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An Online Peer Support Training to Improve Mental Health Literacy and Support Skills among College Students: Pilot Randomized Controlled Trial

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Abstract

Background: Many young adults rely on their peers for emotional and social support. Yet some may feel ill-equipped to safely and effectively support peers experiencing mental health challenges. This study evaluates the feasibility, usability, acceptability, and preliminary efficacy of an online peer support training intervention, the Be There Certificate (BTC), among college students living in shared housing.

Methods: We used a convergent-parallel mixed-methods design and conducted a two-arm cluster-randomized, waitlist-controlled trial in two Northeastern US universities in Fall 2025. We randomized housing units within participating universities to the two conditions, and all students in each housing unit received the same assignment. Primary quantitative outcomes include the BTC's feasibility, usability, and acceptability. We used difference-of-differences analysis to compare changes in secondary efficacy outcomes (mental health knowledge, attitudes and perceptions, behaviors, psychosocial, and psychological outcomes) between the two groups from baseline to 12-week follow-up. Semi-structured in-depth interviews further explored intervention participants' perceptions of the BTC. Three researchers conducted abductive coding based on Kirkpatrick's evaluation model and used thematic analysis. We followed the intervention mixed-methods framework and integrated the mixed-methods findings using the weaving approach.

Results: Our sample consisted of 102 college students ($mean_{age}$=18.9, 74.5% women, 59.8% White, 53.9% freshmen). The BTC demonstrated high feasibility (92.6% completion rate), with 61.2% of participants rating the course as highly usable, and 89.8% rated it as highly acceptable. Quantitative analyses indicated increases in mental health literacy (p=0.12, Cohen's *d*=0.35), openness to seeking help (p=0.002, *d*=0.59*),* psychological empowerment to support peers (p=0.04, *d*=0.42*)*, and self-efficacy (p=0.01, *d*=0.52*)*, with reductions in mental health stigma (p=0.06, *d*=0.41*)* and perceived barriers to help-seeking (p=0.04, *d*=0.35*)*. Qualitative findings largely corroborate these results. Participants valued the BTC's brief, self-paced design and described it as user-friendly, interactive,

and having useful, relatable content. Some also reported learning new peer support skills and felt more empowered to support others. Several participants further suggested areas for course improvement (e.g., adding more college-specific scenarios).

Conclusion: Our findings suggest that the BTC is feasible, usable, and acceptable among college students, with preliminary efficacy in improving knowledge, attitudes, psychosocial, and psychological outcomes related to help-seeking and peer support provision.

Trial registration: ClinicalTrials.gov, Trial Number: NCT07460635, retrospectively registered on March 3, 2026

Keywords: Peer support, Brief interventions, Digital mental health interventions, Feasibility, Mental health literacy, Young adults, Pilot cluster-randomized trial

Background

College is a critical period for early mental health intervention as many disorders begin before the age of 25 (1). International estimates show that 38% of first-year college students reported poor mental health symptoms (2). Use of campus mental health resources, however, remains low (3), with only 28% of college students with mental health conditions receiving professional mental health care (4). Common barriers to mental healthcare uptake include a preference for self-reliance, low perceived need for professional help, mental health stigma, time constraints, and cost concerns (3,4). Students instead prefer to rely on friends and family members for emotional and social support, particularly those with similar lived experiences (5).

Supportive social relationships can promote positive health and reduce the negative impact of stressful life events (6). Friends and family members can offer emotional, informational, tangible, and belonging support (7). According to the stress buffering model, network members may provide interpersonal resources that reduce the adverse health impact of stress (8) by facilitating proactive problem-focused coping and cognitive appraisal of stressful situations as less threatening (9,10). Among various informal support sources, peer support is highly common among young adults, with existing estimates showing that 54-73% of university students provide some forms of interpersonal support to peers (11–14).

Recent reviews have found positive effects of peer support in reducing young adults' mental health symptoms such as depression and anxiety (15–17). More consistently, peer support is associated with broader psychosocial and well-being benefits, including improved perceived social support, self-esteem, and happiness, and reduced loneliness (17,18). These positive effects also extend to individuals providing peer support (15). As such, scholars have called for increased attention toward peer support as naturally occurring, mutually beneficial interactions that are valuable beyond their clinical utility (19).

However, young adults often believe they lack the skills to support their peers, particularly in situations where they have no shared lived experiences or during mental health crises (20). Common barriers to offering help include concerns about giving the wrong advice and experiencing emotional distress when providing support over a prolonged period, which could in turn reduce relationship quality (18,21,22). Without adequate helping skills and knowledge, young people may unintentionally provide unhelpful peer support, such as ignoring those in distress, minimizing others' experiences, or responding aggressively (20). As such, training that better equips college students with peer helping skills could improve the utility of peer support for both those providing and receiving help.

The Be There Certificate (BTC), developed by Jack.org in partnership with Born This Way Foundation, is a free online resource that provides young people with evidence-informed training to offer compassionate, appropriate peer support (23). Instead of framing peer support primarily as a one-time, crisis-focused interaction as typical of existing trainings in the literature (20), the BTC aims to equip youth with the skills to provide ongoing safe and effective support to one another. As of May 2026, over 100,000 users have completed the BTC (24). Despite its wide dissemination, the training's effectiveness in higher education settings has not yet been rigorously evaluated.

Using a convergent-parallel mixed-methods design, this study aims to examine the feasibility, usability, acceptability, and preliminary efficacy of the BTC among college students and concurrently explore their in-depth perceptions and experiences of completing the training. Given that young adults regularly interact with online content and report high satisfaction (25), we hypothesized that the BTC would be highly feasible to complete (≥80% completion rate) and that ≥80% of students would rate the training as highly usable and acceptable.

Methods

Study design and setting

This study used a convergent-parallel mixed-methods design, integrating quantitative and qualitative data from a cluster-randomized, waitlist-controlled pilot trial of the BTC across two Northeastern universities in the United States. The trial compared exposure to the BTC, an online peer support training, with no BTC exposure. Residential housing within participating colleges served as the units of randomization. Based on the intervention mixed-methods framework, we embedded qualitative semi-structured interviews during the final quantitative data assessment point (26). When discussing the findings, we integrated the data through a narrative approach, weaving findings for each feasibility, usability, acceptability, and preliminary efficacy outcome.

We obtained study approval from the Yale University Human Subjects Committee Review Board (2000039773) and registered the trial at ClinicalTrials.gov (NCT07460635). Reporting of this study followed the 2025 Consolidated Standards of Reporting Trials (CONSORT) reporting guideline (27). All participants provided written informed consent to participate, and study procedures occurred between August 2025 and March 2026.

Participants

In consultation with academic and administrative staff at each participating university, we selected four housing units (e.g., residence halls) for randomization (two units per college) based on three criteria: (1) housing at least 200 residents to ensure a sizable pool of eligible participants, (2) having a good mix of students from different genders and academic class years, and (3) being located sufficiently far apart to reduce potential cross-contamination between the two study conditions.

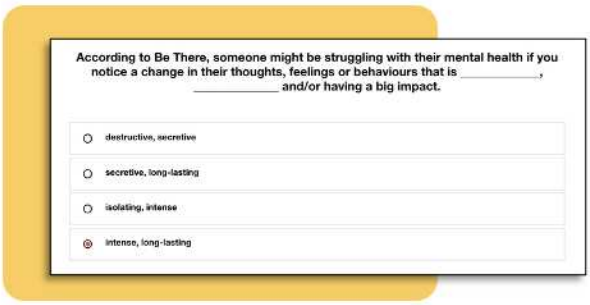
At the start of the 2025-2026 academic year, study staff recruited undergraduate students through posters, email listings, and informational booths at campus events. Participants were eligible to

participate if they were (1) 18–24 years old, (2) enrolled as an undergraduate student at a participating university, (3) residing in a participating residential hall, (4) able to read and understand the English language, and (5) willing to provide written informed consent. Exclusion criteria included: (1) previous completion of the BTC, or (2) inability or unwillingness to complete study activities. We recruited approximately 25 students from each housing unit.

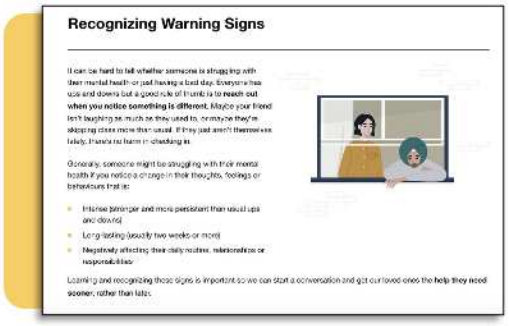
The intervention: Be There Certificate (BTC)

Launched in 2022, the BTC is a self-paced, freely available digital mental health literacy and peer support training that aims to equip young people with practical peer support knowledge and skills through scenario-based learning and guided practices.

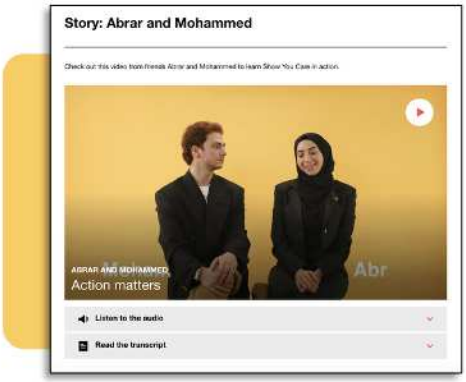
The BTC was developed by Jack.org in partnership with Born This Way Foundation, two non-profit organizations focused on youth mental health promotion, through an iterative process informed by a needs assessment with 1,200 Canadian youth (23). Program development included pilot testing and incorporation of feedback from young people and mental health professionals before launch (28). Grounded in social cognitive theory, the course features successful real-life examples of young people from different backgrounds providing support to their peers (29). The BTC has six modules: (1) Say what you see, (2) Show you care, (3) Hear them out, (4) Know your role, (5) Connect to help, and (6) Be there for yourself. The first five modules correspond to the “Be There’s 5 Golden Rules” for safely supporting peers experiencing mental health struggles. Participants could access the course through an interactive web-based platform and complete all modules within approximately two hours. Upon completion, participants received a digital certificate, the “Be There Certificate”, which they could share on social media platforms. Figure 1 shows samples of the course interface.



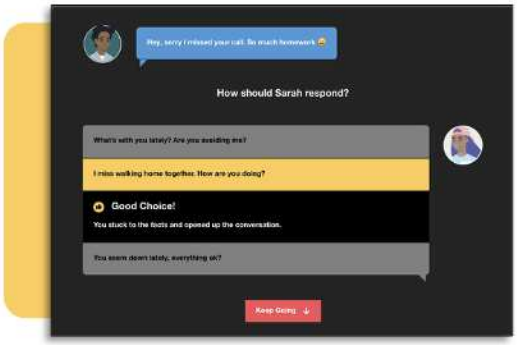
1. Each module begins with a pre-test survey to assess participants' existing knowledge.



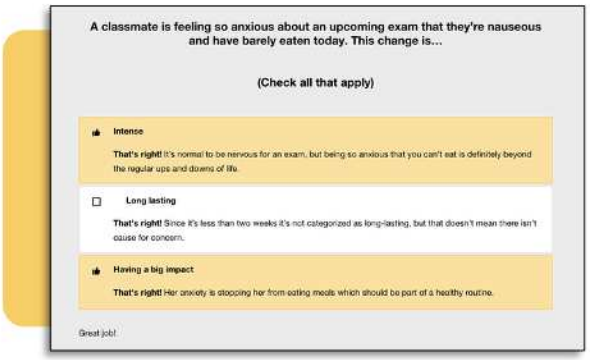
2. Participants learn strategies to support peers through text-based and video content.



3. Participants learn from real-life examples through watching the videos, listening to the audio, or reading the transcripts.



4. The course includes various interactive elements, such as text-based simulated practices.



5. End-of-module tests serve as reviews of key learnings.



6. Participants receive the "Be There Certificate" after completing all six modules.

Figure 1: Screenshots of the Be There Certificate's course interface

Pilot trial procedures

We randomized housing units to either the intervention or control (waitlist) arm using a computer random generator. After providing written consent for study participation and completing baseline assessments, intervention participants received an email invitation to complete the BTC via a unique link. Participants residing in control-condition housing units received invitations to complete the BTC after completing the final assessment at the 12-week follow-up. While the training was self-paced, we encouraged participants to complete the course within two weeks. No additional booster sessions were provided.

We collected quantitative data via the Qualtrics online survey platform at three time points: baseline (T0), immediate post-intervention (approximately two weeks after baseline) (T1), and 12-week follow-up from baseline (T2). We collected pre- and post-intervention measures on knowledge, attitudes and perceptions, behavioral, psychosocial, and psychological outcomes related to help-seeking and peer support behaviors at T0 and T2, respectively. At T1, intervention participants responded to questions assessing the BTC's feasibility, usability, and acceptability, while control participants completed an attention-matched survey assessing general health behaviors and technology use.

In addition, we conducted interviews with a subset of 20 intervention participants during the final assessment (T2) to gain an in-depth understanding of their perceptions of the BTC and relevant contextual factors that might shape their experience (e.g., campus resources and prior mental health training experience).

We provided monetary compensation and incentives to participants in consideration of their time commitment, burdens associated with study activities, and recruitment and retention efforts (30). Participants received $40 for completing the baseline survey, $30 for the post-intervention questionnaire, and $50 for the 12-week follow-up assessment. Those completing the BTC received an

additional $30. Intervention participants who completed the qualitative interviews received $50 after each session.

Quantitative measures

Primary outcomes: feasibility, usability, and acceptability

We assessed the feasibility, usability, and acceptability outcomes among the intervention participants immediately after they completed the BTC (T1).

We defined feasibility using the proportion of intervention participants who completed all six BTC modules based on previous pilot studies (31).

The usability outcome measured how effectively and efficiently participants could interact with the BTC. We used the 10-item System Usability Scale (SUS) to measure this outcome (32). Participants rated the statements on a 5-point Likert scale from 1 *(Completely disagree)* to 5 *(Completely agree).* A sample item was: "I thought the Be There Certificate was easy to use". Per standard procedures, we summed the responses to its 10 items into a 0-40 raw score and multiplied by 2.5 to produce an overall usability score ranging from 0 to 100 (33). We defined high usability as a score ≥80.

The acceptability outcome assessed the extent to which participants perceived the BTC as appropriate, engaging, and relevant. Participants completed the 4-item Acceptability of Intervention Measure (AIM) by rating statements on a 5-point Likert scale from 1 *(Completely disagree)* to 5 *(Completely agree)* (34). A sample item was: "I like the Be There Certificate". Total mean scores across all items range from 1 to 5, with higher scores indicating greater perceived acceptability. We defined high acceptability as a score ≥4.

We hypothesized that ≥80% of participants would complete BTC and rate the training as highly usable and acceptable. These targets are based on prior feasibility and acceptability studies of digital interventions for college students (35).

Secondary outcomes: Efficacy

Based on prior reviews of peer support interventions for young adults and the BTC's logic model (15,17,20), we assessed the intervention's efficacy on participants' knowledge, attitudes and perceptions, behavioral, psychosocial, and psychological outcomes relating to mental health and peer support behaviors (see Supplementary Table 1 for detailed descriptions of these outcomes and measures). We assessed all preliminary efficacy outcomes at baseline (T0) and 12-week follow-up (T2).

Baseline characteristics

At baseline, participants reported their university affiliation, residential housing, age, academic class year, gender identity, sexual orientation, socioeconomic status, race/ethnicity, and current use of academic accommodations.

Quantitative data analysis

We analyzed quantitative data using SAS version 9.4 (36). Demographic characteristics were summarized using descriptive statistics and compared between the intervention and waitlist-controlled arms using the chi-square test for categorical variables and Welch's two-sample t-test for continuous variables.

For the primary feasibility, usability, and acceptability outcomes, we used descriptive statistics to summarize the findings and evaluated the proportion of students in the intervention arm meeting the pre-specified targets.

For the preliminary efficacy outcomes, we used difference-of-differences (*DoD*) analysis, implemented using linear mixed-effects (LME) modeling, to compare within-group changes across baseline and 12-week follow-up between the two groups. In the adjusted analysis, we accounted for between-group differences at baseline in academic class year, gender identity, and race/ethnicity between the intervention and control groups. We did not adjust for imbalance in age due to its high correlation with academic class year. LME also estimated two types of intra-class correlations (ICC): (1) study participants within the same residential housing, and (2) study participants across time. To estimate these ICCs, we introduced two random effects (intercepts) at the housing unit and study participant levels. We conducted both intention-to-treat and per-protocol (participants with both baseline and 12-week follow-up scores) analyses. The efficacy effect size was calculated using Cohen's *d*.

As this was a pilot study designed to assess feasibility and usability outcomes, we did not perform *a priori power* analysis for the efficacy outcomes. We aimed to recruit approximately 100 participants based on recommended sample size for pilot studies (37,38).

Qualitative interview procedures

After completing their final quantitative assessments (T2), we invited 20 intervention participants to take part in a virtual semi-structured interview which lasted approximately 45 to 60 minutes. We anticipated that this qualitative sample size would be sufficient to reach saturation (39). We purposively sampled interview participants based on their academic class year and schools to achieve variations in peer support experiences and social norms. Two interviewers (SV and PK) with graduate training in research methods conducted the interviews and recorded the sessions via Zoom, a HIPAA-compliant video conferencing platform.

We referenced Kirkpatrick's four levels of training evaluation (reaction, learning, behavior, and results) to develop the interview guide (40). We further improved the guide by conducting a pilot test with a youth advisory board (n = 6, age range: 16-24) before data collection. Semi-structured interviews elicited participants' experiences with the BTC, focusing on their perceptions regarding the course's user experience, design, and content. We also asked participants to compare the BTC with other mental health training they might have completed and discuss recommendations to make the course more relevant and useful for college students. To support the interpretation of the quantitative efficacy data, we additionally asked participants to share recent experiences providing and receiving help from peers after completing the BTC. After each session, the interviewers completed structured field notes.

Qualitative data analysis

Three research assistants (RAs) with graduate-level training in public health and applied psychology coded the qualitative data. SV is an Asian male, and PK and AM are Asian females. Throughout the qualitative data collection and analysis process, the RAs received supervision from two investigators (KH and DRC) with expertise in qualitative research and intervention evaluation. The team met regularly to discuss preliminary insights and emerging themes from the interviews to assess information saturation.

We used an abductive, team-based coding approach where we first generated codes deductively based on Kirkpatrick's evaluation framework and then inductively from the data (40). We began by conducting open-coding of four transcripts (20%) to develop the initial codebook, which was further refined through subsequent rounds of coding. The three RAs independently applied the codebook to an initial set of transcripts using the Dedoose software and discussed coding disagreements during weekly meetings (41). Once inter-rater reliability (IRR) was achieved (defined as a score ≥0.8) (42),

all subsequent transcripts were single-coded, and the team continued to discuss coding memos during weekly meetings. From the coded data, we used thematic analysis to identify emerging themes related to students' perceptions and learning from the BTC (43,44). Combined with quantitative findings, we organized the themes to address questions regarding the BTC's feasibility, usability, acceptability, and preliminary efficacy.

Results

Characteristics of study participants

Figure 2 shows the participant flow across the two groups. Our final sample consisted of 102 participants, with 54 in the intervention and 48 in the control groups (see Table 1).

At baseline (T0), 102 participants completed the questionnaire. Of those, 92 (90.2%) completed the follow-up questionnaire after two weeks (T1), and 87 (85.3%) completed the final questionnaire after 12 weeks (T2). Among the intervention group, 50 participants (92.6%) finished the intervention, and 49 (90.7%) completed the measures assessing the intervention's acceptability and usability at T1. The attrition rates were similar among students in the control (16.7%) and intervention groups (13.0%).

Table 1 contains the socio-demographic characteristics of the overall study sample stratified by intervention and control groups. The groups had statistical differences in age, academic class year, gender identity, and race/ethnicity. Table 2 contains characteristics for each of the 20 participants interviewed (mean age = 19.1, SD = 1.07; 45% School A; 40% first-year; 75% women; 85% White).

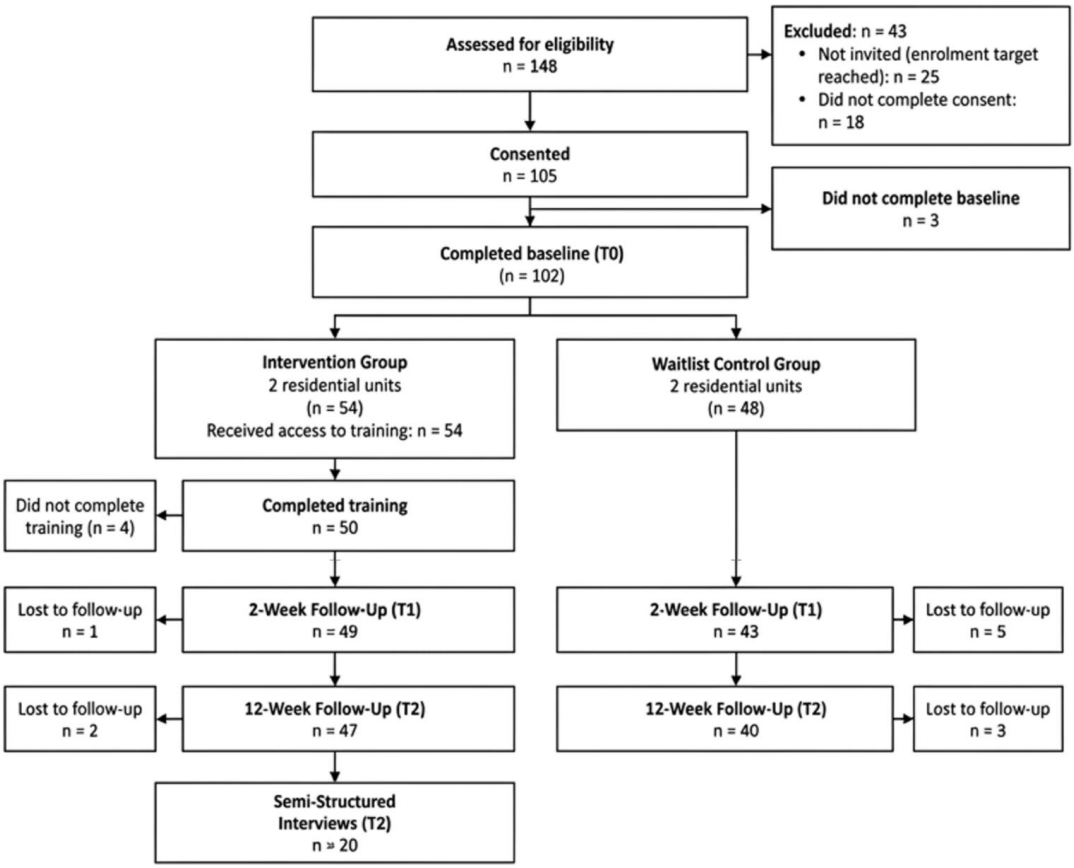


Figure 2: Flow chart describing the flow of participants in the intervention and control arms

Table 1. Participant demographics, intention-to-treat sample (n = 102)

Demographics	Intervention (N=54)	Control (N=48)	Total (N=102)
School			
School A	27 (50.0%)	22 (45.8%)	49 (48.0%)
School B	27 (50.0%)	26 (54.2%)	53 (52.0%)
Age*			
Mean (SD)	19.1 (1.06)	18.6 (0.94)	18.9 (1.04)
Median [Min, Max]	19.0 [18.0, 21.0]	18.0 [18.0, 22.0]	18.0 [18.0, 22.0]
Academic class year*			
First-year student	23 (42.6%)	32 (66.7%)	55 (53.9%)
Second-year student	3 (5.6%)	11 (22.9%)	14 (13.7%)
Third-year student	21 (38.9%)	2 (4.2%)	23 (22.5%)
Final year/graduate student	7 (13.0%)	3 (6.3%)	10 (9.8%)

Gender*			
Man	4 (7.4%)	12 (25.0%)	16 (15.7%)
Woman	42 (77.8%)	34 (70.8%)	76 (74.5%)
Gender minority[1]	8 (14.8%)	2 (4.2%)	10 (9.8%)
Race/ethnicity*			
Asian or Asian American	2 (3.7%)	4 (8.3%)	6 (5.9%)
Black or African American	3 (5.6%)	6 (12.5%)	9 (8.8%)
Hispanic or Latino/a/x	8 (14.8%)	12 (25.0%)	20 (19.6%)
White	39 (72.2%)	22 (45.8%)	61 (59.8%)
Multiracial/multiethnic	2 (3.7%)	4 (8.3%)	6 (5.9%)
Socioeconomic status			
Don't meet basic expenses	4 (7.4%)	3 (6.3%)	7 (6.9%)
Just meet basic expenses	15 (27.8%)	13 (27.1%)	28 (27.5%)
Live comfortably	20 (37.0%)	18 (37.5%)	38 (37.3%)
Meet needs with a little left	14 (25.9%)	11 (22.9%)	25 (24.5%)
Prefer not to answer	1 (1.9%)	3 (6.3%)	4 (3.9%)
Academic accommodation			
Not receiving accommodation	39 (72.2%)	37 (77.1%)	76 (74.5%)
Have at least one accommodation	15 (27.8%)	11 (22.9%)	26 (25.5%)
Prefer not to answer	0 (0.0%)	1 (2.0%)	1 (1.0%)
Sexual orientation			
Heterosexual	30 (55.6%)	31 (64.6%)	61 (59.8%)
Bisexual & Pansexual	8 (14.8%)	7 (14.6%)	15 (14.7%)
Lesbian & Gay	4 (7.4%)	4 (8.3%)	8 (7.8%)
Other[2]	10 (18.5%)	4 (8.3%)	14 (13.7%)
Prefer not to answer	2 (3.7%)	2 (4.2%)	4 (3.9%)

Note: *$p < 0.05$; [1]Responses for gender minority include genderqueer, nonbinary, trans man, and those selecting multiple genders; [2]Responses for another sexual orientation include asexual, demisexual, questioning, having "no label", and those selecting multiple sexual orientations.

Table 2: Demographics of participants interviewed (n = 20)

No.	College Class Year	School	Gender
1	First year	B	Woman
2	First year	B	Gender minority
3	First year	B	Gender minority
4	First year	B	Gender minority
5	First year	B	Woman
6	First year	B	Woman
7	First year	B	Woman

8	First year	B	Woman
9	Second year	B	Woman
10	Second year	B	Woman
11	Third year	A	Gender minority
12	Third year	A	Man
13	Third year	A	Woman
14	Third year	A	Woman
15	Third year	A	Woman
16	Third year	A	Woman
17	Third year	A	Woman
18	Third year	A	Man
19	Fourth year	A	Woman
20	Fourth year	B	Woman

304

305 At baseline, 92.2% of the participants reported providing emotional support to peers in the past three
306 months, whereas 41.2% reported connecting peers to mental health services (see Figure 3). When
307 seeking support for their own mental health, the two most commonly reported support sources were
308 close friends (85.3%) and parents/relatives (74.5%). Additionally, most participants reported being
309 "very confident" or "extremely confident" in offering emotional support (63.8%) and mental health
310 advice (53.9%) to peers, while only 39.2% reported confidence in connecting peers to mental health
311 resources (see Figure 4).

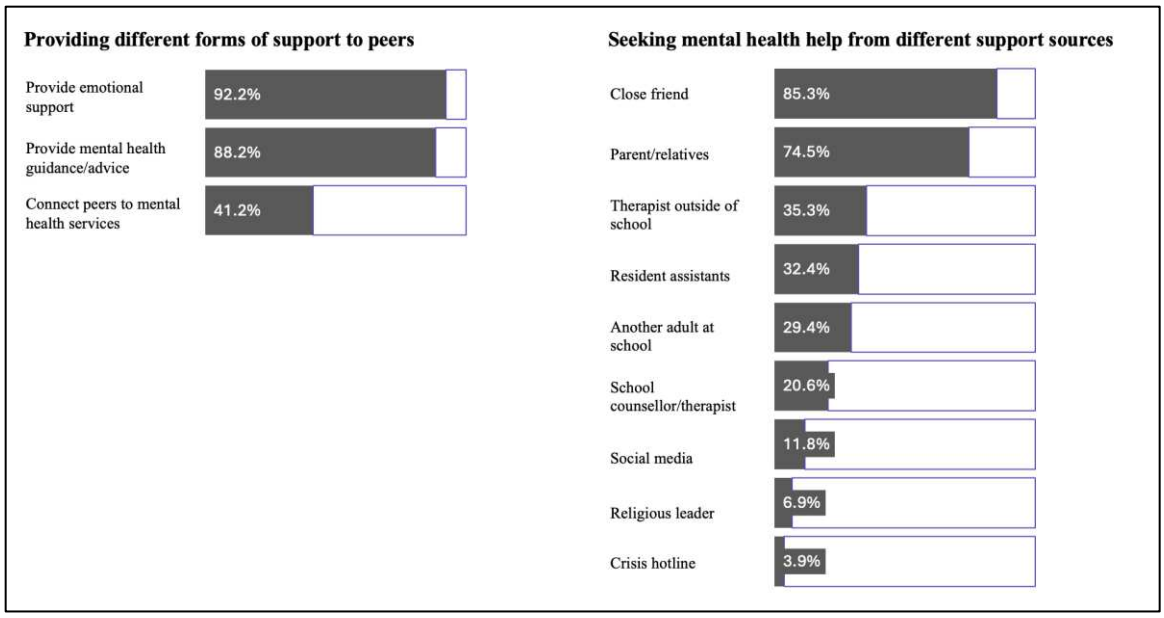


Figure 3: Peer help-giving and help-seeking behaviors at baseline, intention-to-treat sample (n = 102)

Note: Participants indicated the frequency of each behavior based on a 4-point Likert Scale from 0 (Never) to 3 (4 times or more). This figure shows the percentage of participants who indicated engaging in the behaviors at least once in the past three months. For peer help-giving behaviors, six participants had missing data. For support-seeking behaviors, four participants had missing data.

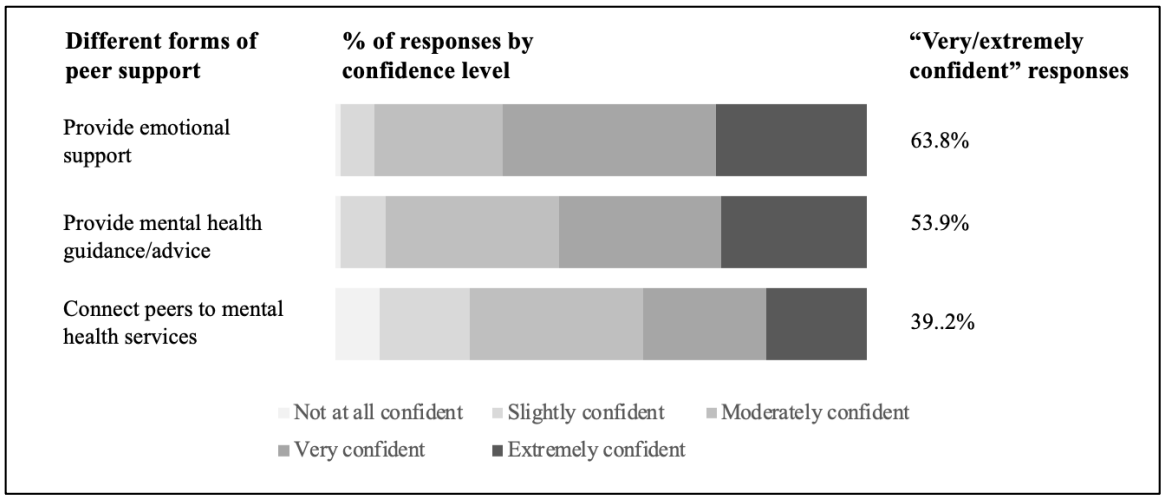


Figure 4: Confidence levels in providing different forms of peer support at baseline, intention-to-treat sample (n = 102)

Note: Seven participants had missing data.

Feasibility

Quantitative findings

Overall, 92.6% of intervention participants (n = 54) completed the BTC intervention, exceeding the 80% target rate.

Qualitative themes

Two themes emerge regarding participants' perception of the BTC feasibility: (1) brief, self-paced course design; and (2) perceiving the training as an additional time commitment.

Brief, self-paced course design. Qualitative findings revealed that many participants perceived the BTC's course design and duration as appropriate. Students reported finishing the training within one to two hours, with some completing the course across multiple sessions. Some participants reported accessing the course during study breaks or while on long commutes and highlighted that the course's self-paced design made it accessible and easy for them to complete. One student shared: "*It [the BTC] doesn't take that long. I feel like as a college student, it can mean a lot to people because that's just hard to fit things in sometimes between classes and work or whatever people have going on*" (school A, third-year, woman).

Perception of additional time commitment. Several participants described completing the BTC as an extra responsibility on top of other competing demands for their time. One participant, while describing the training as "a good educational baseline for people", explained: "*It [the BTC] did kind of give me the vibe of the HR training manuals that you have to go through for work. It did kind of have that tedious component to it"* (school B, second-year, woman). As such, several participants recommended integrating the course into existing students' responsibilities, such as having the course as part of orientation materials for incoming college students or as an optional opportunity for class credits.

Usability

Quantitative findings

Our results revealed that 61.2% of intervention participants (n = 49), as compared to the target of 80%, rated the BTC with a high usability score (SUS score ≥ 80). The mean SUS score was 82.96 (SD = 9.05).

Qualitative themes

Two themes emerge regarding the BTC's usability: (1) a simple, user-friendly course interface; and (2) navigation issues.

Simple, user-friendly course interface. Many participants described the BTC as "simple", "straightforward", and "easy to use". They noted that the overall course design was well-structured and there were clear learning objectives for each module. While many participants primarily accessed the course through their laptops, some participants enjoyed the ability to seamlessly switch to their mobile devices across different sessions. Students found it simple to navigate the various video, text, and interactive elements within the course. One student commented: *"I really like how the formatting of it [the BTC] was built for different learners. There were some reading portions, some video portions. And it was broken up into smaller chunks so that even if you had issues focusing on one part of it, there was always something else you could focus on"* (school B, first-year, gender minority). Similarly, another first-year student shared: "*I haven't taken a lot of courses on mental health specifically. As for the course [BTC] itself, it was really easy to follow, especially if someone hasn't done something like this before*' (school B, first-year, woman).

Navigation issues. Several other participants described difficulties locating features to access transcript-only content (instead of watching the full video) and adjusting the video speed. One

participant noted technical issues progressing through a course quiz: *"I don't think I read the question fully. So I clicked the answers, but then it told me I didn't do it right. But it turned out I had to click all the answers, and then they moved on basically. So I was sitting there for like two days, and I knew nothing because I did not know that you [have to] click both answers*" (school B, first-year, woman).

Acceptability

Quantitative findings

Among those who completed the intervention, 89.8% of intervention participants (n = 49) rated the BTC with a high acceptability score (AIM score of ≥4), exceeding the prespecified 80% benchmark. The mean AIM score was 4.37 (SD = 0.49).

Qualitative themes

Four themes emerge regarding the BTC's acceptability: (1) engaging and interactive; (2) relatable real-life stories; (3) useful peer support content; and (4) the need for more relevant scenarios for college students.

Engaging and interactive. Participants described the course as engaging and included many interactive features such as knowledge-check questions and simulated texting practices. These elements also facilitated peer support skills practice. One participant shared, "*The one thing I really liked about it [the BTC] was the mini scenarios. It was like the fake text messages, like little conversations. I think those were very helpful in applying skills and things that you've learned through the certificate"* (school B, second-year, woman).

Relatable real-life stories within the BTC. When asked about what they enjoyed about the course, many participants repeatedly emphasized how the BTC included real-life stories of peer support among young people, which made the learning feel engaging, memorable, and relatable.

From such real-world scenarios, participants also described learning different perspectives and practical strategies to apply peer support skills in real life. One participant recalled:

> *"This training [the BTC] has a ton of them [real-world examples]. Like, one girl was struggling with immigration and acclimating. And then the other was academic struggles and self-worth. And it ranged from all kinds of things. So this training, I felt a lot more personal, relatable, and had reference material. That made it a lot more effective than just a regular talk about mental health"* (school B, first-year, gender minority).

Useful peer support content. Many participants found it useful to learn peer support skills from the BTC. One student commented: *"I really liked it [the BTC] because I feel like a lot of it is stuff that is kind of assumed by society, but maybe we didn't actually learn it. And it's like, sometimes you don't realize how to set boundaries or learn how to talk to your friends when they have certain situations"* (school B, first-year, woman). When asked to compare the BTC with other mental health trainings, another student reflected:

> *"Comparatively, I think the [Be There] Certificate training was a lot more broad strokes, like more common to happen between friends... Honestly, the broad strokes is better because you feel more prepared for different situations, especially if it's supporting mental health between friends rather than like using it for like a job. I honestly think for your average person, the [Be There] Certificate is better"* (school B, second-year, woman).

Need more college-specific content. When asked about suggestions to improve the course, multiple participants recommended that the BTC add specific peer support scenarios unique to college students. One student reflected: *"I feel like it [the BTC] caters to more high school students with the scenarios they were giving. I think that adding more college experiences like partying, sexual assault, finals, or worrying about jobs and internships and how stress can build up. Just because I think the experience is so different from high school and college"* (school B, second-year, woman).

Preliminary efficacy

After accounting for between-group imbalances at baseline, intention-to-treat analysis of within-group changes from baseline to 12-week follow-up revealed improvements in mental health literacy (*DoD* = 0.13; 95% CI: -0.04, 0.30; p = 0.12), openness to seeking mental health help (*DoD* = 0.72; 95% CI: 0.28, 1.17; p = 0.002), psychological empowerment to support peers (*DoD* = 1.96; 95% CI: 0.10, 3.80; p = 0.04), and general self-efficacy (*DoD* = 1.96; 95% CI: 0.51, 3.41; p = 0.01). We also found reductions in mental health stigma (*DoD* = -1.87; 95% CI: -3.80, 0.06; p = 0.06) and perceived barriers to help-seeking in school (*DoD* = -2.70; 95% CI: -5.35, -0.06; p = 0.04). Findings were consistent across both adjusted and unadjusted analyses. Table 3 details the results from intention-to-treat analysis across these outcomes. Figure 5 illustrates the changes in mean scores between the two groups across baseline and 12-week follow-up.

We did not find intervention effects on other quantitative outcomes, including attitudes toward seeking professional help, help-seeking behaviors, empathy, and self-esteem. Similarly, our results showed no intervention impact on confidence to provide peer support (*DoD* = 0.12; 95% CI: -0.23, 0.47; p = 0.51) and frequency of help-giving behaviors (*DoD* = 0.04; 95% CI: -0.23, 0.30; p = 0.80).

Dorm-level intra-class correlation (ICC) was negligible. Therefore, we present only the within-person ICCs (see Table 3).

Table 3. Difference-of-differences estimates, intention-to-treat analysis (n = 102)

Outcomes	Unadjusted estimates		Adjusted estimated		*d**	Within-person ICC**
	Estimate (95% CI)	p-value	Estimate (95% CI)	p-value		
Mental Health Literacy[a]	0.13 (-0.03, 0.30)	0.12	0.13 (-0.04, 0.30)	0.12	0.35	0.50
Mental Health Stigma[b]	-1.83 (-3.76, 0.10)	0.06	-1.87 (-3.80, 0.06)	0.06	0.41	0.60

Perceived Barriers to Help-seeking in School[c]	-2.62 (-5.28, 0.03)	0.05	-2.70 (-5.35, -0.06)	0.04	0.35	0.66
Openness to Seek Help[c]	0.73 (0.28, 1.17)	0.002	0.72 (0.28, 1.17)	0.002	0.59	0.61
Empowerment to Support Peers[d]	1.95 (0.10, 3.80)	0.04	1.96 (0.11, 3.81)	0.04	0.42	0.54
Self-Efficacy[e]	1.96 (0.51, 3.41)	0.01	1.96 (0.51, 3.41)	0.01	0.52	0.53

Note: Adjustment variables were class year, gender, and race. Positive estimates indicate greater improvement in the intervention group relative to the control. For stigma and barriers to help-seeking, negative estimates indicate greater reduction (improvement) in the intervention group.

[a]Mental Health Literacy Questionnaire–Short Version for Adults (MHLq-SVa) (45); [b]Stigma and Self-Stigma Scales (SASS) (46); [c]Adolescent Mental Health Support Scale (AMHSS) (47); [d]Recovery Empowerment Scale (48); [e]General Self-Efficacy Scale (GSE) (49); *Cohen's d; **intra-class correlation

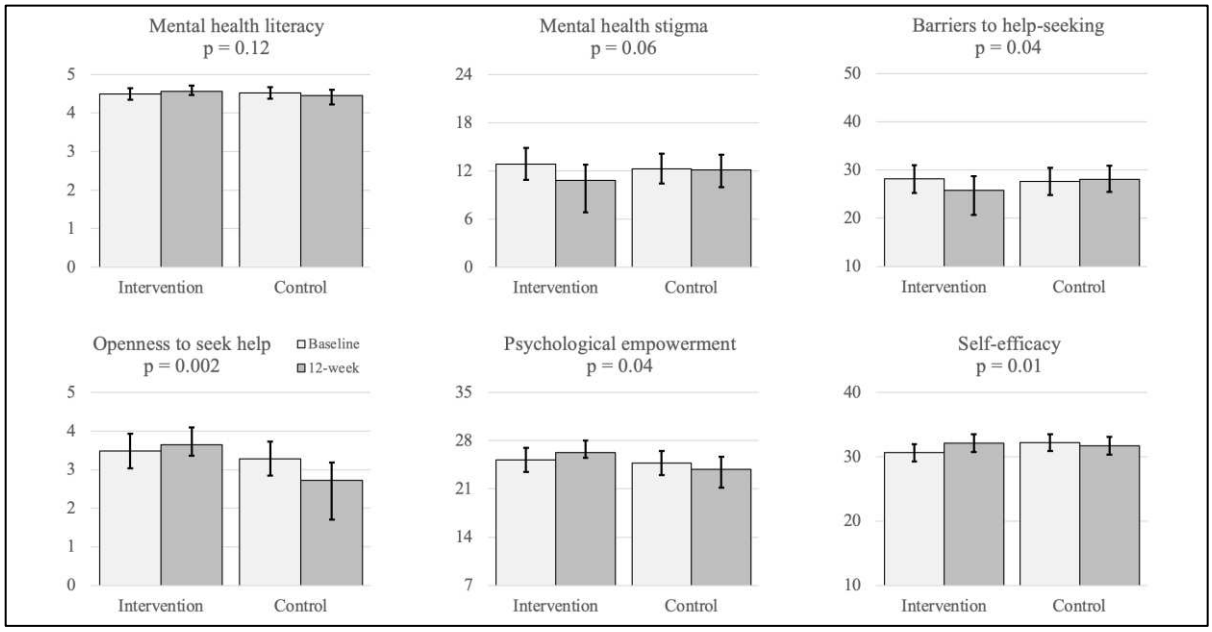


Figure 5: Preliminary efficacy outcomes measured at baseline and 12-week follow-up, intention-to-treat analysis (n = 102)

Per-protocol analysis of within-group changes across time between the two groups showed similar results. From adjusted analysis, we found intervention effects in the expected direction for mental health literacy (*DoD* = 0.10; 95% CI: -0.07, 0.27; p = 0.24), mental health stigma (*DoD* = 1.84; 95%

CI: -3.81, 0.13; p = 0.07), perceived barriers to help-seeking in school (*DoD* = -2.71; 95% CI: -5.40, -0.02; p = 0.05), openness to seeking help (*DoD* = 0.82; 95% CI: 0.36, 1.27; p = 0.001), psychological empowerment to support peers (*DoD* = 1.79; 95% CI: -0.08, 3.66; p = 0.06), and self-efficacy (*DoD* = 1.72; 95% CI: 0.27, 3.17; p = 0.02). Figure 6 illustrates the changes in mean scores between the two groups across baseline and 12-week follow-up (see Supplementary Tables 2 and 3 for characteristics of participants with complete data and the results from per-protocol analysis, respectively).

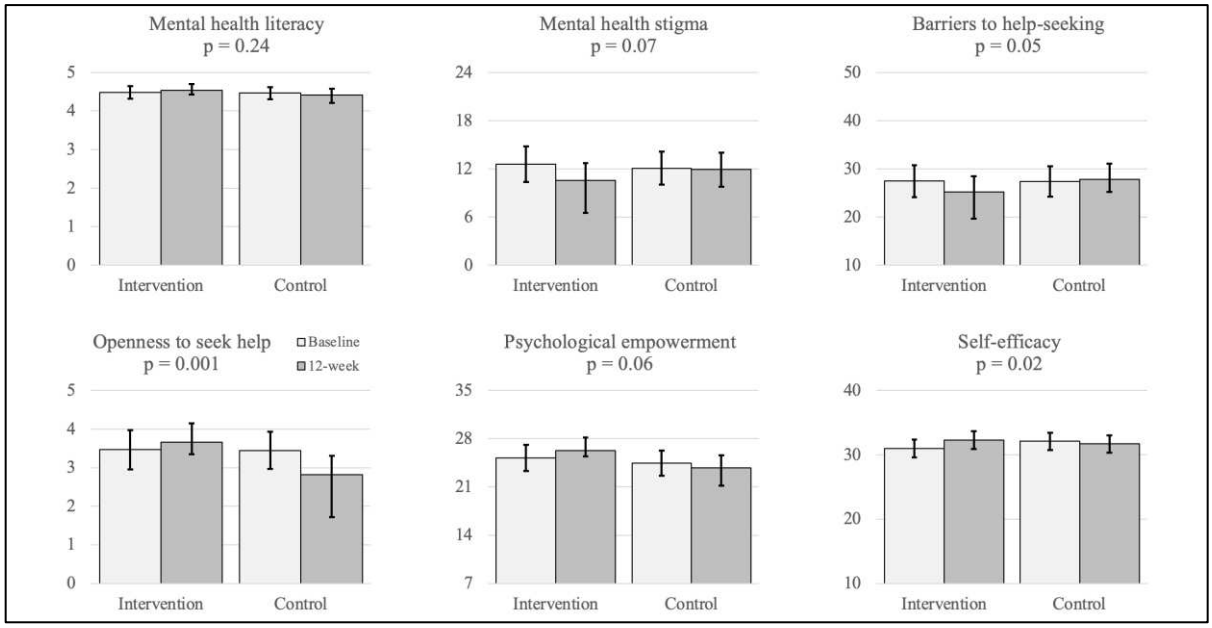


Figure 6: Preliminary efficacy outcomes measured at baseline and 12-week follow-up, per-protocol analysis (n = 87)

Note. Models adjusted for class year, gender, and race. Positive estimates indicate greater improvement in the intervention group relative to the control. For stigma and barriers to help-seeking, negative estimates indicate greater reduction (improvement) in the intervention group.

Additional qualitative themes

Four themes emerge regarding participants' learning from the BTC: (1) learning new skills to support peers; (2) refresher of prior knowledge; (3) greater openness toward personal help-seeking; and (4) limited knowledge recall.

Learning new peer support skills. Some first-year college students reported that the BTC taught them new peer support skills. One student commented:

> "*Before the [Be There] Certificate and before college in general, I was not great at supporting people at all. Part of it was I didn't know what to do the second they had an emotional response. So my main method was just hand them to someone who could handle it and leave. But after going through the certificate, it definitely gave me more options than just hand off and leave … Part of it is the [BTC's] coursework goes over how to approach someone if they haven't asked for help yet without making it worse, which I had never really been shown a way to reach out without a major risk of making it worse*" (school B, first-year, gender minority).

Refresher of prior knowledge. Those with more mental health training and extensive experience with supporting others, such as psychology major students, often described the BTC as a refresher of best practices when supporting others. While noting that they did not learn much new content, these students appreciated reviewing more challenging peer support skills, such as setting boundaries and practicing self-care when helping others. One student shared: "*I think the biggest thing is setting boundaries is what I've learned mainly from the Be There Certificate. Cause it's hard to do that, especially because a lot of people don't know how or they don't want to make it seem like, 'oh, if I can't do this one thing, I'm not here for you at all'. But I think setting that line of how much I'm around is important*" (school A, third-year, woman).

Greater openness toward help-seeking for personal mental health. While the BTC's focus was on supporting others, some participants also described developing more openness toward accepting support from others after the training:

> *"This is like a huge transition for me. So the [Be There] Certificate showed that I could talk to other people about my emotions and how school support is there and how I can support my*

friends who are also going through this giant change … Doing the Be There Certificate and having the focus being on helping the people around you made me step into the others' shoes and be like, 'oh, well people want to help me and be there for me, so maybe I should just accept that' "(school B, first-year, woman).

Limited recall. Several other students had difficulty providing in-depth descriptions of their learning from the BTC. Some of these participants attributed the poor recall to the extended time lapse between course completion and interview dates, while those with prior mental health training had difficulty distinguishing the BTC's content from knowledge they learned elsewhere. When asked to compare their learning from the BTC with prior courses, some participants also noted greater learning gains from longer courses that included in-person group activities. One participant explained: *"In the in-person class, there was more human interaction. I did the group work. We were writing on the board together. And I think I take more away from it [as compared to the BTC]"* (school A, final-year, woman). To increase knowledge retention, some students suggested that the BTC could include end-of-course prompts to encourage real-life peer support practices and sharing personal learning with others. Several participants also expressed a desire to receive additional refresher training.

Discussion

From our convergent mixed-methods design study, we found that the Be There Certificate (BTC) had high feasibility, usability, and acceptability among college students. Our results also revealed the training's preliminary efficacy in improving participants' mental health literacy, psychological empowerment to support peers, openness to seek help, and self-efficacy, while reducing mental health stigma and perceived barriers to help-seeking in school. Our qualitative data further revealed that the BTC's brief, self-guided design may have facilitated the high completion rate, and the user-friendly course interface contributed to its usability. Participants described many valuable aspects of the course, including its engaging and interactive elements, relatable real-life stories, and focus on useful

peer support skills. After training completion, some young adults described learning new skills to support peers, having a refresher of prior knowledge, and developing greater openness toward help-seeking for personal mental health.

The intervention's feasibility, usability, and acceptability

Our mixed-method findings converge regarding the BTC's high feasibility and acceptability. Many participants enjoyed learning peer support content through the BTC, and most participants completed the course. These findings are consistent with the high feasibility and acceptability of online peer support training for young adults (50,51). Qualitative findings additionally revealed that college students viewed the training as highly relevant, which could be attributed to the high baseline prevalence of peer support interactions among our study participants, all of whom lived in shared housing

Regarding the BTC's usability, quantitative results from this pilot study did not meet our hypothesis. While many young adults described the course as simple and easy to use, some participants encountered issues navigating through parts of the course and locating specific features. As such, the BTC may benefit from adding clearer instructions to improve course navigation. Nevertheless, the mean usability score indicates that the BTC still has an "excellent" rating (52,53).

The intervention's preliminary efficacy and learning outcomes

We detected training effects on several antecedents of peer support behaviors, with a small to medium effect of the BTC on increasing participants' mental health literacy, openness to seek help, and self-efficacy, while lowering mental health stigma and perceived barriers to help-seeking in schools. Similarly, qualitative data showed that some young adults developed more openness toward disclosing personal distress with others and accepting support from peers after watching real-life stories of peer support from the course. Previous research on youth digital mental health interventions has found that empowering users as experts and featuring success stories from peers can improve

young people's perceived control, agency, and expectation of change (54,55). These findings are consistent with the small to medium effect size for brief, self-guided peer support interventions (15,17).

Our quantitative findings also revealed a medium effect size from the BTC in increasing participants' psychological empowerment to support peers. Qualitative results corroborated this finding, where some participants reported learning new peer support skills from the BTC. Several students with prior mental health training also described the course as a good refresher of foundational peer support skills.

Nevertheless, we did not detect a training effect in confidence or behaviors among participants in providing various forms of peer support, such as offering emotional support and connecting friends to mental health resources. One possible explanation is the ceiling effect from the high prevalence of peer support behaviors and high confidence levels among our participants at baseline. Qualitative results also suggest that some participants had difficulties recalling specific knowledge from the BTC, while others reported higher learning gains from other longer courses with in-person human interactions. These may indicate potential limitations of brief, online training. Existing literature has also shown mixed results regarding the effectiveness of peer-help training programs on increasing the frequency of helping behaviors among young adults and suggested the need for training evaluations to additionally assess the quality of support after course completion (20). Our qualitative findings showed that some students, despite their familiarity with peer support content, still reported challenges with establishing boundaries and practicing self-care when supporting others. As such, peer support training programs like the BTC may improve students' experiences when providing peer support without increasing the frequency of such behaviors.

Brief self-guided courses like the BTC are highly scalable in terms of resources and staffing requirements and could be broadly implemented as a public health tool to improve young adults'

mental health (56). Based on these preliminary results, future large-scale trials could focus on examining the impact of the BTC among young adults, especially among those without extensive prior mental health training, such as first-year college students. Future trials should also evaluate the BTC over a longer period to examine the durability of the training effects and explore strategies such as booster sessions to bolster long-term impact. Beyond examining the intervention impact at the individual and interpersonal levels, future large-scale studies could also explore the impact of the BTC on broader social- and institution-wide factors, such as campus culture and community participation, across different school contexts (57).

Study limitations

This pilot study has several limitations. First, the study sample is limited to college students enrolled at two private Northeastern US schools and living in shared housing, thereby limiting generalizability. Future studies could explore how the BTC may differentially impact other groups of students, such as those living off campus.

Second, our feasibility outcomes may have been influenced by research study compensation, and training completion rates may be lower in the real world (58). Although our findings suggest that those with prior mental health training might have less learning gains from the BTC. we did not collect and adjust for students' academic majors in our analysis. We nevertheless adjusted for academic class year in our analysis.

Conclusion

This pilot study demonstrates the feasibility, usability, acceptability, and preliminary efficacy of the Be There Certificate in improving mental health literacy, self-efficacy, empowerment to support peers, and openness to seek help, while lowering mental health stigma and perceived barriers to help-

seeking in schools. Overall, these findings highlight the need for more research on interventions to facilitate supportive and safe peer support interactions among young adults. Our results also contribute to the growing evidence on the efficacy of peer support interventions in improving young adults' mental health and well-being.

Abbreviations

BTC	Be There Certificate
SUS	System Usability Scale
AIM	Acceptability of Intervention Measure

Supplementary information

The online version contains supplementary materials available at [link]

Additional File 1. CONSORT Checklist.
Additional File 2. Supplementary table 1. Preliminary efficacy outcomes and measures, measured at baseline (T0) and 12-week follow-up (T2).
Additional File 3. Supplementary table 2. Participant demographic, per-protocol analysis.
Additional File 4. Supplementary table 3. Difference-of-differences estimates, per-protocol analysis.

Declarations

Ethics approval and consent to participate

This study received approval from the Yale University Human Subjects Committee Review Board (2000039773) and was registered at ClinicalTrials.gov (NCT07460635). Informed consent was obtained from all participants electronically prior to enrollment.

Consent for publication

599 Not applicable.

600 **Availability of data and materials**

601 The datasets used and/or analyzed during the current study are available from the corresponding
602 author on reasonable request.

603 **Competing interests**

604 CFF and FG are employed by Born This Way Foundation and AW is employed by Jack.org. None of
605 these authors were involved in the data collection, data analysis, or data interpretation.

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609 **Authors' contributions**

610 KH, DRC, and CFF designed and conceptualized the study. KH and DRC provided overall
611 supervision for the project. SV served as the main research coordinator and managed community
612 partnership, participant recruitment, data collection, and data analysis. SM conducted statistical
613 analysis under the supervision of VS. For qualitative data analysis, SV, AM, and PK performed
614 coding and thematic analysis and received supervision from KH and DRC. Writing of the manuscript
615 was led by SV; all other authors contributed to the final manuscript. All authors have read and agreed
616 to the published version of the manuscript.

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Supplementary tables

Supplementary table 1. Preliminary efficacy outcomes and measures, measured at baseline (T0) and 12-week follow-up (T2)

Construct	Outcome	Measure
Knowledge	Mental Health Literacy	Mental health literacy was assessed using two subscales of the Mental Health Literacy Questionnaire–Short Version for Adults (MHLq-SVa) (45), including the Knowledge of Mental Health Problems (6 items) and Self-help Strategies (4 items) subscales. Items were rated on a 5-point Likert scale ranging from 1 (*Strongly disagree)* to 5 (*Strongly agree).* Mean scores range from 1 to 5, with higher scores indicating greater mental health literacy. The MHLq-SVa demonstrated good internal consistency among a sample of undergraduate students: the Knowledge of Mental Health Problems subscale (α = .83) and the Self-help Strategies subscale (α = .86) (59).
Attitudes and Perceptions	Mental Health Stigma	Mental health stigma was measured using the 12-item Anticipated Stigma and Self-stigma subscales of the Stigma and Self-Stigma Scales (SASS) (46). The 12 items were rated on a 5-point Likert scale from 0 (*Strongly disagree)* to 5 (*Strongly agree)*. Subscale scores range from 0 to 24, with higher scores indicating greater anticipated stigma and self-stigma. In the original psychometric validation study, the Anticipated Stigma and Self-Stigma subscales demonstrated good internal consistency (α = .88 and .84, respectively).
Attitudes and Perceptions	Attitudes Toward Seeking Professional Psychological Help	Attitudes toward seeking professional psychological help were measured using the 10-item Attitudes Toward Seeking Professional Psychological Help Scale–Short Form (ATSPPH-SF) (60). Items were rated on a 5-point scale ranging from 1 (*Strongly disagree*) to 5 (*Strongly agree*). Total scores range from 10 to 50, with higher scores indicating more positive attitudes toward seeking professional psychological help. In the original study, ATSPPH-SF was validated and demonstrated good internal consistency with college students (α = .84) in the original study.
Attitudes and Perceptions	Barriers to Accessing Mental Health Resources	For perceived barriers to accessing campus mental health resources, we adapted items from the category of Adolescent Mental Health Support Scale (AMHSS) measuring barriers to mental health service use in school (47). Participants rated their agreement with 10 statements reflecting structural, attitudinal, and stigma-related barriers using a 5-point Likert scale ranging from 1 (*Strongly disagree*) to 5 (*Strongly agree*). Total scores range from 10 to 50, with higher scores indicating greater perceived barriers to accessing mental health resources. The barriers scale has good internal consistency among both high school students (α = .88). In the present sample with college students, the barriers scale has good internal consistency (α = .83).
Attitudes and Perceptions	Openness to Seeking	For openness to seeking mental health help, we adapted a single item from Adolescent Mental Health Support Scale (AMHSS) measuring

	Mental Health Help	desire to use mental health services (47). The item read: "In the next three months, I intend to seek help for my mental health if I need it (e.g., from a peer supporter, counselor, or healthcare professional)." Instead of measuring past desire in the original scale, we modified the temporal direction to assess future intention to better reflect the experiences of navigating a changing support system among first-year students. The item was rated on a 5-point scale ranging from 1 (*Strongly disagree*) to 5 (*Strongly agree*). Total scores range from 1 to 5, with higher scores indicating greater intention to seek help.
Behaviors	Frequency of Providing Peer Support	The frequency of peer support provision was assessed using a three-item measure developed for the present study. The measure assessed the frequency of providing emotional support, offering mental health guidance, and connecting peers to professional mental health resources. A sample item was, “During the past 3 months, how many times did you help a friend with an emotional challenge or problem?” Items were rated on a 4-point frequency scale ranging from 0 (*Never*) to 3 (*4 or more times*).
Behaviors	Help-seeking Behaviors	For help-seeking behaviors, we adapted items from the past usage of mental health support category of the Adolescent Mental Health Support Scale (AMHSS) to assess the frequency with which participants sought help from different support sources within the past three months (47). Participants reported how often they sought support from 10 potential sources using a 4-point frequency scale ranging from 0 *(Never)* to 3 *(4 or more times).* Higher item scores indicated more frequent help-seeking from a specific support source.
Psychosocial	Psychological Empowerment	To assess psychological empowerment, we adapted the 7-item Relational Empowerment subscale of the Recovery Empowerment Scale (48) to measure participants' empowerment to support peers experiencing mental health challenges. Items were rated on a 5-point scale ranging from 1 (*Almost never*) to 5 (*Almost always*). Total scores range from 7 to 35, with higher scores indicating greater empowerment. The Relational Empowerment subscale showed excellent internal consistency in the original study (α = .96).
Psychosocial	Empathy	Empathy was measured using the 20-item Basic Empathy Scale (BES), which captures both cognitive empathy (understanding another person's emotions) and affective empathy (sharing another person's emotions) (61). Responses were recorded on a 5-point Likert scale ranging from 1 *(Strongly disagree)* to 5 *(Strongly agree).* Total scores range from 20 to 100, with higher scores indicating greater empathy. Among U.S. undergraduate students, the total BES demonstrated good internal consistency (α = .82) (62).
Psychosocial	Psychological Empowerment	To assess psychological empowerment, we adapted the 7-item Relational Empowerment subscale of the Recovery Empowerment Scale (48) to measure participants' empowerment to support peers experiencing mental health challenges. Items were rated on a 5-point scale ranging from 1 (*Almost never*) to 5 (*Almost always*). Total scores range from 7 to 35, with higher scores indicating greater empowerment. The Relational Empowerment subscale showed excellent internal consistency in the original study (α = .96).

Psychosocial	Confidence in Providing Peer Support	We measured confidence in providing peer support using a three-item measure developed specifically for this study, like previous peer support research (12). Based on the BTC's curriculum, the measure assessed participants' confidence in providing emotional support, offering mental health guidance, and connecting peers to professional mental health resources. A sample item was: "How confident are you in providing emotional support to a friend who is having an emotional challenge or problem?" Items were rated on a 5-point scale ranging from 1 (*Not at all confident*) to 5 (*Extremely confident*). In the present sample, the scale demonstrated acceptable internal consistency (α = .71).
Psychological	Self-Efficacy	Self-efficacy was assessed using the 10-item General Self-Efficacy Scale (GSE) (49). Items are rated on a 4-point Likert scale ranging from 1 (*Not at all true*) to 4 (*Exactly true*), with total scores ranging from 10 to 40. Higher scores indicate greater self-efficacy. The GSE has demonstrated excellent internal consistency among U.S. college students (Cronbach's α = .91) (63).
Psychological	Self-Esteem	Self-esteem was assessed using the 10-item Rosenberg Self-Esteem Scale (RSE) (62). Items were rated on a 5-point Likert scale ranging from 1 (*Strongly disagree)* to 5 (*Strongly agree).* Total scores range from 10 to 50, with higher scores indicating greater self-esteem. The RSE has demonstrated good reliability among university students (α = .88) (64).

Supplementary table 2. Participant demographics, per-protocol analysis (n = 87)

	Intervention (N=47)	**Control (N=40)**	**Total (N=87)**
School			
School A	22 (46.8%)	16 (40.0%)	38 (43.7%)
School B	25 (53.2%)	24 (60.0%)	49 (56.3%)
Age			
Mean (SD)	19.0 (1.03)	18.6 (0.98)	18.8 (1.02)
Median [Min, Max]	19.0 [18.0, 21.0]	18.0 [18.0, 22.0]	18.0 [18.0, 22.0]
Academic class year			
First year	21 (44.7%)	26 (65.0%)	47 (54.0%)
Second year	3 (6.4%)	10 (25.0%)	13 (14.9%)
Third year	19 (40.4%)	2 (5.0%)	21 (24.1%)
Final year and graduate student	4 (8.5%)	2 (5.0%)	6 (6.9%)
Gender			
Man	2 (4.3%)	9 (22.5%)	11 (12.6%)
Woman	37 (78.7%)	29 (72.5%)	66 (75.9%)
Gender minority	8 (17.0%)	2 (5.0%)	10 (11.5%)
Race/ethnicity			
Asian or Asian American	2 (4.3%)	3 (7.5%)	5 (5.7%)

Black or African American	3 (6.4%)	6 (15.0%)	9 (10.3%)
Hispanic or Latino/a/x	5 (10.6%)	9 (22.5%)	14 (16.1%)
White	35 (74.5%)	20 (50.0%)	55 (63.2%)
Multiracial / multiethnic	2 (4.3%)	2 (5.0%)	4 (4.6%)
Socioeconomic status			
Don't meet basic expenses	3 (6.4%)	3 (7.5%)	6 (6.9%)
Just meet basic expenses	13 (27.7%)	10 (25.0%)	23 (26.4%)
Live comfortably	19 (40.4%)	16 (40.0%)	35 (40.2%)
Meet needs with a little left	12 (25.5%)	9 (22.5%)	21 (24.1%)
Prefer not to answer	0 (0%)	2 (5.0%)	2 (2.3%)
Academic accommodation			
Not receiving accommodation	34 (72.3%)	31 (77.5%)	65 (74.7%)
Have at least one accommodation	13 (27.7%)	9 (22.5%)	22 (25.3%)
Sexual orientation			
Heterosexual	23 (48.9%)	24 (60.0%)	47 (54.0%)
Sexual minority	22 (46.8%)	15 (37.5%)	37 (42.5%)
Prefer not to answer	2 (4.3%)	1 (2.5%)	3 (3.4%)

Supplementary table 3. Difference-of-differences estimates, per-protocol analysis (n = 87)

Outcomes	Unadjusted estimates		Adjusted estimated		Cohen's *d*
	Estimate (95% CI)	p-value	Estimate (95% CI)	p-value	
Mental Health Literacy[a]	0.01 (-0.08, 0.09)	0.25	0.10 (-0.07, 0.27)	0.24	0.28
Mental health Stigma[b]	-0.94 (-1.94, 0.07)	0.04	-1.84 (-3.81, 0.13)	0.07	0.40
Perceived Barriers to Help-seeking in School[c]	-0.95 (-2.33, 0.42)	0.01	-2.71 (-5.40, -0.02)	0.05	0.35
Openness to Seek Help[c]	-0.21 (-0.45, 0.03)	0.001	0.82 (0.36, 1.27)	0.001	0.68
Empowerment to Support Peers[d]	0.24 (-0.71, 1.19)	0.09	1.79 (-0.08, 3.66)	0.06	0.39
Self-Efficacy[e]	0.53 (-0.21, 1.27)	0.02	1.72 (0.27, 3.17)	0.02	0.50

Note. Adjustment variables were class year, gender, and race. Positive estimates indicate greater improvement in the intervention group relative to the control. For stigma and barriers to help-seeking, negative estimates indicate greater reduction (improvement) in the intervention group.

[a]Mental Health Literacy Questionnaire–Short Version for Adults (MHLq-SVa) (45); [b]Stigma and Self-Stigma Scales (SASS) (46); [c]Adolescent Mental Health Support Scale (AMHSS) (47); [d]Recovery Empowerment Scale (48); [e]General Self-Efficacy Scale (GSE) (49)

Supplementary Files

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