



## Original article

## Challenging the Stigma of Mental Illness Among College Students



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## A B S T R A C T

**Purpose:** This study investigated the impact of contact- and education-based antistigma interventions on mental illness stigma, affirming attitudes, discrimination, and treatment seeking among college students.

**Methods:** Data were collected from 198 students of a Chicago University campus in spring of 2014. Participants were randomly assigned to one of three conditions: a contact-based antistigma presentation, education-based presentation, or control condition. Measures of stigma, discrimination, affirming attitudes, and treatment seeking were administered at preintervention and postintervention.

**Results:** A  $3 \times 2$  analysis of variance was completed for each measure to examine condition by trial interactions. Both contact- and education-based interventions demonstrated a significant impact on personal stigma, perceptions of empowerment, discrimination, attitudes towards treatment seeking, and intentions to seek treatment from formal sources. No difference in effect was demonstrated between the contact- and education-based conditions.

**Conclusions:** These findings suggest that these two approaches should be considered for challenging mental illness stigma among college students.

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IMPLICATIONS AND  
CONTRIBUTION

Study findings suggest both education- and contact-based stigma reduction strategies are effective at reducing stigma and improving beliefs about empowerment, attitudes towards treatment seeking, and intentions to seek treatment for mental health among young adults. Results have implications for addressing barriers to mental health care for young adults.

Data suggest college campuses are a place where many students find themselves struggling with mental illnesses. Recent estimates of the prevalence of mental illness among college students estimate depression at 17.3%, panic disorder at 4.1%, and generalized anxiety disorder at 7% [1]. The experience of mental illness in college is a significant predictor of lower

grade point average [2] and greater risk for dropout [2–4], and poorer economic [5,6] and social outcomes [7,8] in later life.

Research in the general population indicates stigma, including stereotypes, prejudice, and discrimination, is a significant barrier individuals with mental illness face in achieving life goals [9]. The college mental health literature discusses public stigma as being composed of two separate constructs: perceived stigma and personal stigma [10–12]. Perceived stigma includes one's beliefs about how members of their community view individuals with mental illness; personal stigma involves one's own endorsement of stereotypes, corresponding prejudice, and discrimination. Label avoidance involves avoiding contexts (i.e.,

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mental health services) that may prime the label of mental illness, subjecting one to stigma [13].

Treatment participation is an important factor contributing to recovery; however, stigma causes many individuals to avoid treatment [14]. A systematic review on barriers and facilitators to help seeking in young people found that the number one reported barrier was stigma [15]. The National Alliance on Mental Illness conducted a survey of 765 college students with mental illness reporting that 36% of students cited stigma as the number one barrier to seeking care [16]. Existing literature suggests that perceived stigma [11,17–19], personal stigma [9–11,17–19], and label avoidance [10,11,17–19] may be associated with college student attitudes towards treatment seeking.

Decreasing stigma is not the only outcome of interest for stigma change programs [20]. Changing stereotypes needs to be accompanied by promoting affirming attitudes—beliefs regarding recovery and empowerment—about people with mental illness [21,22]. The importance of increasing affirming attitudes is substantiated by findings suggesting that these attitudes are significantly, negatively related to stigma [23].

Common approaches to addressing mental illness stigma are contact (interactions with individuals with mental illness who tell their stories of challenges and successes) and education (contrasting myths and facts about mental illness). Meta-analyses of studies with the general public suggest that contact seems to be the most effective, followed by education, and that in vivo or face-to-face interactions with people with mental illness are more effective than video-based interventions [24,25]. Intervening at the level of public stigma may also reduce label avoidance [14]. Yamaguchi et al. [26] completed a literature review of interventions to reduce stigma among college students, concluding that social contact interventions were most effective in improving attitudes towards individuals with mental illness and reducing desired social distance with this population.

This study aimed to evaluate the impact of in vivo contact- and education-based interventions on college students' public stigma, label avoidance, attitudes towards mental health treatment seeking, intentions to seek treatment, affirming attitudes, and discrimination. To our knowledge, this is the first study to compare the impact of these two approaches on this set of outcomes. It was predicted that participants in both conditions would experience a reduction in stigma, label avoidance, and discrimination towards individuals with mental illness, and improvement in attitudes towards treatment seeking, intentions to seek treatment, and affirming attitudes. In addition, it was predicted that changes would be significantly greater for the contact-based condition.

## Methods

Adults enrolled at a 4-year private university in metropolitan Chicago were recruited for this study. In fall 2013, total enrollment at this university was 7,829 students, including 4,907 graduate students and 2,922 undergraduates [27]. International students make up 45.7% of the student body. Of full-time undergraduates, 30% were female during fall 2013, and 22% were minorities.

Approval for this study was obtained from the Institutional Review Board of the university at which the study was conducted. Required sample size for this study was calculated based on findings from a previous meta-analysis of the literature [24]. Participants were recruited through advertisements in the university newsletter, psychology student subject pool, and

recruitment from campus fraternities and sororities. Language in recruitment materials advertised the study as a survey on attitudes towards mental illness. Interested students either completed an online form to indicate their availability or directly emailed the research team. As participants enrolled in the study, they were randomly assigned to one of three conditions: contact, education, or control groups. Randomization was achieved through a randomized block design using a random number generator. Once participants were randomly assigned, they were emailed the time and location for their study section. Participants were blinded to the study, and we have no known violations to blinding procedures to report. All participants provided informed consent to participate. Participants completed measures of stigma, affirming attitudes, desired social distance (a proxy of discrimination), label avoidance, attitudes towards treatment seeking, and intentions to seek treatment prior to participating in the intervention and immediately after. Surveys were completed in the session on a laptop, smartphone, or tablet via a Qualtrics online survey, eliminating concerns about bias being introduced by data collectors.

Interventions were delivered in a classroom on campus, with between 4 and 30 participants in each session. Programs included two parts: a 15-minute presentation followed by 5 minutes for questions. Presentations were kept brief to minimize participant burden. The control presentation consisted of a Ted Talk video on beatboxing, which discussed no issues related to mental illness or any other type of disability.

The contact-based condition consisted of a student with a mental illness telling his or her story. Students were sought from several postsecondary institutions throughout the city. Students providing the contact-based intervention identified as having a diagnosed mental illness and were willing to share their personal stories surrounding mental illness with current college students for the purpose of the study. These students were all currently enrolled in college and taking a medication for their mental illness. The structure of the contact-based intervention involved speakers sharing their experiences of symptoms, their challenges and success, and their experiences with stigma and concluded with a message to the audience about what they can do to address stigma. This format is in line with key ingredients for contact-based approaches to stigma reduction [28]. Analyses of outcome data showed that research participants did not differ by contact group leader. Data were therefore collapsed across contacts for subsequent analysis.

The education-based intervention consisted of a PowerPoint presentation delivered by a graduate student that began by defining stigma and mental illness and concluded with contrasting myths and facts surrounding mental illness specific to the college population. The key myths and facts surrounding mental illness specific to the college population were obtained through earlier focus groups with key campus stakeholders. An example of a key myth included the belief that mental illness is rare among college students. The slide meant to address this myth first stated this common belief and then provided statistics from recent research on the prevalence of mental illness among college students. A checklist was used to document fidelity in both conditions, and adequate fidelity was demonstrated.

## Dependent measures

Dependent measures included the Social Distance Scale (SDS) [29], the Attribution Questionnaire (AQ) [23], the Perceived

Devaluation-Discrimination Scale (PDDS) [30], the Recovery Scale Short Form [23], the Empowerment Scale [23], the Self-Stigma of Seeking Help Scale (SSOSH) [31], the Attitudes Towards Seeking Professional Psychological Help Scale (ATSPPHS), [32], and the General Help Seeking Questionnaire (GHSQ) [33,34].

**Discrimination.** The SDS was used as a proxy of discrimination. This scale was included as advocates agree improving attitudes towards individuals with mental illness is important; however, the ultimate goal is to change behaviors (reduce discrimination). The SDS comprises seven items (e.g., “How would you feel about renting a room in your home to a person with severe mental illness?”). Participants rate items on a 0- to 3-point willingness scale (3 = definitely unwilling). The SDS has good internal consistency ( $\alpha = .75$ ) and validity (see Penn et al. 1994 for a fuller discussion of the SDS psychometrics). The SDS is often used in stigma research as a proxy of discrimination [35–37].

**Personal stigma.** Personal stigma was measured using the 9-item version of the AQ, which has been found to have strong good internal consistency ( $\alpha = .73$ ), test–retest reliability ( $r = .73$ ), and validity [23]. The vignette preceding the scale was modified slightly for the college population and also to increase applicability to various mental health conditions. The vignette states, “Jamie is a 20-year old college student who has been hospitalized three times for mental illness.” The AQ-9 includes nine questions answered on a nine-point Likert scale (9 = very much). An example item is, “How dangerous would you feel Jamie is?”

**Perceived stigma.** The PDDS was used to measure perceived stigma. The PDDS is a 12-item instrument asking participants to indicate the extent to which they agree with statements indicating that most people devalue individuals with mental illness (e.g., Most people would willingly accept a former mental patient as a close friend). Items are responded to on a six-point Likert scale (6 = strongly disagree). The scale has demonstrated good reliability with alphas ranging from .86 to .88 [30] and validity with studies demonstrating a relationship between demoralization and PDDS scores for individuals with a psychiatric label [38].

**Recovery.** The short form was used to assess the general public's beliefs about the potential of individuals with serious mental illness to experience recovery. An example item is, “People with mental illness are hopeful about their future.” Items are rated on a three-point Likert scale (3 = strongly agree). The scale has demonstrated good validity [32], internal consistency ( $\alpha = .83$ ) [23], and test–retest reliability ( $r = .58$ ) [23].

**Empowerment.** The Empowerment Scale 3-item was used to assess the general public's beliefs about the social worth of people with mental illness (e.g., “I see people with mental illness as capable people.”). Items are rated on a three-point Likert scale (3 = strongly disagree). The scale has demonstrated good validity [23], internal consistency ( $\alpha = .84$ ) [23], and test–retest reliability ( $r = .54$ ) [23].

**Label avoidance.** A consequence of public stigma is that people who might benefit from mental health services do not seek help to avoid being labeled with a mental illness. Vogel et al. [31] refer to this as the self-stigma of seeking psychological help. The measure is consistent with how Corrigan defines the construct of

label avoidance [13]. The SSOSH was used in this study to assess label avoidance. The SSOSH is a 10-item scale with items such as “I would feel inadequate if I went to a therapist for psychological help.” Items are rated on a five-point Likert scale (5 = strongly agree). The SSOSH has been shown to have a unidimensional factor structure and demonstrated validity and internal consistency ( $\alpha = .91$ ) [31].

**Attitudes towards treatment seeking.** The 10-item version of the ATSPPHS was used to assess participants' attitudes towards seeking professional psychological help. An example item is, “Considering the time and expense involved in psychotherapy, it would have doubtful value for a person like me.” Items are rated on a four-point Likert scale (4 = agree). The scale has a demonstrated strong internal consistency ( $\alpha = .84$ ), test–retest reliability ( $r = .84$ ), and validity [32].

**Intentions to seek treatment.** The GHSQ assesses future help-seeking intentions over the next 4 weeks. The GHSQ has demonstrated good internal consistency ( $\alpha = .85$ ), test–retest reliability ( $r = .92$ ), and validity in previous studies [34]. Future help-seeking intentions are measured by listing a number of potential help sources and asking participants to indicate how likely it is that they would seek help from the source for a specified problem on a seven-point scale (7 = extremely likely). An example item is “How likely is it that you would seek help from a mental health professional (e.g., school counselor, psychologist, psychiatrist) for a personal or emotional problem over the next 4 weeks?” The measure was designed so that specific sources of help listed, the time-period specified, and the type of problem can be modified to be appropriate to the particular research objectives. An example of a modification made to the sources of help for the purpose of this study was to include the resident assistant. For this study, help-seeking intentions are reported as level of intention for seeking informal help and level of intention for seeking formal help.

All 198 adults solicited for the study agreed to participate and completed all measures. No significant differences in any of the demographic variables were found across groups. Table 1 provides participant demographics by condition.

Average age of the sample was 21.26 years (standard deviation = 4.64). The sample was 62% male and 57.6% single. Forty-six percent of participants were white/Caucasian, with 17.7% of the sample identifying as Hispanic/Latino. The racial and gender profile of the study participants appears similar to that of the student body of the university, with fall 2013 university data indicating 30% of the full-time undergraduate student body were female and 45.7% of the student body were international students. Fairly even numbers of Freshmen, Sophomores, Juniors, and Seniors participated in the study. About 9% of the sample reported that they had been diagnosed with a mental illness, 19.7% reported having received mental health treatment in the past year, and 7.1% reported currently receiving mental health treatment or support. Analysis of variances (ANOVAs) were conducted for all continuous variables, whereas chi-square tests were conducted for categorical variables to test for differences in demographics between conditions. No differences were found.

## Results

Means and standard deviations of each dependent measure at pretest and posttest by condition are summarized in Table 2

**Table 1**

Demographic characteristics according to condition

	Contact	Education	Control	Total	ANOVA/chi-square significance ( <i>p</i> )*
n	64	66	68	198	
Age (SD)	20.98 (4.33)	21.17 (2.62)	21.62 (6.23)	21.26 (4.64)	.72
Gender (%)					.61
Male	38 (59.4)	41 (62.1)	44 (64.7)	123 (62.1)	
Female	26 (40.6)	25 (37.9)	22 (32.4)	73 (38.4)	
Transgender	0 (.0)	0 (.0)	1 (1.5)	1 (.5)	
Prefer not to answer	0 (.0)	0 (.0)	1 (1.5)	1 (.5)	
Race, n (%)					.28
American Indian/Alaskan Native	2 (3.1)	2 (3.0)	0 (.0)	4 (2.0)	
Asian/Asian American	23 (35.9)	21 (31.8)	17 (25.0)	61 (30.8)	
African-American/black	5 (7.8)	9 (13.6)	7 (10.3)	21 (11.1)	
Pacific Islander	1 (1.5)	0 (.0)	1 (1.5)	2 (1.0)	
White/Caucasian	25 (39.1)	27 (40.9)	40 (58.8)	92 (46.5)	
Arab/Middle Eastern	0 (.0)	0 (.0)	2 (2.9)	2 (1.0)	
Other	8 (12.5)	12 (18.2)	10 (14.7)	30 (15.2)	
Hispanic/Latino, n (%)					.57
Yes	9 (14.1)	14 (21.2)	12 (17.6)	35 (17.7)	
No	55 (85.9)	52 (78.8)	56 (82.4)	163 (82.3)	
Diagnosed mental illness, n (%)					.48
Yes	5 (7.8)	8 (12.1)	4 (5.9)	17 (8.6)	
No	56 (87.5)	51 (77.3)	58 (85.3)	165 (83.3)	
Unsure	3 (4.7)	7 (10.6)	6 (8.8)	16 (8.1)	
Received treatment or support for mental health in the past, n (%)					.56
Yes	10 (15.6)	15 (22.7)	14 (20.6)	39 (19.7)	
No	53 (82.8)	51 (77.3)	52 (76.5)	156 (78.8)	
Unsure	1 (1.6)	0 (.0)	2 (2.9)	3 (1.5)	
Currently receiving treatment or support for mental health concerns, n (%)					.64
Yes	4 (6.3)	6 (9.1)	4 (5.9)	14 (7.1)	
No	60 (93.8)	59 (89.4)	62 (91.2)	181 (91.4)	
Unsure	0 (.0)	1 (1.5)	2 (2.9)	3 (1.5)	
Current relationship status, n (%)					.51
Single	37 (57.8)	38 (57.6)	39 (57.4)	114 (57.6)	
In a relationship	26 (40.6)	26 (39.4)	22 (32.4)	74 (37.4)	
Married or domestic partnership	1 (1.6)	2 (3.0)	3 (4.4)	76 (3.0)	
Divorced	0 (.0)	0 (.0)	1 (1.5)	1 (.5)	
Widowed	0 (.0)	0 (.0)	1 (1.5)	1 (.5)	
Prefer not to answer	0 (.0)	0 (.0)	2 (2.9)	2 (1.0)	
Year in degree program, n (%)					.31
Freshman	13 (20.3)	8 (12.1)	20 (29.4)	41 (20.7)	
Sophomore	20 (31.3)	21 (31.8)	14 (20.6)	55 (27.8)	
Junior	12 (18.8)	13 (19.7)	16 (23.5)	41 (20.7)	
Senior	12 (18.8)	12 (18.2)	14 (20.6)	38 (19.2)	
5th year or greater	4 (6.3)	4 (6.1)	0 (.0)	8 (4.0)	
Master's	1 (1.6)	5 (7.6)	2 (2.9)	8 (4.0)	
Doctoral	0 (.0)	1 (1.5)	1 (1.5)	2 (1.0)	
Other	2 (3.1)	2 (3.0)	1 (1.5)	5 (2.5)	

\**p* < .05.

ANOVA = analysis of variance; SD = standard deviation.

along with Cronbach's alphas for each measure obtained from this sample.

A  $3 \times 2$  ANOVA was completed for each measure to examine condition by trial interactions. Results of the ANOVAs are summarized in Table 3. Tests of the a priori hypotheses were conducted using Bonferroni adjusted alpha levels of .005 per test (.05/9). In Table 3, interactions that meet significance using the Bonferroni correction for multiple comparisons are in bold. Bonferroni corrections may not be necessary in this case as the individual indices test individual hypotheses and therefore are not considered redundant. In addition, since the Bonferroni test is conservative, reporting only interactions that meet significance criteria based on the Bonferroni correction may result in failure to report some significant findings. Therefore, we also

provide *p* values for interactions that meet significance criteria at alpha levels of .05.

Significant interactions were noted for the Social Distance Scale, Attribution Questionnaire-9, Empowerment Scale, ATSPPHS, and General Help Seeking Questionnaire-Formal. Significant interactions were not found for the Recovery Scale, Self-Stigma of Seeking Help Scale, Perceived Devaluation-Discrimination Scale, or General Help Seeking Questionnaire-Informal. Effects of the interventions were not found to interact with any of the demographic variables in Table 1. Table 3 also includes post hoc Tukey's tests for variables that yielded significant interactions for the  $3 \times 2$  ANOVA. Post hoc comparisons examined pretest and posttest changes in pairs of stigma-changing conditions for each measure.

**Table 2**

Means and standard deviations of measures by condition and trial (N = 198) and Cronbach's alphas of scales

	Control		Education		Contact		Cronbach's alpha of scale
	Pre (n = 68)	Post (n = 68)	Pre (n = 66)	Post (n = 66)	Pre (n = 64)	Post (n = 64)	
AQ-9	27.44 (8.80)	25.99 (9.23)	28.97 (8.09)	25.47 (8.17)	30.50 (9.31)	26.47 (9.20)	.63
RS	19.82 (4.00)	21.32 (3.58)	19.82 (5.22)	21.67 (4.58)	18.34 (4.71)	20.36 (4.64)	.59
ES	21.74 (4.91)	22.57 (4.29)	20.52 (5.58)	22.68 (5.43)	20.63 (4.91)	23.31 (3.97)	.84
SSSHS	25.99 (8.53)	25.90 (8.55)	23.61 (7.83)	22.41 (7.76)	26.19 (7.25)	24.53 (6.93)	.90
ATSPPHS	25.91 (5.16)	26.25 (5.40)	28.00 (5.19)	29.08 (5.19)	26.83 (4.32)	28.41 (4.36)	.75
SDS	15.81 (4.11)	15.49 (4.10)	16.61 (4.25)	14.77 (4.35)	17.17 (4.06)	14.59 (4.04)	.89
PDDS	47.21 (7.25)	45.53 (7.66)	45.02 (6.84)	44.27 (7.12)	46.50 (8.81)	43.78 (8.90)	.81
GHSQ informal	13.49 (3.84)	13.28 (4.15)	14.11 (4.43)	13.91 (4.58)	13.66 (4.48)	13.50 (4.47)	.59
GHSQ formal	26.28 (11.71)	25.12 (11.81)	29.29 (13.87)	30.06 (14.45)	27.78 (12.90)	28.61 (13.86)	.88

ATSPPHS = Attitudes Towards Seeking Professional Psychological Help Scale; AQ-9 = Attribution Questionnaire-9; ES = Empowerment Scale; GHSQ = General Help-Seeking Questionnaire; PDDS = Perceived Devaluation-Discrimination Scale; RS = Recovery Scale; SDS = Social Distance Scale; SSSHs = Self-Stigma of Seeking Help Scale.

These results indicate that both the education and contact conditions were effective in reducing desired social distance and stigma. They were also effective in increasing beliefs that people with mental illness should be empowered, improving attitudes towards treatment seeking, and increasing intentions to seek treatment for mental health concerns from formal sources. The two conditions were not found to differ from one another in terms of their effect.

## Discussion

The current study aimed to investigate the impact of contact- and education-based antistigma programs on stigma and treatment seeking among college students. Support was found for several hypotheses. There was a significant reduction in personal stigma and social distance from pretest to posttest. Significant improvements in perceptions of empowerment, attitudes towards treatment seeking, and intentions to seek treatment from formal sources were also found from pretest to posttest. There was no significant difference found for perceived stigma, recovery, label avoidance, or intentions to seek treatment from informal sources of support from pretest to posttest. Effect sizes were small for most of the outcomes, with the exception of social distance. This is in line with findings from Corrigan et al. [24], which showed small effect sizes for existing research on stigma change strategies.

Contact, as a stigma change tactic, is justified by research on the “contact hypothesis,” which proffers that an effective strategy to improve interpersonal relationships is the facilitation of

interpersonal contact [25]. We believe that participants in the contact condition experienced change as a result of their interpersonal contact with the students with mental illness who shared their personal stories. Findings suggest that in vivo contact- and education-based approaches are effective for decreasing stigmatizing attitudes and social distance and improving beliefs about empowerment, attitudes towards treatment seeking, and intentions to seek treatment from formal sources of support. It is possible that we did not see any change in label avoidance, help seeking from informal sources of support, and recovery, as these constructs were not targeted or were not adequately targeted by the interventions. Future work may want to consider the strategic design of interventions to target these constructs.

Based on findings from Corrigan et al.'s [24] meta-analysis, it was predicted that the contact-based antistigma intervention would have a greater effect than the education-based condition. The findings of this study do not support this hypothesis. There was no evidence of difference in the effectiveness of the two interventions in this study. Results of the meta-analysis by Corrigan et al. [28] indicated that education-based interventions were actually more effective in changing stigma among youth. Given that college students are considered adults, it was predicted that they would have shown the same response pattern as the general adult population. Future research is necessary to examine whether college students indeed respond equally well to contact- and education-based stigma reduction programming.

These findings suggest personal stigma, but not perceived stigma, is impacted by education- and contact-based antistigma

**Table 3**

Summary of 3 × 2 (condition by trial) ANOVAs for dependent measures

	Condition	Trial	Interaction	$\eta^2$	Post hoc contrasts
AQ-9	$F(2,195) = .77$ , ns	$F(1,195) = 64.74$ , $p < .001$	$F(2,195) = 4.49$ , $p < .05$	.04	edu = ct > cl
RS	$F(2,195) = 2.37$ , ns	$F(1,195) = 36.91$ , $p < .001$	$F(2,195) = .27$ , ns		
ES	$F(2,195) = .26$ , ns	$F(1,195) = 49.58$ , $p < .001$	$F(2,195) = 4.21$ , $p < .05$	.04	edu = ct > cl
SSSHS	$F(2,195) = 2.40$ , ns	$F(1,195) = 10.58$ , $p < .01$	$F(2,195) = 2.40$ , ns		
ATSPPHS	$F(2,195) = 4.60$ , $p < .05$	$F(1,195) = 23.41$ , $p < .001$	$F(2,195) = 3.06$ , $p < .05$	.03	edu = ct > cl
SDS	$F(2,195) = .07$ , ns	$F(1,195) = 75.00$ , $p < .001$	$F(2,195) = 13.33$ , $p < .001$	.12	edu = ct > cl
PDDS	$F(2,195) = 1.03$ , ns	$F(1,195) = 15.94$ , $p < .001$	$F(2,195) = 1.74$ , ns		
GHSQ informal	$F(2,195) = .38$ , ns	$F(1,195) = 1.89$ , ns	$F(2,195) = .01$ , ns		
GHSQ formal	$F(2,195) = 1.63$ , ns	$F(1,195) = .17$ , ns	$F(2,195) = 3.35$ , $p < .05$	.03	edu = ct > cl

Post hoc contrasts represent pairwise 2 × 2 ANOVAs.

ANOVA = analysis of variance; ATSPPHS = Attitudes Towards Seeking Professional Psychological Help Scale; AQ-9 = Attribution Questionnaire-9; cl = control; ct = contact; edu = education; ES = Empowerment Scale; GHSQ = General Help-Seeking Questionnaire; ns = nonsignificant; PDDS = Perceived Devaluation-Discrimination Scale; RS = Recovery Scale; SDS = Social Distance Scale; SSSHs = Self-Stigma of Seeking Help Scale.



interventions among college students. This makes sense considering interventions were targeted at the individual level as opposed to targeting an individual's beliefs about how others view individuals with mental illness. Although one might not endorse stereotypes surrounding mental illness oneself, one might still perceive that the general public stigmatizes individuals with mental illness. Label avoidance may remain unchanged by interventions that fail to address perceived public stigma.

There are several practical implications of this study for practitioners working in the mental health field. First, the findings suggest that both education- and contact-based antistigma interventions should be considered when designing antistigma programming for postsecondary settings. Second, a multifaceted approach to stigma change may be useful not only in addressing personal stigma, but also perceived stigma. One program designed to address perceived stigma in postsecondary settings is the Active Minds, Inc. Mental Health Unity program (<http://www.myactiveminds.org/Unite>). A description of the program and related research can be found at <http://scholars.activeminds.org/scholar/previous-scholars/2011-scholars/kristin-kosyluk-phd>. Third, considering that interventions in the current study demonstrated impact on willingness to seek help from formal, but not informal, sources of support, universities may want to consider how programs might be targeted to address willingness to seek support from sources such as friends and family.

### Limitations

It is possible that the education condition may not have been particularly relevant to college students, resulting in it demonstrating equal effectiveness as the contact condition. We used data gathered from earlier focus groups to target the myths and facts surrounding mental illness for the education-based intervention. For the contact-based intervention, current college students with mental illness shared their stories; however, they did not necessarily target these key myths and related stereotypes.

Previous work suggests that antistigma interventions may have more impact if they are continuous over time [39]. In order to reduce participant burden and increase feasibility, only one 15-minute contact session was administered. Future work on stigma reduction among college students should explore the impact of continuous efforts. This study did not document the impact of the stigma change conditions after postintervention. Long-term follow-up research will be important to examine whether the impact of stigma change interventions is maintained across time.

The present sample may not be representative of the overall population of college students. International students comprised 45.7% of the student body at the university where these data were collected. Further research is needed to determine whether these findings would generalize to universities with different demographics.

Reliability of several of the scales was low for this sample. The low alpha for the GHSQ-I is likely indicative of this measure not being a scale, but a composite indicator of help seeking intentions from potentially highly disparate sources (e.g., those who seek help from friends may be unlikely to seek help from family). Future research should consider using alternative measures with demonstrated reliability with this population.

This study supports the use of contact- and education-based interventions for decreasing public stigma, increasing beliefs

about empowerment, improving attitudes towards treatment seeking and intentions to seek treatment, and reducing desired social distance among college students. Additional research is needed to examine long-term effects of such interventions. These results can be used to inform the development and implementation of programming to address the stigma of mental illness in postsecondary settings.

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