

ORIGINAL ARTICLE



Facilitating connection to enhance college student well-being: Evaluation of an experiential group program

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Abstract

This randomized controlled trial examined the impact of *The Connection Project*, an experiential, relationship-focused intervention designed to improve school belongingness and decrease symptoms of depression and loneliness among new college students. Participants were 438 first-year and transfer students (232 treatment, 206 waitlist-control) at a medium-sized, 4years, predominantly White public university in the Southeastern United States. At postintervention, the treatment group reported significant relative increases in school belonging and significant relative reductions in levels of loneliness and depressive symptoms in comparison to waitlist-controls. Program effects were stronger for students from marginalized racial or ethnic backgrounds, students from lower socioeconomic status households, and transfer students. Results are interpreted as suggesting the utility of experiential, peer-support prevention programming to promote college students' well-being, particularly college students who hold identities that are traditionally disadvantaged in this context.

KEYWORDS

belonging, college students, mental health, prevention program, RCT

Highlights

- Participants report reduced depression and loneliness relative to waitlist-controls.
- Participants report increased belongingness at their school, even when remote.
- Program benefits are strongest for marginalized students, most at-risk for disconnection.
- Experiential programming and supportive peer relationships promote college students' well-being.
- Prevention programming may be a first line to reducing burden on college mental health services.

INTRODUCTION

The transition to college is challenging for many young people. Amidst excitement and some trepidation about this new life phase, students must adapt to new academic demands, a new social climate, and new living and financial situations and stressors. In response to growing mental health difficulties among college students, the current study

offers a randomized evaluation of a novel intervention, *The Connection Project*. *The Connection Project* is a semester-long, group-based intervention focused on enhancing group members' peer relationships and support, with the ultimate intent to bolster belonging and reduce the risk for loneliness and depression. This program aims to serve as a first line of preventive intervention for university students who may not otherwise receive mental health support.

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As they enter college, young people are thrust into a new environment with new social pressures and cultures that they must learn to navigate. Developing a sense of self and connectedness to community, already a fundamental social task of emerging adulthood, is made complicated by this major social shift, leaving many students feeling that they do not belong at their universities (Layous et al., 2017; Talaifar et al., 2021). *Belongingness Theory* posits that humans have a fundamental drive to belong and that failing to do so, as a subset of college students do, causes significant emotional and cognitive distress (Baumeister & Leary, 1995). When young people are able to forge a sense of belongingness to their university, they are able to benefit from mutual connection and contribution to the broad community as well as from specific individuals in that community (Pittman & Richmond, 2008). Unfortunately, the ability to “click” into a new environment and reap the social and emotional benefits of belongingness is not a given.

For traditional college-aged students (ages 18–24), the transition to college (and the accompanying pressures exerted by this transition) takes place during a life phase marked by significant mental health strain (Bruffaerts et al., 2018). Individuals ages 15–24 are more likely to endorse symptoms of depression (whether clinically significant or not), relative to all other age groups (Dixon & Kurpius, 2008). Additionally, most life-long disorders have their first onset by ages 18–24, and so may first arise during a young adult's college career (Eisenberg et al., 2011). These emerging and increasing mental health symptoms intersect with the new, stressful college environment, contributing to significant psychological stress among college students; stress that is comparable or greater than that of same-age peers who do not attend college (Hunt & Eisenberg, 2010).

In addition to the general risk that arises during this developmental period, young adults have recently reported increasing mental health concerns that appear to be unique to their generation. Americans currently aged 18–24 have endorsed 63% increases in their levels of loneliness and depression over the past decade, *prior* to the onset of COVID-19 (Twenge et al., 2019). It appears that these young people are not simply more likely to report on symptoms than other age groups; rising symptom levels have been accompanied by a 60% increase in emergency department visits following suicide attempts by individuals in this age range (Twenge et al., 2019). Furthermore, young adults are the most at-risk for downstream harmful consequences of loneliness associated with the COVID-19 pandemic (Beam & Kim, 2020; Luchetti et al., 2020). College students are simultaneously the most likely to endorse depression and loneliness *and* are now being prevented from interacting with peers in typical ways. Initial findings from a pilot evaluation of *The Connection Project* found that the intervention effectively boosts students' sense of belonging to their university, despite having been evacuated from campus and experiencing immense stress due to COVID-19 (Costello et al., In Press).

In response to the initial promise of *The Connection Project* and mounting mental health concerns for college students, the current study focused on depression, loneliness, and belonging as key targets to promote students' psychological well-being during their transition to college.

As programs like *The Connection Project* are developed, it remains important to consider individual students' differential experiences of that programming based on their identities and context. Students from historically minoritized backgrounds manage significant identity and systemic stressors (Dennehy et al., 2018). These individuals are exposed to chronic discrimination, or differential treatment based on perceived or actual membership to a socially marginalized group (Means & Pyne, 2017). The effects of discrimination and marginalization for students at predominantly White institutions of higher education may be compounded by their context, and naturally impact the way that group- or peer-based support function for those individuals. For instance, if a student's experiences with discrimination impact their ability to connect with and receive support from peers who do not share these experiences, minoritized students may be left feeling particularly alienated (Simmons, 2020). The stress of managing explicitly discriminatory experiences in combination with peers' lack of understanding or ability to engage in supportive conversation likely contributes to higher rates of school dropout, social and academic dysfunction, and psychological distress for students from minoritized backgrounds (Hernandez, 2019; McClain & Perry, 2017; Sanchez & Awad, 2016). Growing interest in prevention programming has emphasized the potential of social connections to interrupt such harmful outcomes (Wingspread, 2004). Additionally, it has been suggested that social interventions may have the strongest impact on individuals who are the most socially marginalized in a given context, by offering direct experiences with belonging, support, and inclusion in that context (Allen & Philliber, 2001). To the extent that *The Connection Project* facilitates empathic communication and bonding among diverse groups of students, individuals from marginalized backgrounds are likely to gain particular benefits from belonging and well-being. This study considered the role of demographic moderators, such as racial and ethnic minority status, socioeconomic status (SES), and transfer status as groups of students for whom the transition to college may be particularly stressful.

Despite the prevalence and severity of stress and mental health difficulties on college campuses, only a small fraction of the students who need psychological treatment receive it at any point during their undergraduate career (Eisenberg et al., 2011; Rosenthal & Wilson, 2008). College students report that they do not seek support due to public stigma, lack of access to resources, and minimizing of their own symptoms (Bruffaerts et al., 2018; Ebert et al., 2018). Furthermore, even for the fraction of students who seek out mental health support, psychological services on and around college campuses, particularly campuses that are far from large cities or hospitals, are not sufficient to meet

the needs of the population (Keeler et al., 2018). As psychologists work to reduce stigma around treatment, mental health services may become more and more strained in the years to come.

Although colleges and universities are not equipped to provide psychological services to every student that needs them, they do offer a unique opportunity for intervention and prevention efforts to access young people during this crucial, transitional time. Many young people in America attend a 2- or 4-year university, with 41% of 18- to 24-year old enrolled in 2018 (National Center for Education Statistics, 2020). Considering the success of Social-Emotional Learning (SEL) programs in K-12 education settings (which emphasize experiential learning to develop interpersonal and emotional skills for young people), recent work has taken up the call for implementing similar programming with college students (Conley, 2015). Evidence from foundational group programs for college students suggests that there are significant benefits to belonging and social adjustment when peer support programming is offered early in students' college careers (Mattanah et al., 2010; Oppenheimer, 1984; Pratt et al., 2000). Extant research on experiential learning interventions for college students highlight the importance of student support-seeking that is met warmly, particularly for students from socially marginalized backgrounds (Parnes et al., 2020; Schwartz et al., 2018). Additionally, recent work has begun to assert that remote, peer-based interventions can function as a first line of support for college students when tailored to the needs of students (Keeler et al., 2018). Approachable, targeted prevention programming may be one key to supporting the large swath of students that are not receiving formal psychological services and who may be at-risk for belonging-related stress.

Acknowledging this opportunity to reach a sizeable portion of America's youth and the risks faced by college students today, *The Connection Project* was developed. This randomized controlled trial was implemented to evaluate the potential impact of *The Connection Project* on entering students' experience at a 4-year public university. The study investigated the following hypotheses that were selected as the direct analogs to findings obtained in the evaluation of the high school version of the program (Allen et al., 2020):

1. Students who participate in *The Connection Project* will report significantly greater feelings of belongingness at the university than students in the waitlist-control group.
2. Students who participate in *The Connection Project* will report significantly less loneliness than students in the waitlist-control group.
3. Students who participate in *The Connection Project* will report significantly fewer depressive symptoms than students in the waitlist-control group.
4. Program effects will be significantly stronger for students from minoritized racial or ethnic identity

groups, for students with less socioeconomic advantage, and for transfer students.

METHODS

Setting and population characteristics

Students were sampled from a competitive, public, predominantly white institution in the Southeastern United States, which reports acceptance rates of around 20% each year. Incoming classes in the Fall of 2019 (3920 first year and 688 transfer students; participated in Spring 2020) and Fall of 2020 (3785 first year and 768 transfer students; participated in Fall 2020) were invited to participate, totaling 9161 students. According to university databases, the pool of eligible students was comprised of 56.4% women and 43.6% men. The pool's racial and ethnic identities were reported as <1% Native American Indian, 17.3% Asian, 6.8% Black or African American, 7.0% Hispanic, 5.6% Multi-racial, <1% Hawaiian or Pacific Islander, 4.4% nonresident Alien, 53.2% White, and 4.9% Unknown. Under typical circumstances, this university is a residential college, and all students live on or near campus. These restrictions were changed during the COVID-19 pandemic and, as such, specific living situations for students are described and accounted for in analyses.

Sample characteristics

The current study sample consisted of first-year and transfer students from a medium-sized public university in the Southeastern United States ($N = 438$, $M_{\text{age}} = 18.98$, $SD_{\text{age}} = 1.03$, $\text{min}_{\text{age}} = 17.49$, $\text{max}_{\text{age}} = 27.15$; 132 men, 302 women, three participants that identified as nonbinary, and one participant that selected "other" as their gender identity). All but one student were between ages 17 and 24, suggesting that the sample primarily consisted of traditional-aged college students. According to students' self-identified racial group, the sample included: 40 Black participants (9.24%), 223 White participants (51.50%), 20 Hispanic participants (4.62%), 118 Asian/Pacific Islander participants (27.25%), 21 Multi-ethnic participants (4.85%), five Native American participants (1.15%), and six participants who identified as members of racial or ethnic groups not listed (1.39%). This distribution of racial and ethnic identities approximately maps onto that of the university, with 48.5% of students coded into the "minoritized racial group" category for analyses. In the Spring 2020 semester, all students lived on campus until March 2020, when they were all sent home by the university. In the Fall 2020 semester, 253 students lived on campus while 63 lived remotely; all attended groups online from their residences. The mean and median reported family income for the sample was in the \$50,000–\$100,000 range. Students reported a mean

**TABLE 1** Characteristics of intervention and control groups at baseline.

Intervention (<i>N</i> = 232) Mean (<i>SD</i>)	Waitlist-control (<i>N</i> = 206) Mean (<i>SD</i>)	Group comparisons (<i>p</i>)		
Family income				
4.59 (1.45)	4.66 (1.42)	.61		
Max parental education				
3.82 (0.54)	3.71 (0.74)	.09		
Psychological sense of school membership				
67.40 (10.47)	65.83 (10.83)	.12		
Loneliness				
44.78 (10.54)	45.29 (10.92)	.61		
Depressive symptoms				
29.16 (7.39)	29.66 (9.02)	.53		
<i>N</i>	%	<i>N</i>	%	<i>p</i>
Student gender				
Male: 74	31.90	Male: 58	28.16	.19
Female: 157	67.67	Female: 145	70.39	
Non-Bin: 1	0.43	Non-Bin: 2	0.97	
Other: 0	—	Other: 1	0.49	
Student race/ethnicity				
Black/Afr-Am: 16	7.05	Black/Afr-Am: 24	11.65	.72
White: 120	52.86	White: 103	50.00	
Hispanic: 8	3.52	Hispanic: 12	5.83	
Asian/Pacific: 67	29.52	Asian/Pacific: 51	24.76	
Multi-ethnic: 12	5.29	Multi-ethnic: 9	4.37	
Nativ-Am: 4	1.76	Nativ-Am: 5	2.43	
Other: 0	—	Other: 2	0.97	
Not reported: 5				
Student year				
First year: 190	81.90	First year: 164	79.61	.54
Transfer: 42	18.10	Transfer: 42	20.39	

Note: Significance of group differences for student race/ethnicity were calculated for proportions of white students versus students of minoritized racial backgrounds. Total percentages may not add to 100 due to rounding.

parental educational attainment of “some college,” with parental educational attainment ranging from less than high school to post-graduate schooling. Full data on baseline demographic characteristics by intervention/control status are presented in Table 1.

The intervention

The Connection Project (College Version) was based on *The Teen Connection Project*, an experiential belongingness intervention developed for ninth grade high school students that has shown promise in promoting increased quality of peer relationships, academic engagement, and reduction in depressive symptoms in a randomized controlled trial (Allen et al., 2020). Program content was adapted to make it more engaging and age-appropriate for groups consisting of primarily 18- to 19-year old, and preliminary results with a much smaller sample indicated the program's potential to promote sense of belonging among a small sample of undergraduate students, even during transition to remote delivery (Costello et al., In Press).

The Connection Project consists of nine 60- to 75-minute sessions held once per week as an extracurricular activity during a semester in the first year of students' attendance at the university. Groups consisted of 6–12 students and were led by two trained upper-level student facilitators. Facilitators guided discussions and provided a safe, nonjudgmental source of support while modeling appropriate levels of self-disclosure for group members in discussions.

The program was designed to enhance students' sense of belongingness by providing a graduated experience of increasingly open, authentic, and supportive conversations among group members. The program used an experiential process to teach and model the formation of deep, supportive, and authentic relationships such that its effects would ultimately extend outward to group members' social interactions beyond the group. By shaping incoming university students' perceptions of their peers as accepting and potential sources of support, the program was designed to alter a sense of belongingness at the university generally.

Session content utilized principles of several empirically supported micro- and single-session interventions organized into a three-phase progression: (1) establishing buy-in and a supportive group context, (2) developing and enhancing social belonging, and (3) consolidating relationships. For example, the first session employs a values affirmation activity in which quotes about the value of friendship and social connection from a variety of sources are posted around the room and students are asked to place stickers on their favorites. Students then select one quote that they like best and are asked, in turn, to describe why they chose that quote. This activity serves two purposes: it helps group members identify and articulate their personal prosocial values and explicitly identifies prosociality as a group-level value. Each individual experiences multiple layers of value affirmation by personally articulating the value, hearing peers assert similar values, and engaging with statements from a range of famous figures that all express the importance of connection (Clapp-Smith et al., 2009; Cohen et al., 2006). This activity contributes to Phase 1 (establishing buy-in

and a supportive group context) by establishing the group's common goal and purpose, motivating individuals within the group to explore their own beliefs about the value of connection, and affirming those beliefs through the act of expressing them to the group (Arkowitz et al., 2015).

Activities are gradually introduced that enhance group members' sense of social belonging within the group (Phase 2), by identifying shared experiences and common elements in the things that they think, feel, and experience (Walton & Cohen, 2007). One session asks group members to consider the ways that they present a false image of themselves (nicknamed "masks") to cover up their real feelings (e.g., "I act like I don't want to fit in with what other people think is good, *but I really do want to fit in*," "I act like everything is great and fine, *even when sometimes it really isn't*," etc.). After group members anonymously indicate the masks that they have personally used, overall group results are consolidated and revealed. In a facilitated follow-up discussion, students reflect on the shared ways that they cover up their feelings, and how this relates to their ability to connect authentically with others.

Other opportunities are presented for group members to reflect on challenges and experiences shared by students at their university. For example, students read brief vignettes from more senior students who describe their experiences of discouragement, homesickness, and social isolation upon starting college, and how they overcame it (based on the social belongingness intervention of Brady et al. [2020]; Walton and Cohen, [2011]). Follow-up discussion offers group members the chance to express their emotional reactions to others' stories and share information about their personal experiences starting college.

As trust continues to grow through repeated experiences of affirmation and support within the group, the program offers increased opportunities for voluntary self-disclosure. For example, in an activity titled, "If You Really Knew Me..." students anonymously respond to prompts such as, "*If you really knew me, you'd know that the thing I worry most about is...*" Responses are collected and read aloud by a facilitator, who then leads the group through a discussion about what makes trust and vulnerability difficult, processing the experience of listening to peers' stories, and being vulnerable with the group.

In Phase 3, relationship development is consolidated through multiple mechanisms during the final sessions. With the group, students work to craft meaningful narratives from challenges that they have faced by identifying the strength, lesson, or growth that they took away from their meaningful, difficult experiences. This is informed by Narrative Theory, which describes how the process of developing a coherent understanding of life experiences enhances functioning (Pennebaker, 2012; Pennebaker & Seagal, 1999; Pennebaker et al., 1988). This activity also expands on the benefits of a resilience narrative by offering the opportunity for voluntary sharing of personal challenges. Facilitators guide the group in offering support to group members who share stories, scaffolding a success experience in the expression of

vulnerability *and* providing a safe space to practice offering support to one another. This not only allows group members to *experience* that they are not alone in their struggles, but it also scaffolds social skill development and allows for group members to know and support one another in a deep way.

These belongingness gains culminate in a "strengths bombardment" activity, fueled by the socially supportive experiences that groups have engaged in over the course of the intervention. Each student takes a turn being the focal student while group members describe the strengths that they value in that person as an individual and a group member. This activity is designed to promote positive perceptions of the self and of peers, and to motivate engagement in and maintenance of future peer connections within and outside of the group.

Procedure

Recruitment

Students were recruited through existing channels of extracurricular recruitment used by university clubs and activities, including flyers, interest meetings, email announcements, contact with Housing and Residence Life staff, and recommendation by the Office of Student Affairs. Primarily, advertisements emphasized program elements such as opportunities to meet new classmates, engage in small groups, build connections and friendships, and participate in weekly activities and discussions that allow group members to "be real" with their peers. Advertisements were all forthcoming about RCT elements of the study, including the expectation that students would be compensated for filling out surveys at the beginning and end of the semester. Students over the age of 18 provided informed consent online. Informed consent and preintervention survey data were obtained before randomization. Parental consent was obtained for participants who enrolled under age 18 and who also provided their informed assent ($N = 30$ students, 5.41%).

Randomization

Randomization took place using a random number generator, with randomization blocked by students' self-identified gender and racial group (minoritized vs. non-minoritized). Of each demographically similar block, two students were assigned to the waitlist-control group for every three students assigned to the intervention group to maximize utilization of available resources for program implementation while only slightly reducing statistical power. The resulting intervention and control groups were statistically comparable on all demographic and baseline factors assessed for this study (see Table 1). Students assigned to the intervention condition met once per week for nine weeks during the semester as an extracurricular



activity; control group students engaged in their schedules and extracurricular activities as usual and were offered priority access to the program in the following semester.

Facilitator training

Intervention groups were led by two trained facilitators who were either trained undergraduate research assistants or graduate-level psychology students. Undergraduate facilitators participated in a one-semester training course (approximately 35 face-to-face hours) led by the study authors that provided instruction on the curriculum and fundamental clinical skills, including reflective listening, group process and management, and crisis de-escalation. Graduate facilitators were all PhD-level students in Clinical or School Psychology and participated in at least a 2-hour training on the curriculum. Weekly supervision with the study authors (at least MA-level experts in *The Connection Project* curriculum and psychological intervention) was required for all facilitators. Supervision was used to address unexpected issues that arose in the groups, facilitate responsive group facilitation and adaptation, and continue the training process in real time.

Online adaptation

In March 2020, the intervention was shifted to virtual group meetings on Zoom to accommodate participation after the onset of COVID-19 and campus-wide evacuation. During the Spring 2020 semester, four sessions were administered in-person and six sessions were administered online (one additional “buffer” session was included to allow groups to adapt to the online format). During the Fall 2020 semester, all groups were administered completely online. Curriculum elements were adapted where necessary to accommodate this shift to virtual meetings (for instance, if activities required movement around the room, they were adjusted). Discussion-style activities were largely kept intact, with the addition of some targeted questions to address the specific stressors students were facing with the onset of COVID-19.

Data collection

Measures were obtained at two time points, with intervention and control group data collection occurring simultaneously: before the beginning of the intervention and in the two weeks immediately following the intervention. Surveys were administered using Qualtrics at the beginning and end of the program implementation semester (Spring and Fall 2020). Participants were compensated with a \$20 Visa gift card for the first survey that they completed and a \$30 Visa gift card for the second survey that they completed. Students (or their parents if students were under 18) provided informed consent to participate.

Session attendance

Students assigned to participate in *The Connection Project* attended an average of 6.25 ($SD = 3.23$) of nine sessions across the semester; excluding the additional tenth session administered in Fall 2020. Median attendance was seven out of nine sessions, modal attendance was eight out of nine sessions.

Measures

Depressive symptoms

Students reported the degree of their depressive symptoms using the Beck Depression Inventory (BDI; Beck & Steer, 1987). The BDI contains 20 items that are summed to generate a total score for depressive symptoms. For each item, participants selected from four statements about themselves, which are coded on a scale of 1–4, for example: 1 (*I do not feel sad*), 2 (*I feel sad*), 3 (*I am sad all the time and can't snap out of it*), and 4 (*I am so sad or unhappy that I can't stand it*). Thus, depression is measured along a continuum, in recognition that higher levels of depressive symptoms may still be important in predicting concurrent and subsequent dysfunction, even if they do not meet clinical threshold (Lewinsohn et al., 2000). The BDI is one of the most widely used instruments for assessing levels of depression and has demonstrated reliability and concurrent validity (Jolly et al., 1994; Steer et al., 1985). The measure has excellent internal consistency in this sample (Cronbach's α 's = .88–.90; Cicchetti & Sparrow, 1981).

Loneliness

Students reported on their feelings of loneliness using the UCLA Loneliness Scale (Russell et al., 1978). The UCLA Loneliness Scale asks individuals to respond to a series of 20 items on a scale of 1 (*I never feel this way*) to 4 (*I often feel this way*). Scale scores were created by summing together all items. Items include statements such as “I feel isolated from others” and “I feel as if nobody really understands me.” Scores on this measure have previously been found to relate to concurrent lack of social involvement as well as future reports of decreased life satisfaction and more attachment insecurity (Goswick & Jones, 1982; Kobak & Sceery, 1988; Moore & Schultz, 1983). Internal consistency for this sample was excellent at both time points (Cronbach's α 's = .94).

University belongingness

Students reported on the extent of their feelings of belongingness at their university using the 18-item Psychological Sense of School Membership Scale (Goodenow, 1993). This measure, initially written for high school students, has

undergone small language adaptations and demonstrated validity in college-aged samples (Pittman & Richmond, 2007, 2008). Students responded to items such as, “Other students here like me the way I am,” “I can really be myself at this school,” and “I feel like a real part of [University]” on a scale of 1 (*Not at all true*) to 5 (*Completely true*). Relevant items are reverse scored and items are summed to produce a summary score for each participant. Scores on the Psychological Sense of School Membership scale have been shown to correlate with student-reported motivation, grades, and teacher-reported effort in school and have demonstrated acceptable-to-high internal consistency across multiple schools with diverse racial makeups (α 's = .77–.88; Goodenow, 1993). Scores on this scale have also demonstrated a relation to psychological adjustment during the transition to college, student GPA, self-esteem, and locus-of-control among students from a wide variety of gender, racial, and socioeconomic backgrounds (Aspelmeier et al., 2012; Pittman & Richmond, 2008). Thus, this measure was selected for its utility in measuring belonging as well as its utility in measuring important related constructs. Internal consistency for this sample was excellent (Cronbach's α 's = .88–.89).

Demographics

Participants reported on their gender, ethnic group, transfer student status, estimated household income, and parents' educational attainment. Due to the limited sample size of marginalized racial/ethnic groups, analyses were run using a binary variable that coded for minority versus majority group membership. Household income was coded on a scale from 1 to 6 where 1 = \$20,000–\$35,000, 2 = \$35,000–\$50,000, 3 = \$50,000–\$100,000, 4 = \$100,000–\$150,000, and 5 = \$150,000–\$200,000. Parental education was coded on a scale from 1 to 4 where 1 = *less than high school*, 2 = *high school graduate*, 3 = *some college*, 4 = *college graduate or post-graduate schooling*. A composite variable representing students' SES was calculated from students' reports of their household income and the maximum educational attainment among the adults who raised them, both standardized and then summed. Transfer student status was coded such that 0 = *first-year student* and 1 = *transfer student*.

Attrition analyses

Out of the 438 students that participated in the preintervention assessment, 396 (90.41%) also participated in the postintervention assessment. Participants who dropped out of the study did not significantly differ on any demographic variables (gender, year in school, SES, minoritized racial/ethnic status); intervention versus control status; or baseline loneliness, belonging, or depressive symptoms. Thus, attrition is not believed to have distorted the representation of students in pre- versus postintervention survey collection.

Analytic strategy

Analyses were conducted using an intent-to-treat approach using multilevel modeling that accounted for the partially nested design (intervention students were nested within group, control students were not nested). SAS PROC MIXED was used to implement partially nested multilevel models to account for students' assignment to treatment versus control as well as their clustering into specific treatment groups (Lohr et al., 2014; Raudenbush & Bryk, 2002; Singer, 1998). The model (Equation 1) specified that student postintervention assessment scores were a function of the baseline scores on those measures (β_0), study condition (T_{ij} ; 0 = *Waitlist-control*, 1 = *The Connection Project intervention*), and random effects of group nesting (θ_i). This approach functions such that the effects of treatment and nesting equal 0 for participants in the waitlist-control group, predicting change in outcome-of-interest from baseline scores and error.

$$y_{ij} = \beta_0 + \beta_1 T_{ij} + \theta_i T_{ij} + \varepsilon_{ij} \quad (1)$$

Baseline scores for all participants were calculated such that they accounted for preintervention scores on the outcome-of-interest, gender (coded such that 0 = *Man*, 1 = *Woman*), and student racial/ethnic minority group membership (0 = *White*, 1 = *Minoritized racial group*). To facilitate interpretation of results, variables were standardized before analysis. To investigate differences in treatment effects based on students' racial/ethnic minority group membership, SES, transfer status, and gender, interactions of (study condition)*(demographic characteristics) were evaluated.

RESULTS

Descriptive statistics

Raw variable means, standard deviations, sample sizes, and group comparisons for all examined variables are presented by intervention status in Table 1. Outcome data are presented in Table 2.

Primary analyses

Hypothesis 1. *Students who participate in The Connection Project will report significantly greater feelings of belongingness at the university than students in the waitlist-control group.*

After accounting for baseline and for students' demographic characteristics (gender, minority status, and SES), significant effects of the intervention at postintervention were observed for students' school belongingness ($\beta = .119$, $SE = .037$, $p < .01$). In support of the hypothesis, participants displayed significantly greater postintervention sense

TABLE 2 Postintervention outcome measures by group

Intervention (<i>N</i> = 232) Mean(<i>SD</i>)	Waitlist-control (<i>N</i> = 206) Mean(<i>SD</i>)
Psychological sense of school membership	
69.29 (10.90)	65.73 (12.45)
Loneliness	
43.69 (10.94)	45.59 (12.20)
Depressive symptoms	
29.30 (9.13)	30.72 (9.80)

Note: Total percentages may not add to 100 due to rounding.

of school membership than control group students (see Table 3).

Hypothesis 2. *Students who participate in The Connection Project will report significantly less loneliness than students in the waitlist-control group.*

After accounting for baseline loneliness and students' demographic characteristics, significant intervention effects were also observed for students' loneliness ($\beta_{TCP} = -.074$, $SE = .035$, $p < .05$). In support of the hypothesis, participating students displayed significantly less loneliness postintervention than waitlist-controls (see Table 3).

Hypothesis 3. *Students who participate in The Connection Project will report significantly less depression than students in the waitlist-control group.*

After accounting for baseline and demographic characteristics, significant intervention effects were observed on students' depressive symptoms ($\beta_{TCP} = -.075$, $SE = .036$, $p < .05$). In support of the hypothesis, participating students displayed significantly fewer depressive symptoms than waitlist-controls (see Table 3).

Hypothesis 4. *Program effects will be significantly stronger for students from minoritized racial or ethnic identity groups, for students with less socioeconomic advantage, and for transfer students.*

Moderation analyses identified several instances in which program effects were stronger for students who identified as a member of a disadvantaged group. Program effects on loneliness were stronger for students who identified as a member of a minoritized racial or ethnic group, in comparison to white students ($\beta_{Group*Minoritized} = -.075$, $SE = .036$, $p < .05$). Program effects on depressive symptoms were stronger for students from lower SES backgrounds ($\beta_{Group*SES} = .077$, $SE = .043$, $p < .05$).

TABLE 3 Program effects on psychological sense of school membership, loneliness, and depressive symptoms

	Psychological sense of school membership (<i>SE</i>)	Loneliness <i>B</i> (<i>SE</i>)	Depressive symptoms <i>B</i> (<i>SE</i>)
Intercept	.024 (.037)	-.009 (.035)	-.020 (.035)
Student gender (0 = <i>M</i> ; 1 = <i>F</i>)	.012 (.036)	.005 (.036)	.074* (.036)
Student racial/ethnic minority status (0 = <i>White</i> ; 1 = <i>Minoritized</i>)	.007 (.036)	-.010 (.036)	-.021 (.035)
SES (composite of income and parental education)	.019 (.043)	-.006 (.043)	-.084 (.042)
Preintervention construct scores	.727*** (.036)	.729*** (.036)	.680*** (.035)
<i>The Connection Project</i> intervention	.118** (.037)	-.074* (.035)	-.075* (.035)

Note: Preintervention construct scores reflect students' baseline score on psychological sense of school membership, loneliness, and depressive symptoms at the beginning of the semester.

Abbreviation: SES, socioeconomic status.

* $p < .05$; ** $p < .01$; *** $p < .001$.

Program effects on belongingness ($\beta_{Group*Transfer} = .181$, $SE = .090$, $p < .05$), loneliness ($\beta_{Group*Transfer} = -.231$, $SE = .091$, $p < .05$), and depressive symptoms ($\beta_{Group*Transfer} = -.189$, $SE = .091$, $p < .05$) were stronger for transfer students than first-year students. There was no evidence of moderation based on students' gender.

Post hoc analyses

To better understand the impact of *The Connection Project*, several post-hoc analyses were employed. Three sets of additional regression analyses were applied to the intervention group subsample to investigate potential differences in program effects based on students' living situation (on campus vs. remote; Fall 2020 semester only), semester students participated in the intervention (Spring 2020 vs. Fall 2020), and possible dosage effects based on individual attendance. All post hoc analyses control for student gender, minoritized racial identity, SES, and transfer status.

Program effects and residence

In the Fall 2020 semester, students were given the option to return to campus (living in dorms or in the surrounding

city) or live remotely (typically with family). Regression analyses indicated no significant moderation of program effects by living situation, suggesting that the program functioned similarly for students regardless of whether they lived on campus or in another city.

Program effects and semester

Regression analyses were run to investigate the role of participation in *The Connection Project* in Spring 2020 (coded 0) and Fall 2020 (coded 1). There was no significant moderation by semester in program effects on belongingness, loneliness, or depressive symptoms; suggesting that the program functioned similarly across semesters.

Program effects and attendance

Regression analyses were run to investigate the role of attendance (coded as number of sessions that student was present for at least half of the session). Students who attended more sessions reported slightly greater gains in belongingness ($\beta_{\text{attendance}} = .03, p < .05$).

DISCUSSION

This study found that *The Connection Project* was successful in fostering belongingness and reducing loneliness and depressive symptoms among new college students. Program effects were stronger for students from socially marginalized groups: students from minoritized racial or ethnic backgrounds demonstrated greater reductions in loneliness than White students; students from lower SES backgrounds demonstrated greater reductions in depressive symptoms than students from higher SES backgrounds; and transfer students demonstrated increased belongingness and greater reductions in loneliness and depressive symptoms than first-year college students. Importantly, this suggests that not only does *The Connection Project* have significant potential to support students' well-being during the transition to a new university, but also that it may be particularly useful for groups of students who may be at disproportionate risk for loneliness, depressive symptoms, and reduced sense of belonging to their university due to marginalization within the university context based on representation within that context. Additionally, follow-up analyses suggested that students who attended more frequently demonstrated slightly more benefit to belongingness from the intervention. Notably, these findings were identified during the Spring 2020 and Fall 2020 semesters, which were marked by immense stress and uncertainty regarding the COVID-19 pandemic and necessitated online implementation.

This study is the second to examine *The Connection Project's* ability to promote well-being among college students. In a previous pilot study, *The Connection Project*

demonstrated promise in facilitating a sense of belongingness to the university among groups of students, even during a mid-semester shift to mandated remote education (Costello et al., In Press). The current study now provides strong evidence that the program not only affects students' sense of belonging at their institution, but also has direct effects on two markers of student well-being: levels of loneliness and levels of depressive symptoms. These impacts suggest a significant primary prevention potential for the program, given that these two indicators of difficulty are among the top reasons for referrals to university mental health centers (Bruffaerts et al., 2018).

Importantly, these findings were identified during remote implementation, which is accompanied by both significant challenges and significant benefits. Groups navigated difficulties with internet stability, identifying safe and private spaces to take meetings from, and technology-related distractions. Despite these challenges, the groups proceeded relatively effectively and continuously adapted and troubleshooted difficulties as they came up. The success of *The Connection Project* with online delivery suggests that remote implementation of services may be one major way to address barriers to seeking and receiving mental health support. If students can engage with programming via video link, intervention flexibility increases dramatically, and we may be better able to support students who cannot or will not attend structured activities in-person. This study provides preliminary evidence that *The Connection Project*, and other experiential learning interventions, can achieve well-being and connectedness goals online. Future work remains to disentangle the implications of administering groups in-person versus remotely, but the need for flexible interventions is incredibly high, particularly in the face of increasing implementation of remote instruction (Fakoya et al., 2020).

Further, the intervention produced even stronger impacts for students from disadvantaged backgrounds, who are most vulnerable for both mental health difficulties and college non-completion. It has been proposed that students who are most likely to feel left out of the mainstream culture of a university will gain the most benefit from programs that target inclusion and belonging. Thus, these findings are consistent with a long line of research suggesting that socially focused interventions can have the greatest impact on those most vulnerable to developing beliefs that they do not belong, due to implicit and explicit pressures to align with the demographic norm (Allen & Philliber, 2001). Students from relatively lower socioeconomic backgrounds, transfer students, and students who identify with a marginalized racial or ethnic identity benefitted the most from this intervention. It has been suggested that students from marginalized and disadvantaged backgrounds are most at-risk for challenges like lack of belonging, depression, and loneliness because they are more taxed by environmental pressures than their counterparts who may be more privileged or who may identify with the majority group (George & Lynch, 2003).

The drive to belong in this context may be interrupted at multiple levels, including the ways that students think of themselves and are treated by their peers.

It appears that *The Connection Project* is successfully meeting a previously unmet social need, which benefits all students and particularly students from marginalized backgrounds. Perhaps this occurs through mutual reductions in intergroup anxiety and interactions with empathic peers, which have been shown to contribute to overall experiences of belonging (Nagda et al., 2009). Alternatively, students' perception that their university is the "type of place" that would support social programming (like *The Connection Project*) likely contributes to students' belief that their experiences are valued at that institution (Johnson et al., 2007). This is consistent with existing calls for universities to take proactive action to create welcoming and supportive student environments (Freire, 2021). Work remains to understand the mechanisms by which this intervention is functioning for students from specific backgrounds and within specific contexts, but this preliminary evidence suggests that *The Connection Project* supports well-being among students who might otherwise be most vulnerable in this context.

The importance of social support and social resources may be key to the utility of *The Connection Project's* impact. College students' functioning is tightly linked to their ability to integrate into the academic and social environment; and students have demonstrated the strongest benefits when they are able to integrate into these contexts early in their college career (Reason et al., 2007; Tinto, 2005). Connections with peers, a target of the intervention, are highly related to sense of belonging, promote students' performance in academic and social contexts, and have the potential to reduce mental health symptom severity (Duckworth et al., 2021; Pittman & Richmond, 2010). From this perspective, the key change agent is not so much exposure to the program content as it is the relationships, and expectations regarding future relationships, that the program enhances. Thus, it is no surprise that researchers have called for interventions to capitalize on young people's social motivation, with its strong positive implications for their functioning (Wingspread, 2004). By leveraging young adults' strong desire to connect to their peers and their community—their desire to belong—we may begin to support the large proportion of students who face social and emotional struggles during the transition to college and who do not seek or receive professional help. Not only do students reap demonstrable gains in psychological well-being from social support, but they are also highly interested in seeking out those social opportunities: a powerful tool available for intervention work (of a related note, the current study reached its sample goal two semesters earlier than anticipated due to high enrollment and engagement).

Students have demonstrated their motivation to engage with peer support-based programs and gain clear psychological benefits from doing so. Although this evaluation was short term, other work suggests that

changing the quality of students' relationships and sense of belonging can have much longer-lasting impacts, with a sort of "cascade of goodness" following from positive experiential learning (Cohen et al., 2021). *The Teen Connection Project*, on which *The Connection Project* was based, demonstrated increasing program effects 12 weeks after the conclusion of the study (Allen et al., 2020). How program effects develop for *The Connection Project* remains a question for future study.

Several limitations warrant consideration. First, while the overall sample size was sufficient to detect program effects, the capacity to assess effects on subgroups of individuals with specific identities was limited. Due to small numbers of students in any minoritized racial or ethnic group, for example, this study coded gender and race into binaries, leaving no room for group-level nuance and collapsing many unique identities together. More work and larger samples are needed to truly investigate the functioning of this intervention with college students' many complex and intersectional identities. Relatedly, more work is needed to understand differences in the function of *The Connection Project* when administered in-person (the original intent of the intervention), rather than online (out of necessity). Importantly and relatedly, not all individuals have access to stable internet connections and the technology necessary to fully engage with online groups and interventions, a barrier that could systematically favor groups of people that have the financial means to access those resources. Additionally, while the intervention appears to be effective, we were unable to assess which particular components of the intervention were *most* useful for promoting psychological well-being. While this is not necessarily a limitation on the method in this study, it poses some logistical challenges for disseminating this program in other contexts where young people might benefit from it; primarily the time, materials, and staffing required to implement the intervention in full. To consider these questions, future work might implement qualitative analysis of group development across the intervention. Furthermore, perhaps the act of regularly attending a group, regardless of curriculum elements, facilitates and promotes belongingness and well-being. The nature of the partially nested multilevel design as applied here does not allow us to tease apart the effect of engagement with a group from the effect of the intervention itself. Future work might consider the role of curriculum elements in comparison to the simple act of regularly attending any sort of group-based setting or activity. Logistical components of the intervention may also play a role. For instance, we find evidence of a possible dosage effect; future work might evaluate whether amount, frequency, or regularity of meetings influence program effects. Finally, future work might also consider longer-term follow-up of students, particularly to investigate whether program benefits consolidate and amplify over time, and how this affects students' functioning across their college careers.

The college version of *The Connection Project* has to date been exclusively implemented at a large, public, predominantly White institution. Future work is needed to understand how this intervention functions for students in different contexts, for instance, at community colleges, private schools, or historically Black colleges and universities. Other work has suggested that intervention adaptability and contextual factors play a key role in the implementation of this intervention in high schools, particularly for students from racially and ethnically marginalized backgrounds (Nagel, 2020). It is evident that iterative improvement of structures, curriculum, and facilitation is key to truly supporting the students with whom we work. Other replication efforts may evaluate the role of living situation (commuting vs. on campus vs. remote); school size; student body and group composition; and facilitator identity and training. Additionally, further follow-up of students during and after their undergraduate schooling are needed to assess any potential long-term impacts. Overall, the current study suggests the promise of peer-facilitated interventions for young people at a vulnerable point in their lifespan. We have also demonstrated that programs can be successfully and meaningfully administered online and in the midst of a particularly uncertain and stressful time period for students. As we move forward in a world in which remote instruction has become both more common and more necessary, it is important to remember that prevention programming can function effectively in that modality. Programs like *The Connection Project* cannot replace more intensive clinical services; however, they can serve to reduce stress and symptom severity and increase students' social resources and likelihood to remain in school. Building on this foundation, interventions may continue to promote students' success and well-being early in their adult lives by fostering connection. As stated by a participant in Fall 2020, "*It made me realize that despite being a unique person, many of the struggles that we go through are shared by lots of the people around us, even if we don't always talk about them.*"

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