale of this construct previously existed. The Awakened Awareness scale (AA) is a 10-item scale, measured on a 5-point Likert scale, ranging from 1 (*Not at all)* to 5 (*Totally*). The scale has demonstrated high internal consistency in a large online sample of college-age participants (*N* = 742; α = .82) as well as in the current study sample (α = .81), with the publication of the validity forthcoming (Ford et al., under review). Higher sum scores indicate higher levels of awakened awareness.

### 2.4.3. Qualitative post-evaluation questionnaire

To assess the acceptability of the AA-A intervention, the following questions were included on a program evaluation form: 1) What elements of the program did you find most meaningful or helpful? 2) Did you notice any changes in yourself over the 8-weeks, if so, what were they? 3) What did you gain from Awakened Awareness that was unexpected? 4) What was your takeaway?

### 2.5. Data analysis

In this study, analyses were conducted with all participants who began sessions and completed pre-and-posttest measures. Chi-square analysis was conducted to compare the demographics of those who engaged in the intervention (using a four-session cut-off) with those who did not engage in the intervention.

### 2.5.1. Aim 1: feasibility and acceptability

Feasibility of the AA-A intervention was supported through multiple sources of data. To assess feasibility, we calculated enrollment (completed informed consent and baseline assessment), engagement (attended half or more of the sessions), and retention rates (completed pre-post assessment). Based on previously observed rates of enrollment, engagement, and retention in an aggregate study of spiritual wellness programs (Scalora et al., 2020), it was established a priori that the intervention would be deemed feasible if ≥ 75% of students who initially registered for the required orientation enrolled in the intervention, ≥ 50% engaged, and ≥ 50% completed pre-and-post assessment.

To assess the acceptability of AA-A, the authors of this paper examined participants' written program post-evaluation questionnaire administered immediately following the end of the program. Evaluations were optional and were completed by 57.14% of participants (44/77). Participants' written responses were initially coded (Saldaña, 2021) using NVivo 12.6.1 (QSR International Pty Ltd., 2020); the second round of pattern coding was then employed to precisely ascertain the extent to which participants found the program acceptable (Saldaña, 2021). Subsequently, two of the authors engaged in code mapping to distill themes from the larger codebook related to acceptability (Saldaña, 2021). The code map can be seen in Table 2 in Appendix A. Threats to validity were checked by having the second round of coding examined by a peer reviewer (Miles et al., 2014).

### 2.5.2. Aim 2: pre-post intervention changes

Paired-sample t-tests were used to test for change in psychopathology symptoms and spiritual well-being between pre-and-post-intervention. The magnitude of the intervention effect size was calculated using z scores. The *p*-values were adjusted using the Hommel approach (Hommel, 1988; Vickerstaff et al., 2019).

### 2.5.3. Exploratory aim 3: spiritual well-being change as predictors of psychopathology

Multiple regression analyses were conducted to estimate if a change in spiritual well-being predicted post-intervention psychopathology symptoms. Predictor variables were standardized to control for multicollinearity (Aiken et al., 1991; Frazier et al., 2004). Pre-intervention psychopathology scores were entered in the first block. Spiritual well-being change scores were calculated and entered into the second block.

The significance level for all analyses was defined as *p* < .05. All quantitative data were analyzed using IBM SPSS Statistics (Version 26) predictive analytics software and R 4.0.3 (Core Team, 2020).

## 3. Results

### 3.1. Aim 1: feasibility and acceptability

Chi-square analyses revealed no significant baseline differences between those who engaged and those who did not engage (attended 1-3 sessions) in AA-A on any demographic variables. The final AA-A group used in pre-post analyses consisted of those who enrolled (i.e., attended at least one session) and completed posttest measures, *N* = 77. Of the 175 students who voluntarily attended the required AA-A orientation, enrollment rates of 93.1% (*n* = 163) exceeded the a-priori hypothesis. Of enrolled participants, retention rates of 54.6% (*n* = 89) met the a-priori hypothesis. Engagement rates of 70.6% within those who attended at least one AA-A session (*n* = 77/109) exceeded expectations. There was consistent retention across Fall 2018 (*n* = 21), Spring 2019 (*n* = 37), and Fall 2019 (*n* = 31) semesters.

Following qualitative data analysis, five themes emerged related to the participants' evaluation of the acceptability of AA-A. The first theme identified was participants' perception that the content, tools, and structure of AA-A were supportive of their personal growth. For instance, one participant shared:

The weekly lessons were very meaningful; it was always fulfilling to learn a new concept and mindfulness and put it into practice. The group leaders and members also completely transformed this experience; it was memorable and incredible to hear the open and honest responses from the group members and the feedback group leaders were able to lend. This will be an experience I will not forget.

In this and other similar responses, participants elucidated several aspects of the AA-A program, which they found to be not only acceptable but also meaningful.

A second theme that emerged was that participants' intrapersonal relationship improved. In particular, participants reported experiencing improved physical health (e.g., improved sleep); mental health (e.g., reduction of anxiety); emotional health (e.g., increased emotional awareness); and spiritual health (e.g., increased self-awareness). One participant shared:

My takeaway is that I am my higher self, not the thoughts I have. I can see things in a non-judgmental way. I can accept things for what they are and not label them. I can accept and love myself for just being myself.

For this participant, AA-A allowed them to see themselves with compassion, acceptance, self-love, and without judgment. This response speaks to the acceptability of AA-A because the AA-A concepts contributed to the participant's ability to accept and understand themself. .

A third theme that emerged was participants' enhanced quality of life. Specifically, participants reported that they experienced perspective shifts that included acceptance of self and others, improved interpersonal relationships, and increased gratitude. For instance, one participant stated, "I have gained many mindful loving practices, and I am surprised how these practices translate directly to leading a more positive life/adding love to what surrounds us." This response speaks to the program's acceptability by linking the effects of AA-A practices to a

**Table 3**
Clinical and spiritual well-being variables at pre-intervention (T1) and post-intervention (T2).

| Characteristic | Pre-intervention (T1) | | Post-intervention (T2) | | | | | |
|---|---|---|---|---|---|---|---|---|
| | *M* | *SD* | *M* | *SD* | *t* | *p* | *n* | *z* |
| **Clinical and Health** | | | | | | | | |
| Depression Symptoms[a] | 8.55 | 5.21 | 7.32 | 5.17 | 2.23 | .029* | 77 | 0.26 |
| Anxiety Symptoms [b] | 8.71 | 6.11 | 7.01 | 5.01 | 2.84 | .012* | 77 | 0.32 |
| PTS- Symptoms [c] | 39.13 | 12.61 | 33.52 | 11.32 | 4.89 | .001** | 77 | 0.56 |
| | | | | | | | | |
| **Spiritual Well-Being** | | | | | | | | |
| Awakened Awareness [d] | 33.04 | 7.49 | 37.16 | 6.97 | -4.97 | .001** | 48 | 0.72 |
| Spirituality [e] | 95.91 | 21.72 | 105.66 | 19.97 | -5.34 | .001** | 77 | 0.61 |
| Spiritual Decline [f] | 30.96 | 14.00 | 21.55 | 11.17 | 5.42 | .001** | 77 | 0.62 |
| Spiritual Growth [f] | 100.32 | 47.57 | 109.81 | 47.97 | -1.82 | .288 | 77 | 0.21 |

*Note.* N = 77 (n = 48 for Awakened Awareness Scale). Significant at *p < .05**; p < .005. [a]Depression symptoms measured by the Patient Health Questionnaire PHQ-9.
[b] Anxiety symptoms measured by the General Anxiety Disorder scale GAD-7.
[c] Post-traumatic stress symptoms measured by the Post-Traumatic Checklist-Civilian scale PCL-C.
[d] Awakened Awareness measured by the Awakened Awareness Scale.
[e] Spirituality measured by Delaney's Spirituality Scale.
[f] Spiritual Growth and Spiritual Decline measured by the Spiritual Transformation Scale.

"more positive life."

The fourth theme that emerged was greater compassion and interconnectedness. One participant described salient lived experiences derived from AA-A.

Increasing my awareness about myself and how I fit into the bigger picture. Feeling like I have tools to rely on when I feel out of control in a situation or with my emotions. Getting in touch with myself and feeling better grounded and communicating that with other people.

Many participants reported that AA-A provided a community and practices to increase awareness of themselves and others in a broader context of feeling connected to others, a larger community, or beyond.

The fifth theme that emerged was an awareness of and relationship with the Transcendent/Sacred, a Higher Power (i.e., dialogue with the universe, G-d, or loving guiding presence). For example, one participant shared:

The notion of the Higher Power was one that was exciting to me from the get-go, and I was thoroughly surprised how my relationship with my Higher Power developed so much because of this program.

For this participant, AA-A supported the development of a relationship with their Higher Power. Other participants echoed this, noting that this program supported a process of relationship building that had already begun ("Over the winter break, I began mulling over questions of my beliefs, my connection with spirituality with G-d (now Higher Power) so I felt like this group was a good way to guide those conversations with myself." Taken together, these five emergent themes of appreciation of the content, improved intrapersonal relationship, enhanced quality of life, greater compassion and interconnectedness, and a two-way relationship with the Transcendent/Sacred, indicate that participants found AA-A to be acceptable and even helpful.

### 3.2. Aim 2: pre-post intervention changes

Table 3 presents pre-and-post-intervention scores on depression, anxiety, post-traumatic stress (PTS) symptoms, and four spiritual well-being scales. Mean scores on depression, anxiety, and PTS symptoms showed significant improvements. Of the four spiritual well-being scales, scores on awakened awareness, personal spirituality, and spiritual decline significantly improved. There was not a significant difference in the spiritual growth scores.

### 3.3. Exploratory aim 3: spiritual well-being change as predictors of psychopathology

Twelve multiple regression analyses were conducted with three pre-intervention psychopathology and four spiritual well-being change variables as potential predictors for post-intervention psychopathology. Eight of these models revealed that only the pre-intervention psychopathology scores significantly predicted the post-intervention psychopathology scores.

The remaining four models found both pre-intervention psychopathology scores and spiritual well-being change were significant predictors of post-intervention psychopathology. There was a significant main effect of change in Awakened Awareness predicting both depression and PTS at post-intervention, adjusting for their respective pre-intervention psychopathology scores. Specifically, Awakened Awareness change accounted for 8% of variance in post-intervention depression scores ($\beta = -0.29$, $t = -2.20$, $p = .033$), and 5% of variance in post-intervention PTS scores ($\beta = -.26$, $t = -2.55$, $p = .014$). There was a significant main effect of change in Spiritual Decline predicting both depression and anxiety at post-intervention, adjusting for their respective pre-intervention psychopathology scores. Specifically, Spiritual Decline change accounted for 9% of variance in post-intervention depression scores ($\beta = 0.11$, $t = 3.48$, $p = .001$), and 3% of variance in posttest anxiety ($\beta = 0.06$, $t = 2.05$, $p = .044$).

## 4. Discussion

### 4.1. Feasibility and acceptability

AA delivered among young adults has previously been shown to increase awareness and spiritual well-being among homeless teenagers (Mastropieri et al., 2015; Schussel et al., 2013). The current study is the first to test the feasibility and acceptability of AA adapted for an undergraduate population. Group participants reflected the larger university's diversity across race and ethnicity, international status, and sexual orientation. The proportion of minority participants (58.5%) is representative of the demographic makeup of the larger university, suggesting that AA-A is inclusive and supportive of students with multiple backgrounds, including students of color and gender and sexual minority. It is possible that AA-A's focus on identity development may be of particular interest to students from typically underrepresented backgrounds in clinical settings (Rodriguez et al., 2004; Syed et al., 2011). Seeing as students of color and gender and sexual minority are less likely to seek out on-campus mental health providers due to stigma and distrust in healthcare systems (Gary, 2005; Lillie-Blanton, 2000; Owens, 2007), AA-A may have the potential to serve as a wellness resource to underserved on-campus individuals.

Participants represented a range of religious, spiritual, and agnostic affiliations, including Buddhist, Eastern Orthodox, Hindu, Jewish, Muslim, Protestant Christian, Roman Catholic, spiritual but not

religious, and no religion. This, alongside feasibility data, suggests that AA-A is culturally accessible for students who opt-in with or without religious or spiritual orientation. While 48% of our participants regularly attended a religious or spiritual service once a month or more before the age of 15, only 17% of them continued to participate in religious or spiritual service later in their adolescence and emerging adulthood. These data suggest that emerging adults who are less observant than in childhood and adolescence may seek out non-religious alternatives to individuate spiritually within a community of peers. For those participants who do not identify with a religious affiliation (50.6%), spirituality can be a fundamental resource in transcending stressors, irrespective of association with a religious group (Hathaway & Pargament, 1991; Seidlitz et al., 2002). In this way, AA-A may also fill a service gap in undergraduate campus wellness support for students to find community and spiritual development in non-conflicting contexts outside of their familial religion.

Rates of enrollment, engagement, and retention that surpassed a priori levels suggest that AA-A is feasible to deliver to on-campus undergraduates. The five emergent themes of appreciation of the program content, improved intrapersonal relationship, enhanced quality of life, greater compassion and interconnectedness, and an awareness of and relationship with the Transcendent/Sacred indicate that participants' interaction with AA-A was not only reported to be not harmful but may have been helpful to support individual growth and healthy intra-and-interpersonal relationships, all integral aspects of healthy emerging adult identity formation. Importantly, there was no negative feedback regarding the practices or experience of engaging with AA-A in students' narrative responses, which may not mean that these experiences did not exist, but that they did not supersede what participants viewed as beneficial. In concert with high attendance for those who engaged, these data suggest that undergraduates who attend AA-A find it valuable and reasonable to incorporate the intervention into their schedules and lives.

### 4.2. Awakened awareness for adolescents as targeted prevention

Despite being non-clinically referred, AA-A participants reported higher rates of clinically elevated symptoms of depression (35.1%), anxiety (37.7%), and post-traumatic stress (74%) than other representative studies of undergraduates (Auerbach et al., 2018; Cusack et al., 2019; Stolzenberg et al., 2019), suggesting that an SMB intervention delivered on campus may attract students with higher rates of psychological distress. Further, perceived decreases in these levels of distress across the intervention may suggest that AA-A functions as a form of targeted prevention against acute and impairing distress. Effect sizes for pilot studies on mental health targeted prevention interventions for emerging adults and adolescents vary widely from 0.15 - 0.97 for depression; 0.23 - 0.95 for anxiety (Bluth et al., 2016; Finlay-Jones et al., 2017; Gudiño et al., 2015; Levin et al., 2013; Robinson et al., 2016). Small effect sizes in this study on symptoms of depression and anxiety (.26, .32) are akin to the pre-post effects of some other prevention pilot studies (Bluth et al., 2016; Finlay-Jones; 2016; Gudiño et al., 2015). That a medium effect size (.56) on PTS symptoms was found in this SMB wellness intervention is notable, as this effect is on par with or greater than similar targeted prevention efforts (Bluth et al., 2016; Robinson et al., 2016).

Participants had baseline Spiritual Decline subscale scores that, on average, surpassed those of other samples (Cole et al., 2008; Schultz et al., 2014; Zarzycka & Zietek, 2019) and mean Spirituality Scale scores that indicate "moderate spirituality with a possible potential for spiritual distress" (Delaney, 2005). Medium effect sizes of decreases in Spiritual Decline and increases on the Spirituality Scale and Awakened Awareness scale were observed (.62, .61, .72, respectively). Reports of post-intervention improvement on Spiritual Decline, alongside post-intervention Spirituality scores that indicate high levels of personal spirituality (Delaney, 2005), provide evidence of spiritual development and increased spiritual well-being, AA-A's primary targets (Miller, 2005,

2011). That individuals did not increase meaningfully in Spiritual Growth may reflect a group that was already spiritual and, rather than growing spiritually, were seeking to connect with a pre-existing sense of spiritual connection and well-being.

Alongside previously published associations between pre-intervention symptoms of PTS and pre-intervention spiritual decline among this sample (Crete et al., 2020), these findings suggest that AA-A participants may represent a subgroup of emerging adult college students seeking spiritually supportive wellness programming to resolve spiritual struggle secondary to traumatic or stressful life events. Spiritual decline is defined as a loss or weakening of spiritual connection with one's Higher Power and sacred ultimate goals, relationships, meaning and purpose in daily activities, and worldview as a response to life experiences (Cole et al., 2008). If spiritual decline remains untreated, it may diminish not only an individual's ability to flourish but even to function and accomplish daily living tasks (Stranahan, 2008). Within emerging adults, spiritual decline may jeopardize a developmentally appropriate and salutary process of spiritual individuation. Screening for spiritual decline among emerging adults seeking SMB wellness interventions may identify college students at risk for subclinical depressive and post-traumatic stress disorders. In the context of this study, SMB wellness interventions developed to address subclinical to moderate levels of depression and/or moderate to high levels of PTS symptoms concurrent with elevated levels of spiritual decline may prevent the sequelae of more acute psychopathology (Durlak & Wells, 1998).

As this was an open trial (uncontrolled and unrandomized design), it is not possible to attribute a direct, causal relationship between participation in AA-A and decreases in clinically relevant scales. That said, evidence of moderation points to pathways for targeted prevention, as increases in awakened awareness change predicted lower post-intervention depression and PTS symptoms and decreases in spiritual decline change predicted lower post-intervention depression and anxiety symptoms. It is notable that change in the measure of the primary targets of AA-A (awakened awareness, spiritual well-being) functioned as predictors of lower distress following the delivery of AA-A. These pre-post outcome findings build upon previously published cross-sectional findings from this sample at baseline, showing a positive association between spiritual decline and post-traumatic stress (Crete et al., 2020). Taken together with this study's findings, these data support the possibility of enhanced spiritual perception as a way of addressing symptoms of developmental forms of psychopathology that have been difficult to intervene upon in campus-based prevention. Thus, this study warrants further investigation into AA-A as a brief, useful, and cost-effective form of culturally inclusive targeted prevention of common psychiatric disorders (e.g., depression, anxiety, post-traumatic stress) for college students via the successful amelioration of spiritual distress endemic to critical developmental periods such as emerging adulthood.

## 5. Limitations

This open trial represents a preliminary attempt to develop a structured SMB wellness intervention and does not investigate efficacy. However, the decrease in the level of depression, anxiety, and PTS symptoms, set against the context of associated changes in awakened awareness, spirituality, and spiritual decline, might be viewed against other studies of targeted preventions that show improvements on clinical levels of symptoms in groups focused on contemplative or mind-body practices (Rith-Najarian et al., 2019). A second limitation is the findings from this study apply only to the students who attended at least one session of AA-A. Further, high rates of clinical symptoms of PTS suggest that these students may not be representative of the emerging adult population at large. However, PTS is often not included in universal screening measures. We have observed elevated rates of clinically relevant PTS symptoms in a graduate sample of students attending spiritual wellness interventions on another campus (Scalora et al., 2020). Thus, these students may represent a distinct subgroup of

**Table 2**

Code mapping for acceptability of AA-A intervention.

| **Third Iteration: Application to Data Set – Emerging Themes** |
| --- |
| 1. AA-A Concepts, Tools, & Structure were Helpful |
| 2. Improved Relationship with Self |
| 3. Enhanced Quality of Life |
| 4. Greater Compassion and Interconnectedness |
| 5. Increased Awareness of a Relationship with the Transcendent/Sacred (i.e., Higher Power) |
| |
| **Second Iteration: Pattern Variables** |
| 1A. Enjoyment of program (people enjoyed attending) |
| 1B. Weekly practices/materials/tools |
| 2A. Increased self-awareness |
| 2B. Greater self-love |
| 3A. Improved interpersonal relationships |
| 3B. Improved mental and physical health |
| 4A. Greater compassion for and connection to community |
| 4B. Improved relationship to the world |
| 5A. Relationship with a Higher Power |
| 5B. Awareness of a higher self |
| |
| **First Iteration: Initial Codes/Surface Content Analysis** |
| 1A. Enjoyment of AA-A |
| 1A. Group leaders |
| 1A. Safe space |
| 1A. Being seen and heard |
| 1B. Host Council Meditation |
| 1B. Meditations |
| 1B. Visualization meditations |
| 1B. Weekly material/tools |
| 1B. Weekly lessons |
| 2A. Improved intrapersonal relationship |
| 2A. Increased self-awareness |
| 2A. Increased emotional awareness |
| 2B. Self-love |
| 2B. Self-reflection |
| 3A. Acceptance (of self and others) |
| 3A. Improved interpersonal relationships |
| 3A. Perspective shift |
| 3A. More positive life |
| 3A. Gained gratitude |
| 3B. Decreased stress |
| 3B. Improved sleep |
| 3B. Reduction in mood and anxiety symptoms |
| 3B. Improved health |
| 4A. Community |
| 4A. Common humanity |
| 4A. Compassion |
| 4A. Love |
| 4B. Improved relationship to the world |
| 4B. Spiritual community |
| 5A. Development of a two-way relationship with a Higher Power |
| 5A. Enhancement of a two-way relationship with a Higher Power |
| 5B. Relationship with one's higher self |
| 5B. Spiritual individuation |

emerging adults seeking spiritual solutions to their stress-related symptomatology. Insofar as this study can tell, students who consented and did not attend were similar across relevant demographic, clinical, and spiritual variables, suggesting that the group of students whom this program may help may extend beyond those who self-selected into AA-A. In addition, findings that include the Awakened Awareness scale must be interpreted with caution, as this scale is not validated. Despite these limitations, to our knowledge, this is the first study of an SMB wellness intervention adapted to support the developmental task of spiritual individuation for emerging adult college students in a university setting.

## 6. Conclusion

There is ample evidence in health psychology that broad interventions are less effective than targeted interventions (Mann & Kato, 1996). This study addresses the need to empirically test SMB wellness

interventions for college students amidst the increasing burden placed on university mental health centers and the responsive expansion of vertically integrated on-campus care to include targeted prevention approaches. Here, we describe the outcomes of an ecologically valid and sustainable, culturally inclusive SMB wellness intervention adapted to support college students' psychological and spiritual well-being. Findings from this open trial study provide preliminary data suggesting that subclinical to moderate depression, anxiety, and high post-traumatic stress symptoms may be improved via improvements in targets of the AA-A intervention. Notably, in this study, we observed a recovery process from high levels of post-traumatic stress symptomology, moderate levels of depressive symptoms, and moderate to high levels of spiritual decline that AA-A might have initiated by nurturing spiritual individuation and improving a pre-existing process of related spiritual decline. SMB interventions such as AA-A offer novel approaches to targeted prevention by providing support for the developmental tasks of identity development and spiritual individuation within the college environment. These findings in the context of college mental health needs for innovative targeted prevention against psychiatric disorders will inform the future design and implementation of larger studies.

## Declaration of Competing Interest

The authors have no conflicts of interest to declare.

## Appendix A

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