Stigma and Health

Honest, Open, Proud–College: Effectiveness of a Peer-Led Small-Group Intervention for Reducing the Stigma of Mental Illness

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Although many college students face mental health challenges, the rate of mental health service utilization among students is low. Stigma complicates the experience of mental health problems, and interferes with students' likelihood of pursuing needed services. This randomized controlled trial examines the effectiveness of a peer-led group-based intervention for students living with mental illness. Honest, Open, Proud–College (HOP-C) aims to reduce the stigma of mental illness and help participants make informed decisions about whether and how to disclose their mental health status. In a sample of 118 students across 3 campuses, randomized to HOP-C or a waitlist, the intervention evidenced significant benefits for (a) self-stigma about mental illness (particularly, harm from self-applied stereotypes), (b) appraisals of perceived resources to cope with stigma-related distress (but not appraisals of stigma as a stressor), and (c) self-efficacy about disclosure of their mental health status (but not self-efficacy about keeping mental health status a secret). Exploratory analysis did not support HOP-C as improving participants' symptoms of depression or anxiety. HOP-C has promise for addressing the prevalent challenges of mental health stigma, which in turn may help students receive needed services to improve their mental health and associated life outcomes.

Keywords: college students, mental health stigma, disclosure, intervention, randomized controlled trial

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While college attendance rates have been rising (McFarland et al., 2018), so have prevalence rates of psychopathology in college students (Lipson, Lattie, & Eisenberg, 2018; Twenge, Campbell, Hoffman, & Lance, 2010). According to data from two national surveys of hundreds of counseling centers, depression and anxiety are the most common presenting concerns among college students, and have been particularly increasing in recent years (Center for

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Collegiate Mental Health [CCMH], 2019; Reetz, Baar, & Krylowicz, 2013; Reetz, Bershad, LeViness, & Whitlock, 2016). Approximately 40% of college students screen positive for clinically significant symptoms of major depression, generalized anxiety, or eating disorders (Lipson & Eisenberg, 2018). Further, several sources report psychological distress to be higher in college students than in general community samples (e.g., Adlaf, Gliksman, Demers, & Newton-Taylor, 2001; Cotton, Dollard, & De Jonge, 2002; Roberts, Golding, Towell, & Weinreb, 1999; Roberts & Zelenyanszki, 2002; Stallman, 2010).

Mental health challenges in college students can negatively impact their academic performance and retention (American College Health Association [ACHA], 2018; Arria et al., 2013; Brackney & Karabenick, 1995; Gerdes & Mallinckrodt, 1994; Pritchard & Wilson, 2003; Stallman, 2010; also see Kessler, Foster, Saunders, & Stang, 1995), as well as longer-term career outcomes such as job opportunities, career productivity, career satisfaction, and income (Eisenberg, Golberstein, & Hunt, 2009; Ettner, Frank, & Kessler, 1997; Howard, Galambos, & Krahn, 2010; Kessler et al., 1995). Further, mental health is intricately connected to numerous outcomes both intrapersonal (e.g., life satisfaction; Howard et al., 2010; Renshaw & Cohen, 2014) and interpersonal (e.g., relation-

ship quality, Salzer, 2012; romantic partner satisfaction, Rao, Hammen, & Daley, 1999; divorce and length of marriage, Kessler, Walters, & Forthofer, 1998), during college and beyond.

Complicating mental health challenges further, many students perceive stigma about mental illness, or endorse self-stigma, particularly as it relates to treatment-seeking (Lipson, Kern, Eisenberg, & Breland-Noble, 2018). Self-stigma can be understood theoretically as consisting of four progressive stages: awareness of negative stereotypes about people with mental illness, agreement with those stereotypes, application of those stereotypes to oneself, and resulting psychological harm (Corrigan, Rafacz, & Rüsch, 2011). Personal or self-stigma is particularly damaging, as it is associated with lower quality of life and diminished self-esteem and self-efficacy (Corrigan & Shapiro, 2010; Corrigan, Watson, & Barr, 2006; Quinn & Earnshaw, 2013). In college students specifically, self-stigma is associated with lower likelihood of help-seeking and poor academic outcomes (Eisenberg, Downs, Golberstein, & Zivin, 2009; Quinn, Kahng, & Crocker, 2004). Further, self-stigma in college students is negatively associated with perceived need for mental health services and with actual help-seeking, including pursuing psychotherapy, taking psychotropic medication, and seeking informal support from nonclinical sources (Eisenberg et al., 2009; also see Vogel, Wade, & Hackler, 2007).

Given the detrimental nature of mental health stigma, it is not surprising that students with mental health challenges have a low rate of utilizing mental health services. Just over a fifth of students with apparent mental health needs are currently receiving mental health treatment, and just over a third have done so within the past year (Eisenberg, Hunt, Speer, & Zivin, 2011; Lipson, Zhou, Wagner, Beck, & Eisenberg, 2016). Thus, college campuses need alternative approaches to address the student mental health treatment gap, and an important part of that effort is addressing the stigma of mental illness directly among this population.

Honest, Open, Proud (HOP) Intervention

Honest, Open, Proud (previously called Coming Out Proud; Corrigan et al., 2011; Rüsch et al., 2014) is a peer-led group-based intervention for those who self-identify as living with mental illness. The goal of the program is to empower participants to make decisions about whether and how to disclose their mental health status to others, and to reduce self-stigma and its impact in the process. Indeed, making informed decisions about whether and how to disclose one's mental health status may be an important element in decreasing self-stigma. In general, those who have disclosed their experiences with mental illness report higher quality of life and personal empowerment (Corrigan & Shapiro, 2010). However, disclosure decision-making must consider social context (Greene, Derlega, & Mathews, 2006), and in some situations *not* disclosing is the more favorable approach. To that end, selective disclosure, involving a discriminant approach with respect to what and with whom one discloses (Corrigan et al., 2006), has been shown to be an adaptive identity management strategy (Ilic et al., 2014) that enhances one's social support while also minimizing stigmatizing responses (Bos, Kanner, Muris, Janssen, & Mayer, 2009). Thus, HOP targets disclosure-related self-efficacy, meaning that participants have greater confidence in their ability to make decisions about whether, when, and what to disclose. HOP sessions, led by trained peers who also identify as living with mental

illness, include vignettes, role-plays, self-reflection exercises, and group discussions about disclosure, including a consideration of pros and cons of disclosing in different settings, and ways to share one's story.

HOP has been examined in three previous randomized controlled trials (RCTs). The first study randomized 100 adults who self-reported one or more current *Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition* (*DSM–IV*; American Psychiatric Association, 1994) disorders, and at least a moderate amount of distress related to disclosure of their mental illness, to HOP or treatment as usual; results showed significant intervention effects on stigma-related stress, secrecy, and disclosure-related distress, as well as increases in perceived benefits of disclosure (Rüsch et al., 2014). In a second RCT with 126 adults who identified as having a mental illness or mental health challenge as well as related shame, intervention participants, relative to those on a waitlist, demonstrated reductions in self-stigma (including agreeing with stereotypes and applying stereotypes to oneself), and stigma-related stress and coping (including appraisals of stigma as harmful, and perceived resources to cope with stigma-related harm; Corrigan et al., 2015). A third trial examined an adaptation of HOP for adolescents, with a sample of 98 predominantly inpatient participants who self-reported one or more psychological disorders and at least a moderate level of disclosure-related distress (Mulfinger et al., 2018). HOP participants, compared with treatment-as-usual participants, showed improvements in self-stigma, appraisals of stigma as stressful, empowerment, disclosure-related distress, secrecy, social withdrawal, help-seeking intentions, attitudes to disclosure, stage of recovery, and quality of life, at postintervention and/or a 3-week follow-up (Mulfinger et al., 2018).

Although the HOP intervention is not designed to reduce psychological distress directly, Mulfinger and colleagues (2018) found that the program reduced depression symptoms at a 3-week follow-up assessment, but not at posttreatment, for its adolescent participants. Corrigan and colleagues (2015) found that adult women, but not men, participating in HOP experienced reduced depression. Although neither study examined anxiety symptoms, anxiety and depression are closely related (Watson et al., 1995), and both highly prevalent (CCMH, 2019; Hunt & Eisenberg, 2010; Reetz et al., 2016) and comorbid (Eisenberg, Gollust, Golberstein, & Hefner, 2007) among college students and, thus, might be similarly affected by the HOP intervention in a college-student sample.

Al-Khouja and colleagues (Al-Khouja, Wilson, & Corrigan, 2015) conducted a community-based participatory research (CBPR) project to adapt HOP for university students, yielding an intervention called Honest, Open, Proud–College, or HOP-C. Eight students (ages 18–24) who had personal experiences with mental illness were recruited through the campus Active Minds group to participate in four 2-hr focus-group sessions about making the HOP intervention relevant for college students. Important themes that emerged from this CBPR process, which were incorporated into the HOP-C protocol, included (a) an interest in focusing on depression and anxiety (vs. more of a focus on severe mental illness in the general adult version of HOP), (b) a need to focus on family support and other peer or student support (compared with a focus on work settings and relationships in the general adult version of HOP), and (c) an interest in addressing disclosure through social media. These three themes fit with existing literature on (a) the most prevalent mental health concerns in college

populations (CCMH, 2019), (b) the social landscape that college students encounter (Lane, 2015; Mayhew et al., 2016), and (c) the prevalence of social media, and its use for self-disclosure, in adolescents' and emerging adults' lives (Smith & Anderson, 2018; Spies Shapiro & Margolin, 2014; Trepte & Reinecke, 2013). Accordingly, HOP-C includes new vignettes that are more relevant to mental health disclosure in the college context (i.e., examples with professors, classmates, and student groups; focusing more on depression and anxiety as mental health concerns) and a new section devoted to disclosure through social media.

The Present Study

The present study tested the effectiveness of HOP-C with students from three different universities. Based on findings in prior trials of HOP, this research examined the hypotheses that the program would: (1) reduce self-stigma about mental illness, specifically participants' (a) agreement with stereotypes, (b) application of stereotypes to themselves, and (c) harm from self-applied stereotypes; (2) improve participants' appraisals of stigma stress and coping, specifically, (a) reduce participants' cognitive appraisal of stigma as a harmful stressor and (b) improve participants' appraisal of perceived resources to cope with stigma-related distress; and (3) improve participants' self-efficacy about (a) making the decision to disclose their mental health status versus (b) making the decision to keep their mental health status secret. In addition, based on two prior trials finding that the intervention reduced depression, and the high prevalence of both depression and anxiety, which are closely related in college students, we pursued exploratory analyses to investigate whether HOP-C would impact these two psychological outcomes.

Method

Participants

Students ($N = 118$) were recruited across three university campuses in two urban settings in the United States, with undergraduate enrollments ranging from approximately 3,000 to 12,000, and graduate enrollments ranging from approximately 3,000 to 5,000: 75 (63.6%) from Campus 1, 25 (21.2%) from Campus 2, and 18 (15.3%) from Campus 3. Figure 1 presents a CONSORT diagram of participant flow through stages of the study. Despite random assignment, the HOP-C group had nine more research participants than the control group did at allocation (T1). There was a high rate of response (83.05 to 99.15%) at each stage of the assessment. Sample characteristics are noted in Table 1 and described in the Results.

Procedure

With approval from all three Institutional Review Boards, participants were recruited via flyers, emails, social media sites, student services offices, and in-person tabling (i.e., having an informational display on campus with a researcher present to answer questions). Inclusion criteria included being a university student aged 18 or older who identified as having a mental illness or mental health challenge. Informed consent occurred in-person on Campus 1 and 3, and online at Campus 2. To randomize
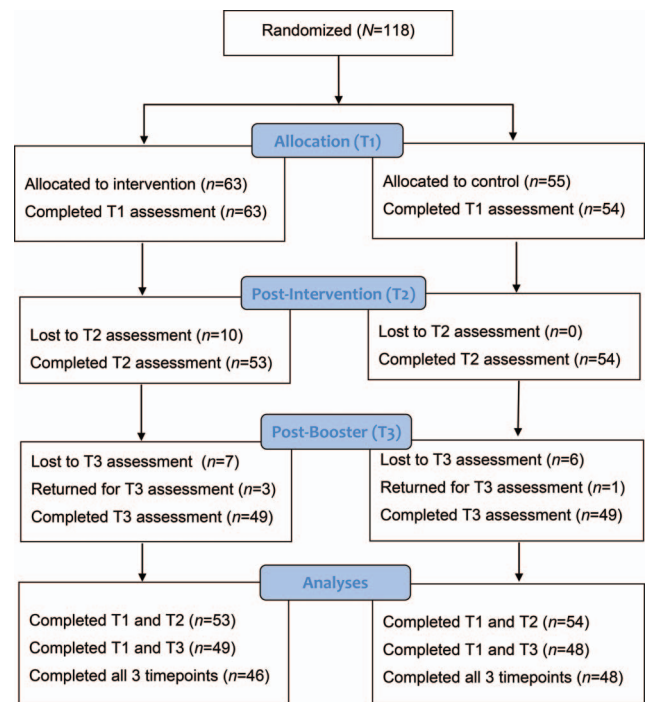

Figure 1. CONSORT flow diagram of research participation by group. See the online article for the color version of this figure.

participants to a condition, Campus 1 used blindly shuffled pieces of paper, Campus 2 did the same in the second year and used an online random number generator in the first year, and Campus 3 used a coin toss. Participants were randomly assigned to HOP-C ($N = 63$) or a waitlist control ($N = 55$). Control participants were later offered the full HOP-C program without completing questionnaires or receiving compensation (i.e., they did not participate in the trial again). Online survey links were sent out to all participants before the intervention started (T1), within 3 days after the end of the core intervention (T2), and within 3 days after the booster session (T3), described below.

Peer facilitators were recruited from relevant student groups, e-mail listservs, and the pool of previous study participants. Facilitators participated in a 2-day training before facilitating groups. The HOP-C manual (Al-Khouja, Corrigan, & Nieweglowski, 2017a) and workbook (Al-Khouja, Corrigan, & Nieweglowski, 2017b) are publicly available online (www.comingoutproudprogram.org/index.php/coming-out-proud-on-college-campuses). The intervention includes three main lessons, similar to the original HOP intervention, and a booster, which had not been included in prior trials of HOP. These lessons can be administered across various timelines as noted in the manual (Al-Khouja et al., 2017a). For the current trial, participants attended weekly workshops for the three main lessons, and then a booster workshop 2 to 3 weeks later. The first lesson began with a discussion of what it means to identify as a person with mental illness, and focused on the costs and benefits of disclosure, particularly in peer and family relationships. The second lesson taught different ways of disclosing, and included a discussion of social media disclosure. In these first two lessons, there was an acknowledgment that costs and benefits of disclosure

Table 1

Characteristics of Research Participants at Baseline (Preintervention)

	All participants ($n = 118$) $M(SD)$ or $n(\%)$	HOP-C ($n = 63$) $M(SD)$ or $n(\%)$	Control ($n = 55$) $M(SD)$ or $n(\%)$	t or χ^2	p
Sociodemographic variables					
Age[a]	20.8 (4.99)	20.24 (2.87)	21.35 (6.62)	−1.21	.23
Female	97 (82.2%)	53 (84.1%)	44 (80.0%)	.34	.56
Heterosexual	79 (66.9%)	42 (66.7%)	37 (67.3%)	.01	.94
Race, White	81 (68.6%)	44 (69.8%)	37 (67.3%)	.51	.48
Ethnicity, non-Hispanic	97 (82.2%)	56 (88.9%)	41 (74.5%)	4.13	.04*
Education, undergrad	102 (86.4%)	54 (85.7%)	48 (87.3%)	.06	.81
Housing, on-campus	73 (61.9%)	43 (68.3%)	30 (54.5%)	2.34	.13
School				.58	.78
Campus 1	75 (63.6%)	39 (61.9%)	36 (65.5%)		
Campus 2	25 (21.2%)	15 (23.8%)	10 (18.2%)		
Campus 3	18 (15.3%)	9 (14.3%)	9 (16.4%)		
Mental health variables					
Previous therapy/counseling	95 (80.5%)	53 (84.1%)	42 (76.4%)	1.13	.29
Previous medication	75 (63.6%)	42 (66.7%)	33 (60.0%)	.56	.45
Current therapy/counseling	51 (43.2%)	26 (41.3%)	25 (45.5%)	.21	.66
Current medication	66 (55.9%)	36 (57.1%)	30 (54.5%)	.08	.78
Clinically elevated depression[b]	100 (85.5%)	54 (85.7%)	46 (85.2%)	.01	.94
Clinically elevated anxiety[b]	81 (69.2%)	40 (63.5%)	41 (75.9%)	2.11	.15

Note. HOP-C = Honest, Open, Proud–College. Clinically elevated depression scores are at or above the clinical at-risk cutoff of 10 on the Center for Epidemiologic Studies Short-Depression Scale 10 (CES-D 10; Kohout, Berkman, Evans, & Cornoni-Huntley, 1993). Clinically elevated anxiety scores are at or above the clinical at-risk cutoff of 10 on the Generalized Anxiety Disorder 7-Item Scale (GAD-7; Spitzer, Kroenke, Williams, & Löwe, 2006).
[a] Statistics for age (a continuous variable) include means, *SD*s, and *t* test values comparing HOP-C and Control participants. For all other variables (i.e., categorical), statistics include numbers, percentages, and χ^2 values. [b] For these variables data are available for 117 of 118 participants overall, or 54 of 55 HOP-C participants, because of one participant not completing the baseline assessment (all other variables were interpolated based on responses in later timepoints).
* $p < .05$.

may vary across settings and relationships. In lesson three, participants crafted their own personal disclosure stories, including elements of both challenges and triumphs, and had the opportunity to practice telling their story. Finally, the booster session included a check-in about whether participants chose to disclose since the last group session, how these decisions were made, and how it went for those who did disclose. Additional details about the HOP-C Lessons and Assessments are available in an online supplemental material.

Measures

Demographic variables. Participants provided information on age, gender, sexual orientation, ethnicity, race, level of education, and housing (e.g., on- or off-campus housing, commuting from family home). Participants also reported whether they had previously received, or were currently receiving, treatment (including psychotherapy/counseling and medication) for mental health challenges.

Self-stigma. Self-stigma was measured using the 20-item Self-Stigma of Mental Illness Scale-Short Form (SSMIS-SF; Corrigan et al., 2012). The SSMIS-SF reflects the aforementioned theoretical model of self-stigma as consisting of progressively harmful stages (i.e., awareness, agreement, application, and harm from stereotypes; Corrigan et al., 2011). SSMIS-SF sample items include, "I think most persons with mental illness are unpredictable" (Agreement subscale), "Because I have a mental illness, I am unpredictable" (Application subscale), and "I currently respect myself less because I am unpre-

dictable" (Harm subscale). Participants rate items from 1 (*strongly disagree*) to 9 (*strongly agree*), with higher scores indicating greater levels of self-stigma. These subscales showed good reliability across timepoints (Agreement αs = .80 to .85, Application αs = .80 to .87, Harm αs = .84 to .89).

Stigma appraisals: Stress and coping. Cognitive appraisals of stigma as a harmful stressor, and perceived resources to cope with stigma-related stress, were measured using the eight-item Stigma Stress Scale (Rüsch, Corrigan, Powell, et al., 2009; Rüsch, Corrigan, Wassel, et al., 2009). This scale consists of four items measuring appraisal of stigma as a harmful stressor (e.g., "prejudice against people with mental illness will have a negative impact on my future;" αs = .89 to .93 across timepoints) and four items measuring perceived resources to cope with stigma-related distress (e.g., "I am prepared to deal with prejudice against people with mental illness;" αs = .79 to .88 across timepoints). Participants rated each item from 1 (*strongly disagree*) to 7 (*strongly agree*); higher scores reflect a greater perception of stigma as a stressor and greater perceived resources to cope with stigma-related distress.

Self-efficacy about disclosure or secrecy. Self-efficacy about disclosing one's mental illness was assessed with an item that asks, "How confident are you in making decisions and handling well all the issues related to disclosing your mental illness?" (similar to Rüsch et al., 2014). Similarly, self-efficacy about keeping one's mental illness a secret was assessed with the item, "How confident

are you in making decisions and handling well all the issues related to keeping your mental illness a secret?" Participants rated each item from 1 (*not at all*) to 7 (*very much*). As these two items assess different choices, and show a low correlation, $r = .139$, $p = .135$, they were examined as separate outcomes.

Mental health symptoms. Depression symptoms were assessed using the Center for Epidemiologic Studies Short Depression Scale 10 (CES-D 10; Kohout, Berkman, Evans, & Cornoni-Huntley, 1993), a 10-item version of the CES-D (Radloff, 1977) that has been validated as a good indicator of depression symptom severity in a psychiatric sample (Björgvinsson, Kertz, Bigda-Peyton, McCoy, & Aderka, 2013) and has demonstrated good construct validity in a college-aged sample (Bradley, Bagnell, & Brannen, 2010). Participants rate how they felt over the past week from 0 (*rarely or none of the time*) to 3 (*all of the time*); higher scores indicate a greater level of depressive symptoms. Sample items include "I felt lonely" and "I could not 'get going.'" The scale yielded good reliability in the current sample (αs = .79 to .88 across timepoints).

Anxiety symptoms were assessed using the Generalized Anxiety Disorder 7-item Scale (GAD-7; Spitzer, Kroenke, Williams, & Löwe, 2006). The GAD-7 has demonstrated good validity and reliability in the general population (Löwe et al., 2008) and in a psychiatric sample (Kertz, Bigda-Peyton, & Bjorgvinsson, 2013). Participants rate items from 0 (*not at all*) to 3 (*nearly every day*) based on how they have felt over the past 2 weeks; higher scores reflect greater levels of anxiety. Sample items include "feeling nervous, anxious, or on edge" and "not being able to stop or control worrying." The scale yielded good reliability in the current sample (αs = .89 to .93 across timepoints).

Power Analysis

Previous HOP RCTs found a large effect size of $d = .94$ on stigma stress, a medium effect size of $d = .50$ on self-stigma (Mulfinger et al., 2018), and a small effect of $\eta_p^2 = .001$ on self-efficacy (Rüsch et al., 2014). In the absence of any prior data on HOP effectiveness for college students, and aiming for a feasible sample size, we aimed to detect a medium effect size (equaling $d = .05$ or $\eta_p^2 = .06$) at 80% power with a Type I error rate (α) of .05, two-tailed. Using G*Power (Erdfelder, Faul, & Buchner, 1996), to determine the minimum sample size to detect a medium effect from pre- to postintervention, and/or from preintervention to postbooster, we planned for 48 people per group. As previous RCTs revealed attrition rates ranging from 13 to 22% (Mulfinger et al., 2018; Rüsch et al., 2014), our recruitment of 118 allowed for 19% attrition to yield final samples of 48 per group.

Results

Data Analyses

Baseline characteristics of participants who completed all three timepoints, versus those who completed only one or two timepoints, were compared using *t* tests or χ^2 tests. In examining intervention effects, we used an intent-to-treat strategy, including all participants for whom we had assessment data, regardless of their attendance in the intervention. We conducted an omnibus 2 × 3 (Group × Time) multivariate analysis of variance (MANOVA)

of the nine dependent variables together, to reduce experimentwise Type I error and examine overall intervention effects, as indicated by the interaction term. With a significant interaction term in the MANOVA, we proceeded with interpreting 2 × 3 ANOVAs from the MANOVA test. For significant ($p < .05$) interaction terms in the 2 × 3 ANOVAs, we conducted post hoc 2 × 2 ANOVAs for pre- to postintervention, and preintervention to postbooster, to probe the timeline of the intervention effects. Considering the effect of running multiple tests on Type I error, we calculated a Bonferroni correction by dividing .05 by the total number of individual ANOVAs and post hoc 2 × 2 ANOVAs, and indicate in Table 2 whether each test met the standard significance threshold ($p < .05$) or the Bonferroni-adjusted significance threshold ($p < .003$). As this is the first trial of HOP-C, we interpret all findings that are significant at the former level, and note when they are significant at the latter level as well. We also report effect sizes (Cohen, 1994). Specifically, for [M]ANOVAs, we examined η^2 values using Cohen's (1988) standards for small ($\eta_p^2 \geq .01$), medium ($\eta_p^2 \geq .06$), and large ($\eta_p^2 \geq .14$) effects.

Sample Characteristics

Table 1 summarizes demographics by group. Overall, 82.2% of the sample identified as female and participants reported a mean age of 20.8 years ($SD = 4.99$). Participants identified with the following racial identities: 68.6% White, 17.8% Asian American, 7.6% African American, and less than 1% Native American and Pacific Islander. The majority of participants (82.2%) reported non-Hispanic ethnicity. More than 85% of participants were enrolled in undergraduate programs while only 13.6% were enrolled in graduate studies. More than half of the students (61.9%) lived on campus. Two thirds (66.9%) of participants identified as heterosexual, 18.6% as bisexual, 6.8% as gay or lesbian, and 7.6% as other. In terms of mental health treatment experiences, 80.5% of participants reported having ever received counseling and 63.6% reported having ever taken medication for their mental health challenges; 43.6% were currently receiving counseling services and 56.4% were taking psychiatric medication at the start of the trial. Of the 117 participants who provided responses at baseline, 85.5% had a baseline depression score above the clinical at-risk cutoff of 10 (CES-D; Kohout et al., 1993), and 69.2% had a baseline anxiety score above the clinical at-risk cutoff of 10 (GAD-7; Spitzer et al., 2006). The HOP-C and control groups did not differ from each other in any assessed sociodemographics or mental health conditions except for ethnicity, wherein participants in the HOP-C group self-identified as non-Hispanic more frequently than did participants in the control group.

All but one enrolled participant completed study measures at baseline (T1; $N = 117$); 107 (90.7%) participants completed T2; 98 (83.1%) completed T3; 94 (79.7%) completed all three timepoints. Participants who completed surveys at all three timepoints ($N = 94$) did not differ from those who completed surveys at only one or two timepoints, in age, $t(115) = -1.033$, $p = .304$, gender, $\chi^2(2) = 1.57$, $p = .457$, sexual orientation, $\chi^2(5) = 4.14$, $p = .530$, race, $\chi^2(4) = 1.72$, $p = .787$, ethnicity (Hispanic vs. non-Hispanic), $\chi^2(1) = 1.66$, $p = .197$, or current level of education, $\chi^2(5) = 5.33$, $p = .255$. Study completers versus noncompleters also did not differ in whether, at T1, they were receiving mental health treatment via psychotherapy/counseling, $\chi^2(1) = .90$, $p =$

Table 2

Group Means and SDs by Timepoint, and Group × Time Interactions From Analyses of Variance, Comparing HOP-C and Control Participants

| | Mean (SD) by group and timepoint | | | Group × Time interactions | | | | | | | | |
| | | | | T1-T2-T3 ANOVA (N = 94) | | | T1-T2 ANOVA (N = 107) | | | T1-T3 ANOVA (N = 97) | | |
Outcome	Pre (T1)	Post (T2)	Booster (T3)	F(2)	η_p^2	p	F(1)	η_p^2	p	F(1)	η_p^2	p
Self-stigma												
Agreement				1.85	.020[a]	.160						
HOP-C	2.71 (1.56)	2.42 (1.43)	2.53 (1.65)									
Control	2.46 (1.03)	2.55 (1.39)	2.84 (1.62)									
Application				.14	.002	.870						
HOP-C	2.77 (1.74)	2.50 (1.53)	2.44 (1.50)									
Control	2.67 (1.38)	2.54 (1.72)	2.50 (1.60)									
Harm				3.11	.033[a]	.047*	5.67	.051[a]	.019*	2.81	.029[a]	.097
HOP-C	3.23 (2.08)	2.49 (1.65)	2.43 (1.56)									
Control	2.92 (1.75)	3.02 (2.08)	2.72 (2.12)									
Stigma appraisals												
Stigma as a stressor				.08	.001	.922						
HOP-C	4.22 (1.52)	3.74 (1.46)	3.63 (1.58)									
Control	4.57 (1.21)	4.16 (1.49)	3.93 (1.56)									
Resources to cope				7.08	.071[b]	.001**	11.08	.095[b]	.001**	12.55	.117[b]	.001**
HOP-C	4.68 (1.11)	5.41 (.98)	5.48 (1.15)									
Control	4.83 (1.22)	4.93 (1.21)	4.82 (1.37)									
Self-efficacy												
Self-efficacy disclosing				6.78	.069[b]	.001**	3.17	.029[a]	.078	10.93	.103[b]	.001**
HOP-C	4.35 (1.68)	5.22 (1.03)	5.87 (1.11)									
Control	4.33 (1.60)	4.60 (1.55)	4.79 (1.56)									
Self-efficacy secrecy				.53	.006	.590						
HOP-C	4.63 (1.58)	5.15 (1.26)	5.41 (1.29)									
Control	4.48 (1.64)	4.65 (1.63)	5.04 (1.44)									
Mental health symptoms												
Depression				.30	.003	.743						
HOP-C	1.66 (.57)	1.57 (.67)	1.54 (.67)									
Control	1.64 (.61)	1.53 (.71)	1.44 (.74)									
Anxiety				1.56	.017[a]	.213						
HOP-C	1.66 (.77)	1.73 (.78)	1.66 (.75)									
Control	1.92 (.75)	1.79 (.86)	1.69 (.90)									

Note. HOP-C = Honest, Open, Proud–College; ANOVA = analysis of variance; T1 = Preintervention; T2 = Postintervention; T3 = Postbooster. A 2 × 3 (across all three timepoints) ANOVAs with a small or greater effect size were probed with follow-up 2 × 2 ANOVAs from pre- to postintervention, and from preintervention to postbooster.
[a] $\eta^2 \geq .01$ (small effect).   [b] $\eta_p^2 \geq .06$ (medium effect).
* $p < .05$.   ** $p < .003$ (Bonferroni correction).

.342, or medication, $\chi^2(1) = .00$, $p = .990$, or whether they met clinically elevated cutoffs for depression, $\chi^2(1) = .79$, $p = .376$, or anxiety, $\chi^2(1) = .2.41$, $p = .121$.

Fidelity

To track adherence to the HOP-C protocol, peer facilitators completed fidelity checklists, consisting of detailed lists of content and activities, for each HOP-C session. Fidelity for each session was calculated as a percentage of total items checked off. Average fidelity was 92.5% for lesson one, 94.5% for lesson two, 92.4% for lesson three, and 90.9% for the booster session.

Intervention Effects

Table 2 summarizes means and *SD*s for HOP-C and control participants, by timepoint, on each outcome variable.

Omnibus MANOVA. A 3 × 2 × 3 (Site × Group × Time) MANOVA revealed a nonsignificant three-way interaction and,

thus, no impact of site on potential intervention effects, $F(36, 144) = 0.84$, $\eta_p^2 = .17$, $p = .722$. Further, a one-way (site) MANOVA of all outcome variables assessed at baseline was nonsignificant, $F(18, 214) = 1.46$, $\eta_p^2 = .11$, $p = .109$, indicating no preexisting difference among sites. Accordingly, all further analyses were conducted collapsed across sites. There was also no moderating effect of current participation in treatment on intervention effects, $F(18, 73) = 0.73$, $\eta_p^2 = .15$, $p = .768$. The 2 × 3 Group × Time MANOVA found no main effect for group, $F(9, 84) = 1.79$, $\eta_p^2 = .16$, $p = .083$, a significant main effect for time, $F(18, 75) = 3.17$, $\eta_p^2 = .43$, $p < .001$ and, most importantly, as hypothesized, a significant interaction effect, $F(18, 75) = 1.76$, $\eta_p^2 = .30$, $p = .047$, which was large in size.

Outcome-specific 2 × 3 ANOVAs. Table 2 summarizes Group × Time interactions (F, η_p^2, and p) for each variable. As detailed in Table 2, the 2 × 3 ANOVAs yielded significant interaction effects for (a) self-stigma harm (but not agreement or application), (b) appraisals of perceived resources to cope with

stigma-related distress (but not of stigma as a stressor), and (c) self-efficacy about disclosure (but not about secrecy). The first interaction had a small effect size and was significant at the traditional $p < .05$ level and the latter two had medium effect sizes and were significant at the more conservative Bonferroni-adjusted level of $p < .003$. The intervention did not yield significant interaction effects for mental health symptoms (i.e., depression or anxiety).

Follow-up 2 × 2 ANOVAS. Examining harm from self-stigma, both post hoc 2 × 2 ANOVAs yielded small interaction effects, which reached statistical significance from pre- to postintervention, and a nonsignificant trend from preintervention to postbooster. Means in Table 2 show a reduction in self-stigma harm for HOP-C participants, but an increase for control participants, from T1 to T2. Both post hoc 2 × 2 ANOVAs on perceived resources to cope with stigma stress yielded medium effects, which were statistically significant at the Bonferroni-corrected level. As means in Table 2 reveal, HOP-C participants experienced an increase in resources to cope with stigma from T1 to T2 and from T1 to T3, whereas control participants remained relatively stable. Post hoc 2 × 2 ANOVAs on self-efficacy about disclosing yield a small interaction effect, with nonsignificant trend, from pre- to postintervention, and a medium interaction effect, which reached Bonferroni-adjusted statistical significance, from preintervention to postbooster. Means in Table 2 show a stronger increase in self-efficacy about disclosing for HOP-C compared with control participants from T1 to T3.

Discussion

This RCT examined the effectiveness of HOP-C in improving outcomes in three hypothesized domains—(a) self-stigma about mental illness, (b) appraisals of stigma stress and coping, and (c) self-efficacy about disclosure or secrecy—and one exploratory domain, (d) mental health symptoms. HOP-C demonstrated benefits for one examined outcome in each of the hypothesized domains, but did not demonstrate benefits for the exploratory domain of mental health symptoms.

Effectiveness of the HOP-C Intervention

Self-stigma. First, in the domain of self-stigma, participants of HOP-C showed decreased levels of harm from self-stigma over the duration of the intervention, whereas the control group displayed an increase in self-stigma harm between pre- and postintervention. Contrary to prior studies (Corrigan et al., 2015; Mulfinger et al., 2018), the current investigation did not find a significant intervention effect for self-application of stereotypes, perhaps because of a floor effect, or for agreement with stereotypes, which was attributed to a possible social desirability effect in a prior trial (Corrigan et al., 2015). This pattern of findings might reflect the focus of HOP-C, wherein participants learn skills that could offset the harm experienced from agreeing with and applying self-stigma to oneself. Even though participants might not experience changes in agreement with and self-application of stereotypes related to mental illness, per se, HOP-C participation appears to reduce the resulting harm to one's self-respect from these preceding stages of self-stigma.

Stigma stress and coping appraisals. Second, in the area of stigma stress and coping appraisals, HOP-C participants, compared with controls, exhibited higher levels of resources to cope with stigma stress across the trial, consistent with prior investigations (Corrigan et al., 2015; Mulfinger et al., 2018; Rüsch et al., 2014). Conversely, and partially consistent with Corrigan and colleagues (2015), HOP-C participation did not demonstrate a significant impact on views of stigma as a stressor (specifically, participants' beliefs that prejudice against people with mental illness will impact their life in a negative way). Thus, although the intervention did not directly lessen the experience of stigma as a stressor, it did equip students to cope with stigma stress; in other words, participants perceived themselves to be better able to handle some of the more challenging aspects of identifying with and disclosing one's mental illness. This finding can be understood from the context of the intervention and the larger societal context. During HOP-C, participants learn skills and techniques to test situations and people for their receptivity to disclosures. Although the HOP-C intervention assists participants in disclosure-related decisions, these decisions are made in the larger context of a society that continues to stigmatize mental health. Because of this pervasive message of prejudice, participants' appraisal of the impact of societal stigmatization on their lives may not be amenable to change through disclosure-related skills alone.

Self-efficacy about disclosure and secrecy. Third, in the domain of self-efficacy, there was a significant effect of HOP-C participation on one's level of self-efficacy about disclosure, particularly from preintervention to postbooster. Much of the HOP-C content focuses on making disclosure decisions, including weighing costs and benefits of disclosing and making such disclosures in different settings. The increase in disclosure-related self-efficacy may be the result of learning these decision-making tools and practicing them in a supportive small-group environment.

In contrast, there was no impact of HOP-C participation on secrecy-related self-efficacy. This may best be understood by considering the goal of HOP-C, which is to reduce self-stigma by facilitating discussions with peers, giving participants space to express their thoughts about the idea of disclosure, and practicing how they might tell their story if they choose to do so. This focus on and practice of disclosure may be why the intervention affected participants' self-efficacy related to disclosure decisions, but not their self-efficacy related to secrecy decisions.

Mental health symptoms. Finally, in the exploratory domain of mental health symptoms, HOP-C was not found to impact levels of depression or anxiety. It is possible that the therapeutic impact of HOP-C on these mental health outcomes is too subtle to reach statistical significance in a smaller sample, especially given the short follow-up assessment period immediately after the booster session. Further, although two prior HOP trials found reductions in depressive symptoms for adolescents (at follow-up assessment but not immediately postintervention; Mulfinger et al., 2018) and for adult women (but not men; Corrigan et al., 2015), these prior trials differed from the current HOP-C investigation in that they included participants recruited from clinical settings, where distress levels were likely higher and had more room for change.

Effect sizes and clinical significance. Notably, the omnibus Group × Time MANOVA of all outcomes had a large effect size. However, several of the single-outcome Group × Time ANOVAs yielded small effects that did not reach statistical significance, and

effects that did reach significance were small to medium (consistent with the power analysis). Although HOP-C participants experienced an average reduction in self-stigma harm of approximately one point out of an 8-point (1 to 9) scale, the clinical significance of this should be considered in the context of the observed range of group means in Table 2. Trial participants, on average, reported low levels (in the bottom third of the scale) of self-stigma; thus, a 1-point reduction is notable within this restricted range. In terms of stigma appraisals, within the scale's 6-point (1 to 7) range, HOP-C participants experienced an increase of approximately 1 point, and notably this increase was from just above the midpoint (4.68) to midway between the middle and high point (5.48) of the scale. A similar pattern emerged for self-efficacy about disclosing: within the scale's 6-point (1 to 7) range, HOP-C participants experienced an increase from just above the midpoint (4.35) to within the top quarter (5.87) of the scale. In summary, the omnibus intervention effect was large, and individual outcome effects were small to medium, reflecting change of approximately one point on 6- to 8-point scales. Given specific observed ranges and values on these scales, such change was likely meaningful for participants.

Strengths, Limitations, and Future Directions

In considering future research, several strengths and limitations of the current study should be noted. This study used a rigorous research design, including randomization and three assessment points, allowing for a thorough evaluation of intervention effects, taking into account baseline characteristics of each group. However, although the booster session and, thus, the postbooster assessment occurred a few weeks after the main intervention, a longer follow-up assessment would have allowed for a better examination of long-term effects of participation in HOP-C.

Although the overall sample was diverse in some ways (i.e., three different campuses with differing student profiles; diversity in sexual orientation and year in school), it was predominantly female and had a lower proportion of racial and ethnic minority students compared with college students in the United States overall (Snyder, de Brey, & Dillow, 2018). Future studies of HOP-C's effectiveness should utilize larger samples and pay special consideration to its racial, ethnic, and gender diversity, employing sampling strategies to ensure proportional representation of the college student population, to assess the impact of the intervention on those with multiple stigmatized identities.

With respect to sample inclusion criteria, the current study did not screen interested individuals for disclosure-related distress, in contrast to other trials (Corrigan et al., 2015; Mulfinger et al., 2018; Rüsch et al., 2014). This difference in recruitment method, and subsequent differences in sample characteristics, limits the comparability of the findings. Further, participants in the current trial were not required to provide evidence of a formally assessed mental health diagnosis, and were only asked if they personally identified as living with a mental illness. It is important to consider that self-identification of mental illness could have resulted in a heterogeneous sample and the study may have included students who do not actually meet diagnostic criteria for a mental disorder

and, thus, may not have optimally benefited from the HOP-C intervention. Although this is consistent with the inclusion criteria of other trials (Corrigan et al., 2015; Mulfinger et al., 2018; Rüsch et al., 2014), the other trials' recruitment from mental health centers (both inpatient and outpatient psychiatric services), advocacy groups, and drop-in centers likely yielded a higher proportion of participants with a formally assessed diagnosis. However, this criterion allowed for including a broader range of students who may benefit from the intervention but who have not engaged in formal services, which is important because many college students who live with mental illness, particularly those experiencing high levels of self-stigma, do not seek professional help or have a formal diagnosis (Czyz, Horwitz, Eisenberg, Kramer, & King, 2013). Further, recruiting on a college campus may have yielded a sample of participants with lower severity of psychopathology overall, which could have influenced the results of the current investigation, particularly the examined mental health outcomes. A related limitation, consistent with prior trials (Corrigan et al., 2015; Mulfinger et al., 2018; Rüsch et al., 2014), is that this investigation did not assess participants' length of time of experiencing a mental health diagnosis, a factor that likely influences the impact of HOP-C.

Implications and Applications

HOP-C shows promise for addressing the prevalent challenges of mental health stigma, which in turn may help students receive needed services to improve their mental health and associated life outcomes (Eisenberg et al., 2009). Yet, the students who might benefit most from HOP-C—those who struggle with self-respect because of self-stigma, and who have low self-efficacy about disclosing their mental health status—might be less likely to participate in a face-to-face intervention focused on stigma and disclosure. Given the prevalence of smartphone use among college students (Emanuel, 2013; Pew Research Center, 2018), as well as the availability and benefits of mobile interventions for college student well-being (Conley, Durlak, Shapiro, Kirsch, & Zahniser, 2016), an important future direction for HOP-C is to develop a mobile application version of the intervention. The need for technology-based mental health interventions has been indicated as a potential way to offset the growing demand placed on college counseling centers (Lattie, Lipson, & Eisenberg, 2019). Overall, this study demonstrates the success of HOP-C in decreasing self-stigma harm, increasing stigma-related coping, and increasing disclosure-related self-efficacy. Finding ways to tailor HOP-C to the needs and preferences of college students, via mobile technology, would greatly increase its impact, scalability, and ease of implementation, to the benefit of students and their campuses.

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