

Strengthening College Students' Mental Health Knowledge, Awareness, and Helping Behaviors: The Impact of Active Minds, a Peer Mental Health Organization

Lisa Sontag-Padilla, PhD, Michael S. Dunbar, PhD, Feifei Ye, PhD, Courtney Kase, MPH, Rebecca Fein, MPH, Sara Abelson, MPH, Rachana Seelam, MPH, Bradley D. Stein, MD, PhD

Objective: To examine the relationship between college students' familiarity with and involvement in Active Minds, a student peer organization focused on increasing mental health awareness, decreasing stigma, and affecting mental health knowledge, attitudes, and behaviors.

Method: Students ($N = 1,129$) across 12 California colleges completed three waves of a web-based survey during the 2016–2017 academic year to assess familiarity with and involvement in Active Minds and mental health attitudes, behaviors, and perceived knowledge. Fixed-effects models assessed relations between changes in organization familiarity and involvement and changes in mental health-related outcomes over time overall and stratified by students' baseline engagement (ie, familiarity/involvement) with Active Minds.

Results: Overall, increased familiarity with Active Minds was associated with increases in perceived knowledge (0.40 ; $p < .001$) and decreases in stigma over time (-0.33 ; $p < .001$). Increased involvement was associated with increases in perceived knowledge (0.40 ; $p < .001$) and a range of helping behaviors. Associations differed by students' baseline engagement with Active Minds. For students with low engagement, increased familiarity with Active Minds was associated with decreased stigma and improved perceived knowledge. For students with moderate baseline engagement, increasing involvement with Active Minds was associated with increases in helping behaviors (eg, providing emotional support, connecting others to services) over time.

Conclusion: Student peer organizations' activities can improve college student mental health attitudes and perceived knowledge and significantly increase helping behaviors. Such organizations can complement more traditional programs and play an important role in improving the campus climate with respect to mental health.

Key words: mental health, stigma, college students, student organization, late adolescence

J Am Acad Child Adolesc Psychiatry 2018;57(7):500–507. 

Among college and university students in the United States, there is a substantial gap between the need for mental health treatment and the receipt of mental health services. Recent studies estimate that 20% to 36% of college students deal with some form of serious psychological distress,^{1–4} but that only approximately a third of these students, many of whom have access to on-campus providers and insurance to cover services, receive treatment.^{1,4} This unmet need for mental health care among college students represents a significant public health issue. Young adulthood is a critical period: without treatment for mental health problems, students face a range of potentially serious and lasting consequences, including dropping out,^{5–7} substance misuse,^{7–9} difficulties with social relationships,¹⁰ and lower lifetime earning potential.^{11–14}

Student peer organizations on college and university campuses, such as Active Minds (<http://www.activeminds.org/>), NAMI on Campus (<http://www.nami.org/namioncampus/>), and To Write Love on Her Arms (<http://twloha.com/>), are uniquely positioned to have direct and immediate effects on students' perceptions of mental health issues and associated stigma and thereby have the potential to increase the rate of students accessing mental health services. Students' peers and social networks can play an instrumental role in supporting mental health and facilitating help-seeking behavior for individuals in distress.¹⁵ In campus settings, student peer organizations seek to improve student attitudes and knowledge regarding mental health, lessen the personal and perceived stigma of mental health, and bolster peer-to-peer support for students with mental health needs. Through raising awareness,

decreasing stigma, and maintaining a long-term consistent presence on campuses, such organizations can enhance the campus environment for students with mental health problems, potentially increasing their use of mental health services.⁴

More traditional (ie, short-term or 1-time encounter) education or contact-based programs, such as Mental Health First Aid and the National Alliance on Mental Illness' In Our Own Voice, Parents and Teachers as Allies, Provider Education Program, and Ending the Silence, lessen participants' mental illness stigma and improve knowledge of mental illness and skills for identifying and referring students with symptoms.¹⁶⁻²⁰ By improving personal and population-level knowledge about mental illness and student attitudes and behaviors related to mental illness, such programs also can increase the likelihood of disclosure of mental illness²¹ and help-seeking behaviors among college students and young adults.^{4,22-26}

In addition to conducting more traditional trainings and contact-based programs, student peer organizations conduct a range of activities to lessen stigma, improve knowledge of mental health, and enhance skills for identifying and referring peers struggling with mental health issues.^{27,28} These include innovative public exhibitions such as Active Minds' Send Silence Packing, a display of student backpacks on campus to represent students lost to suicide; interactive, campus-wide speak-out events and storytelling programs, such as Active Minds' Speakers Bureau; and small-group activities and seminars, such as discussion groups about mental health issues on campus.²⁸ These activities help promote an ongoing dialogue about mental health on campus through peer-to-peer conversations, social media, ongoing programming, and campus print media.

There is growing recognition of the importance of peers in mental health and suicide prevention programming on campus and expanding involvement of students in such peer-driven efforts.²⁹ However, there is a paucity of studies that have examined the impact of student peer organizations on factors likely to influence college students' help-seeking behaviors, such as mental health stigma, knowledge of mental health issues (eg, mental illness signs, services, and other supports), and peer-to-peer helping behaviors. To address this gap in the evaluation literature and increase our understanding of whether student peer organizations influence such factors, this study examined the association between engagement with Active Minds and changes in perceived knowledge, stigma, and helping behaviors relating to mental health.

METHOD

As part of California's Mental Health Services Act (Proposition 63), California counties began working

together in 2011 under the California Mental Health Services Authority (CalMHSA) to develop and implement a series of statewide prevention and early intervention initiatives, one of which was aimed at improving student mental health in the University of California, California State University, and California Community College systems. This study is part of a larger evaluation of the activities under the initiative, one of which involved support of an expansion of activities and enhanced technical assistance for California-based chapters of Active Minds. Established in 2003, Active Minds is the oldest national nonprofit organization empowering students to speak openly about mental health, with more than 400 student-run chapters on college, university, and high school campuses throughout the United States.³⁰ Active Minds student members work to promote a dialogue around issues of mental health and to educate the entire campus and student body about available mental health resources in and around the campus community.³⁰

Study Design and Participants

To assess the impact of familiarity and involvement with Active Minds on changes in knowledge of services and supports for mental health needs, stigma, and peer-to-peer helping behaviors, a confidential online survey was administered to a convenience sample of undergraduate students on 12 college campuses with Active Minds chapters (mean = 96.4 per campus; SD = 124.2). Students were recruited by a combination of in-person events (eg, student union tables, Active Minds events, on-campus courses, other student organization meetings) conducted by Active Minds and other on-campus groups and online strategies (email listservs, targeted Facebook pages) with the goal of recruiting students becoming involved with Active Minds at the beginning of the academic year and those who were likely to have little or no knowledge of or exposure to Active Minds. After initial recruitment, the RAND Corporation used email and text messages to communicate with first-wave survey participants about the second and third survey waves.

Students completed a confidential online survey 3 times during the 2016–2017 academic year: within the first three weeks of the fall 2016 semester or quarter (wave 1; $n = 1,129$), approximately 3 months later (wave 2; $n = 932$), and again 3 months later, toward the end of the 2016–2017 academic year (wave 3; $n = 893$). Students were offered Amazon e-gift cards as incentives for survey completion (\$5, \$10, and \$15, respectively); overall retention rate was 76%. The study was approved by the RAND institutional review board.

Measures

We assessed familiarity with Active Minds at each survey wave using a single 5-point Likert item, “How familiar are you with Active Minds?” with responses ranging from 0 (not at all) to 4 (extremely familiar).

Program involvement at each wave was assessed by a single 5-point Likert item, “Compared with your other on-campus activities, how would you rate your level of involvement with Active Minds?” with responses ranging from 0 (not at all) to 4 (extremely involved).

We assessed students’ personal experience with mental illness with two questions: whether they had currently or previously struggled with a mental health challenge and whether they had received professional therapy and/or counseling support. The variable was coded 0 if they responded no to the 2 items, 1 if they responded yes to 1 item, and 2 if they responded yes to the 2 items.

Students indicated whether they previously received training on any of the following mental health-related topics that could enhance awareness of mental health issues: suicide prevention, crisis intervention, personal story-sharing, or how to help a friend in need.

We assessed students’ experience with others who had mental illness with 2 questions: whether they had a close friend or family member who has experienced mental health problems and whether they personally knew someone who had attempted or died by suicide. The variable was coded 0 if they responded no to the 2 items, 1 if they responded yes to 1 item, and 2 if they responded yes to the 2 items.

Students’ stigma toward mental illness was measured using three 9-point Likert items assessing beliefs about the social worth of people with mental illness (eg, “I see people with mental illness as capable people”).³¹ Responses ranged from strongly disagree (1) to strongly agree (9). Items were summed and reversed scored, with total scores ranging from 3 to 27 (Cronbach $\alpha = 0.73$). Higher scores reflected greater stigma.

Students’ perceptions of their knowledge of mental illness signs, supports, and resources (hereafter referred to as perceived knowledge) was assessed using four 6-point Likert items (eg, “I can identify the places or people where I should refer peers with mental health needs/distress” and “I am aware of the warning signs of mental health distress”), with responses ranging from strongly disagree (1) to strongly agree (6), adapted from the RAND CalMHSA Higher Education survey.⁴ The items were summed to create a scale, with total scores ranging from 4 to 24 (Cronbach $\alpha = 0.79$).

We assessed students’ likelihood to intervene using a 5-point Likert item, “If I saw someone was experiencing significant emotional distress or thoughts of suicide, I would

intervene (by trying to help),” with responses ranging from strongly disagree (1) to strongly agree (5), adapted from the Healthy Minds Study.¹⁵

Students who recently interacted with someone with a mental health problem (wave 1: past 12 months; waves 2 and 3: past 3 months) were asked 3 items about whether they engaged in the following helping behaviors: providing emotional support, helping someone seek professional help, and helping someone obtain support by connecting them with campus or community resources, others with mental health problems, or friends or family. The items, adapted from Jorm *et al.*,³² were rated on a 4-point Likert scale from not at all (1) to a lot (4).

Analytic Approach

To examine the impact of involvement and familiarity with Active Minds on changes in students’ perceived knowledge, attitudes, and behaviors related to student mental health, we performed a fixed-effects analysis of longitudinal panel data,³³ allowing us to control for the effects of unobserved within-person time-invariant confounding factors (eg, low socioeconomic status, geographic origins) and observed potentially confounding factors, such as personal experience with mental health problems, that can change over time.

We anticipated that Active Minds’ effects on students’ perceived knowledge, attitudes, and behaviors related to student mental health might vary substantially by students’ familiarity and involvement at baseline. Specifically, we expected that students with high levels of familiarity and involvement with Active Minds at baseline would be more likely to have higher perceived knowledge and helping behaviors and lower levels of stigma and therefore would be less likely to demonstrate significant gains during the academic year compared with students with lower levels of baseline familiarity and involvement.

Therefore, we used latent profile analysis to empirically determine student “engagement groups” using information about Active Minds familiarity and involvement at baseline. To identify the model offering the best fit for the smallest number of meaningful groups, we varied the number of classes incrementally by 1, proceeding from 1 to 4 classes, because the 5-class solution resulted in 1 cell containing fewer than 5% of subjects, and compared model fit and interpretability (Table 1). We used the Bayesian information criterion, entropy, the Vuong-Lo-Mendell-Rubin likelihood ratio test, and the parametric bootstrap likelihood validation test to determine the optimal class solution.^{34,35} The Bayesian information criterion and parametric bootstrap likelihood validation test suggested 4 classes as the best-fitting solution. The Vuong-Lo-Mendell-Rubin test suggested a 3-class

TABLE 1 Latent Profile Analysis for Active Minds Baseline Engagement Groups With 1 to 5 Classes Using Unstandardized Familiarity and Involvement

	Number of Classes			
	1	2	3	4
Number of free parameters	4	7	10	13
Loglikelihood	-3,198.29	-2,661.74	-2,417.96	-1,518.56
BIC	6,424.69	5,372.69	4,906.21	3,128.48
Entropy		0.95	0.99	0.99
Lo-Mendell-Rubin adjusted LRT test (p)		< .001	< .001	.25
Parametric bootstrapped LRT (p)		< .001	< .001	< .001

Note: BIC = Bayesian information criterion; LRT = likelihood ratio test.

solution fit similar to a 4-class solution; because the 3-class solution had similar entropy (entropy = 0.99), we chose the 3 engagement groups. We conducted χ^2 tests and analyses of variance to explore baseline differences across the 3 baseline engagement groups in demographic and key outcomes variables.

We used fixed-effect models³⁶ to control for time-invariant, pre-existing individual characteristics when examining within-individual associations between changes in familiarity and involvement and outcomes. Covariates included gender, race/ethnicity, years on campus (wave 1), and prior mental health-related training (wave 1). We also controlled for time-varying effects of experience with others with mental health problems and personal experience with mental health problems. To account for nesting of students on the same campus, we included dummy campus indicators. We included all available data in the analyses and ran the models with full-information maximum likelihood estimation to address missing data. For analyses of helping behaviors, we limited analyses to the 393 individuals who reported interacting with someone with a mental health problem at all 3 waves.

RESULTS

Most students ($N = 1,129$) were women (66%), and 20% were white, 42% were Asian, 27% were Hispanic/Latino, and 11% were other races/ethnicities. Respondents had been on their campus an average of 1.94 years ($SD = 1.56$) at baseline (Table 2). At baseline, familiarity (mean = 0.86; $SD = 1.08$) and involvement (mean = 0.63; $SD = 0.98$) with Active Minds was low (0 = "not at all" to 4 = "a lot").

Active Minds Baseline Engagement Groups

At baseline, most students ($n = 711$; 63%) were in the low engagement group, with fewer students with moderate engagement ($n = 334$; 30%) or high engagement ($n = 84$; 7%). Students in the low engagement group were more likely to be male and Asian and less likely to have had experiences with mental health-related issues compared with students in the moderate and high engagement groups (Table 2). They also had significantly lower mental health perceived knowledge, were less likely to interact with someone with a mental health problem, and less likely to engage in helping behaviors (ie, connecting others to professional help and other supports).

Association of Familiarity and Involvement With Active Minds With Changes in Perceived Knowledge, Stigma, and Helping Behaviors

To determine whether changes in familiarity and involvement were associated with changes in perceived knowledge, stigma, and helping behaviors over the course of a single academic year, we used fixed-effects models with repeated assessments of predictors and outcomes across three time points. Separate models assessed the impact of changes in familiarity (Table 3) and involvement (Table 4) over time on outcomes of interest. We first assessed these relations across all students. Increases in familiarity with Active Minds were associated with significant increases in perceived knowledge and decreases in stigma among all respondents, but were not related to changes in likelihood to intervene with a student with mental health problems (Table 3). Increases in familiarity also were associated with increases in providing emotional support among respondents who had interacted with someone with mental health issues. Increases in involvement with Active Minds were associated with improved perceived knowledge about mental health, although not decreases in stigma (Table 4). Involvement with Active Minds also was associated with increases in providing emotional support among respondents who had interacted with a student with mental health issues and being more likely to help others get professional help and help connect others to other sources of support.

The associations between increased familiarity and involvement with Active Minds and the outcomes varied substantially by baseline engagement group. When separate analyses were conducted within each of the three baseline engagement groups, we found that increased familiarity was associated with increased perceived knowledge only in the low and moderate engagement groups and with decreased stigma only in the low engagement group (Table 3). Increased involvement also was associated with increased

TABLE 2 Differences in Demographic Characteristics, Engagement, Knowledge, Stigma, and Helping Behaviors for Active Minds Baseline Engagement Groups

Variable	All Students (N = 1,129)	Low Familiarity/ Involvement Engagement Group (n = 711)	Moderate Familiarity/ Involvement Engagement Group (n = 334)	High Familiarity/ Involvement Engagement Group (n = 84)	Test of Group Differences (p)
Male	33.54%	36%	31%	21%	< .05
Race					< .001
White non-Hispanic	19.58%	15%	23%	45%	
Asian	42.10%	50%	30%	25%	
Hispanic	27.44%	24%	36%	22%	
Other	10.88%	11%	11%	8%	
Number of years on campus (SD)	1.94 (1.56)	1.94 (1.56)	1.92 (1.61)	2.03 (1.37)	NS
Experience with MH-related issues					
Receiving ≥1 MH-related training	55.89%	47%	69%	81%	< .001
Experience with others with MH problems	84.15%	71%	79%	92%	< .01
Personal experience with MH problems	60.41%	54%	67%	89%	< .001
Baseline engagement with Active Minds (SD)					
Familiarity	0.86 (1.08)	0.39 (0.66)	1.37 (1.00)	2.79 (1.17)	< .001
Involvement	0.63 (0.98)	0 (0)	1.33 (0.47)	3.18 (0.39)	< .001
Baseline MH knowledge, attitudes and helping behavior (SD)					
Perceived knowledge	17.05 (3.44)	16.45 (3.42)	17.84 (3.19)	18.93 (3.24)	< .001
Stigma	7.81 (3.89)	7.94 (3.85)	7.35 (3.97)	8.55 (3.80)	< .05
Likelihood to intervene	4.33 (0.85)	4.30 (0.85)	4.37 (0.87)	4.34 (0.67)	NS
Interacted with someone with MH problem	71%	65%	78%	88%	< .001
Provided emotional support	3.30 (0.80)	3.26 (0.82)	3.32 (0.77)	3.48 (0.75)	NS
Connected to professional help	2.48 (1.01)	2.33 (1.04)	2.63 (0.98)	2.90 (0.70)	< .001
Connected to other support	2.44 (1.00)	2.33 (1.02)	2.51 (0.97)	2.90 (0.82)	< .001

Note: The χ^2 tests were used for testing group differences on categorical variables and analysis of variance was used for continuous variables. MH = mental health; NS = not significant.

perceived knowledge and likelihood to intervene only in the low and moderate engagement groups (Table 4); among respondents who had interacted with someone with mental health issues, increased involvement was associated with increases in providing emotional support and connecting someone to professional help. Neither increased familiarity nor involvement was associated with significant changes over time in the high engagement group.

DISCUSSION

To our knowledge, this study, conducted with more than 1,100 students on 12 California college campuses, is the largest longitudinal study examining the impact of a student peer organization on changes in students’ mental health

perceived knowledge, stigma, and helping behaviors. Overall, we found that increased familiarity and involvement with Active Minds, a student peer organization, was associated with increases in mental health perceived knowledge and decreases in stigma over time. In addition, increases in involvement with the organization were associated with increases in a range of helping behaviors. These findings suggest that, in addition to more traditional education or contact-based programs that rely on short-term or singular experiences to reduce stigma and improve knowledge of mental health issues,³⁷ student peer organizations that establish an on-going presence on campuses and use a combination of educational, contact-based, large-scale programs, and small-group activities initiated and led by peers

TABLE 3 Impact of Increases in Familiarity Over Time With Active Minds on Improved Perceived Knowledge, Stigma, and Helping Behaviors Over Time

Outcome	Baseline Engagement Groups											
	Overall			Low Familiarity/ Involvement			Moderate Familiarity/ Involvement			High Familiarity/ Involvement		
	n	B	SE (B)	n	B	SE (B)	n	B	SE (B)	n	B	SE (B)
Perceived knowledge	1,129	0.40***	0.07	711	0.43***	0.10	334	0.31*	0.13	84	-0.50	0.26
Stigma	1,129	-0.33***	0.10	711	-0.32*	0.14	334	-0.29	0.17	84	-0.50	0.40
Likelihood to intervene	1,129	0.04	0.03	711	0.07	0.04	334	-0.01	0.05	84	0.11	0.09
Helping behaviors												
Provided emotional support	393	0.08**	0.03	192	-0.02	0.05	148	0.13*	0.06	53	0.16	0.09
Connected to professional help	393	0.00	0.04	192	-0.02	0.07	148	0.07	0.08	53	-0.05	0.11
Connected to other support	393	-0.01	0.04	192	-0.09	0.07	148	0.12	0.07	53	-0.15	0.11

Note: SE = standard error.

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

on campus throughout the year can meaningfully influence not only student perceived knowledge and attitudes but also their behaviors within a single academic year.

Using an empirically driven approach to indentifying latent classes of baseline engagement (ie, familiarity and involvement) in Active Minds, our findings also suggest that students' baseline level of engagement with a student peer organization affects the manner in which familiarity and involvement with the organization influences perceived knowledge, stigma, and helping behaviors over time. For students with low engagement, likely most representative of the general student body, being familiar with Active Minds, even if not actively involved, was associated with decreased

stigma and improved student perceived knowledge about mental health issues. Such changes in how the general student population views and understands mental health issues, brought about by student peer organizations, could be instrumental in shaping a more supportive climate toward mental health issues on campus. This has important implications for addressing student mental health treatment needs, because students with mental health problems are more likely to receive needed services if they feel the climate on their college campus is more positive with respect to mental health.⁴

For students with more moderate baseline Active Minds engagement, increased involvement was associated with

TABLE 4 Impact of Increases in Involvement Over Time With Active Minds on Improved Perceived Knowledge, Stigma, and Helping Behaviors Over Time

Outcome	Baseline Engagement Groups											
	Overall			Low Familiarity/ Involvement			Moderate Familiarity/ Involvement			High Familiarity/ Involvement		
	n	B	SE (B)	n	B	SE (B)	n	B	SE (B)	n	B	SE (B)
Perceived knowledge	1,129	0.40***	0.07	711	0.42***	0.12	334	0.50***	0.13	84	-0.27	0.27
Stigma	1,129	-0.16	0.11	711	-0.02	0.18	334	-0.28	0.17	84	-0.15	0.40
Likelihood to intervene	1,129	0.02	0.03	711	-0.04	0.04	334	0.12*	0.05	84	0.07	0.09
Helping behaviors												
Provided emotional support	393	0.10***	0.03	192	0.09	0.06	148	0.19***	0.05	53	-0.11	0.10
Connected to professional help	393	0.13***	0.04	192	0.08	0.08	148	0.17*	0.07	53	0.12	0.11
Connected to other support	393	0.08*	0.04	192	0.10	0.08	148	0.09	0.06	53	-0.13	0.11

Note: SE = standard error.

*p < .05; ***p < .001.

self-reported increases in helping behaviors (more likely to intervene and increases in specific actions to help someone with mental health problems), changes not seen in the low engagement and high engagement groups. Changing actual behaviors related to mental health through psychoeducational efforts is difficult to achieve,³⁷ and studies of mental health educational programs suggest that improvements in knowledge and stigma are necessary primers for changes in behavior.³⁸ Our findings indicate that increased involvement in Active Minds can result in such changes in student behaviors with respect to helping others with mental health problems and can be concentrated among students with moderate exposure at baseline, a group who likely already have some foundational knowledge about mental health issues. Although students who become more involved with Active Minds are a self-selected group (ie, greater prior experiences with mental health), it appears that involvement in the types of activities being conducted by Active Minds can translate into beneficial behavior change for many students. Further research is needed to better understand how this occurs, what specific types of activities could drive changes in student behaviors, and to what extent involvement increases an individual's mental health and help-seeking.

Our findings must be considered within the context of the study's limitations. The convenience sample increases the potential for response bias, and we speculate that study participants were likely more interested in Active Minds or mental health issues at baseline than the general student population. Our recruitment approaches sought to mitigate this by recruiting students with a range of baseline exposures to and interest in Active Minds; however, we do not know how our sample would differ from a random sample of students on the same campuses or to what extent our efforts to control for the effects of unobserved (eg, low socioeconomic status, geographic origins) and observed (eg, experience with mental health problems) time-varying and invariant factors in fixed effects analyses might have successfully addressed biases introduced by the nature of the participants. Other unmeasured time-varying factors could affect the within-individual relations between familiarity and involvement with Active Minds over time and outcomes assessed. For instance, students' general interest in mental health and/or involvement in other mental health-related activities (eg, psychology coursework) could have changed over the course of the study, and these unmeasured factors could potentially influence students' engagement with Active Minds and their knowledge, attitudes and helping behaviors over time. In addition, we assessed student's perceived mental health knowledge and do not know to what extent it correlates with actual knowledge.

Moreover, we do not know to what extent our findings regarding familiarity and involvement with Active Minds would generalize to similar student peer organizations.

Despite its limitations, our study is the first to our knowledge that demonstrates the potential impact of student peer organizations in improving perceived knowledge, stigma, and helping behaviors as it relates to mental health issues. Increased familiarity with Active Minds over the school year, whether resulting from exposure to a range of on-campus activities (eg, public exhibitions and interactive events) or simply general awareness of the organization, appears to have successfully raised perceived mental health knowledge and awareness and decreased stigma, regardless of whether students were actively involved in Active Minds programming. Furthermore, students who became actively involved with Active Minds during the academic year appear to be more likely to take action to support others with mental health issues, behavioral activation that is not commonly seen in many more traditional education or contact-based programs.^{37,39} There remains a critical need for sufficient mental health services to meet the needs of students on college campuses. Our findings also suggest that campuses might consider the benefits from incorporating student-led mental health programming in their efforts to support student mental health. Student peer organizations can play an important role in changing the campus culture with respect to mental health and in supporting students getting to the mental health services they need, important components of addressing the unmet mental health needs of college students.^{4,40}

Accepted May 4, 2018.

Drs. Sontag-Padilla, Dunbar, Ye, Stein, and Ms. Kase are with the RAND Corporation, Pittsburgh, PA. Ms. Seelam also is with the RAND Corporation, Santa Monica, CA. Ms. Fein is with Active Minds, Santa Rosa, CA. Ms. Abelson is a doctoral precandidate with the University of Michigan School of Public Health, Ann Arbor.

The California Mental Health Services Authority (CalMHSA) provided support for this study. The funding source did not have a role in the study design, collection, analysis, and interpretation of data; writing the report; or the decision to submit the article for publication.

The authors thank Sandra Berry, MA, of the RAND Corporation, for her guidance on survey development and data collection. The authors also thank Hilary Peterson, BA, of the RAND Corporation, for her assistance with manuscript preparation. In addition, the authors thank Active Minds and the California student project fellows for their invaluable contributions to data collection efforts for this study.

Disclosure: Dr. Sontag-Padilla has participated in projects sponsored by the CalMHSA, the NYC Center for Economic Opportunity, the United Way of Greater Cincinnati, the US Department of Defense, and the Urban Child Institute. She has received honoraria from the Maternal and Child Health Bureau. Dr. Dunbar has received honoraria from the Michigan Health Endowment Fund. He has participated in projects sponsored by the National Cancer Institute, the National Institute on Drug Abuse (NIDA), National Institute on Alcohol Abuse and Alcoholism (NIAAA), the Food and Drug Administration, the Department of Health and Human Services, the Center for Medicare and Medicaid Services, the US Department of Defense, the National Institute of Minority Health and Health Disparities,

the CalMHSA, the Mayor's Fund to Advance New York City, and the New York State Health Foundation. Dr. Ye has been involved in projects supported by NIAAA, NIDA, the Office of Juvenile Justice and Delinquency, and the Institute on Educational Science. Dr. Stein has served as a child psychiatric consultant to Glade Run Lutheran Services. He has received research funding from the National Institute of Mental Health, the National Institute on Minority Health and Health Disparities, the National Institute of Dental and Craniofacial Research, NIDA, NIAAA, the Substance Abuse and Mental Health Services Administration, the US Department of Health and Human Services/the Assistant Secretary for Planning and Evaluation, and the Pew Foundation. He has served on the Board of Trustees of the Jewish Healthcare Foundation and the Staunton Farms Foundation. He has owned stock of Gilead Sciences, Illumina Inc., Ventas, United Health Group, and Apple. Ms. Kase has been involved with projects that have received funding support from the Department of Human Services, the

Centers for Medicare and Medicaid Services, the Carnegie Corporation, the Kentucky Valley Educational Cooperative, and the Bill and Melinda Gates Foundation. Ms. Fein has been involved in research funded by the CalMHSA and has received a speaker honorarium from the Menlo School. Ms. Abelson was employed by Active Minds but currently attends the University of Michigan. She has received an honorarium from Western Michigan University. Ms. Seelam reports no biomedical financial interests or potential conflicts of interest.

Correspondence to Bradley D. Stein, MD, PhD, RAND Corporation, 4570 Fifth Avenue, Suite 600, Pittsburgh, PA 15213; e-mail: stein@rand.org

0890-8567/\$36.00/©2018 American Academy of Child and Adolescent Psychiatry

<https://doi.org/10.1016/j.jaac.2018.03.019>

REFERENCES

- Lipson S, Zhou S, Wagner B, Beck K, Eisenberg D. Major differences: variations in undergraduate and graduate student mental health and treatment utilization across academic disciplines. *J Coll Stud Psychother*. 2016;30:23-41.
- Eckart K. Depression, anxiety affect more than one-fourth of state's college students. *UW News*; January 30, 2018. <https://www.washington.edu/news/2018/01/30/depression-anxiety-affect-more-than-one-fourth-of-states-college-students/>.
- Hunt J, Eisenberg D. Mental health problems and help-seeking behavior among college students. *J Adolesc Health*. 2010;46:3-10.
- Sontag-Padilla L, Woodbridge MW, Mendelsohn J, *et al*. Factors affecting mental health service utilization among California public college and university students. *Psychiatr Serv*. 2016;appips201500307.
- Breslau J, Lane M, Sampson N, Kessler RC. Mental disorders and subsequent educational attainment in a US national sample. *J Psychiatr Res*. 2008;42:708-716.
- King KM, Meehan BT, Trim RS, Chassin L. Marker or mediator? The effects of adolescent substance use on young adult educational attainment. *Addiction*. 2006;101:1730-1740.
- Weitzman ER. Poor mental health, depression, and associations with alcohol consumption, harm, and abuse in a national sample of young adults in college. *J Nerv Ment Dis*. 2004;192:269-277.
- Angst J. Comorbidity of mood disorders: a longitudinal prospective study. *Br J Psychiatry Suppl*. 1996;31-37.
- Dawson DA, Grant BF, Stinson FS, Chou PS. Psychopathology associated with drinking and alcohol use disorders in the college and general adult populations. *Drug Alcohol Depend*. 2005;77:139-150.
- Druss BG, Hwang I, Petukhova M, Sampson NA, Wang PS, Kessler RC. Impairment in role functioning in mental and chronic medical disorders in the United States: results from the National Comorbidity Survey Replication. *Mol Psychiatry*. 2009;14:728-737.
- Smith JP, Smith GC. Long-term economic costs of psychological problems during childhood. *Soc Sci Med*. 2010;71:110-115.
- Kessler RC, Walters EE, Forthofer MS. The social consequences of psychiatric disorders, III: probability of marital stability. *Am J Psychiatry*. 1998;155:1092-1096.
- Ertner SL, Frank RG, Kessler RC. The Impact of Psychiatric Disorders on Labor Market Outcomes. Cambridge, MA: National Bureau of Economic Research; 1997.
- Kessler RC, Foster CL, Saunders WB, Stang PE. Social consequences of psychiatric disorders, I: educational attainment. *Am J Psychiatry*. 1995;152:1026-1032.
- Eisenberg D, Hunt J, Speer N. Help seeking for mental health on college campuses: review of evidence and next steps for research and practice. *Harv Rev Psychiatry*. 2012; 20:222-232.
- Kelly CM, Mithen JM, Fischer JA, *et al*. Youth mental health first aid: a description of the program and an initial evaluation. *Int J Ment Health Syst*. 2011;5:4.
- Rogers P. Review of the Applied Suicide Intervention Skills Training Program (ASIST). Calgary, Canada: LivingWorks Education; 2010.
- Hadlaczky G, Hokby S, Mkrтчhian A, Carli V, Wasserman D. Mental Health First Aid is an effective public health intervention for improving knowledge, attitudes, and behaviour: a meta-analysis. *Int Rev Psychiatry*. 2014;26:467-475.
- Wong EC, Collins RL, Cerully JL, Roth EA, Marks J, Yu J. Effects of stigma and discrimination reduction trainings conducted under the California Mental Health Services Authority: an evaluation of NAMI's Ending the Silence. RR-1240. Santa Monica, CA: RAND; 2015. http://www.rand.org/pubs/research_reports/RR1240.html.
- Wong EC, Collins R, Cerully JL, Roth B, Marks J, Yu J. Effects of Stigma and Discrimination Reduction Trainings Conducted Under the California Mental Health Services Authority: An Evaluation of the National Alliance on Mental Illness Adult Programs; RR1247-1. Santa Monica, CA: RAND Corporation; 2015.
- Corrigan PW, Kosyluk KA, Markowitz F, *et al*. Mental illness stigma and disclosure in college students. *J Ment Health*. 2016;25:224-230.
- Eisenberg D, Downs MF, Golberstein E, Zivin K. Stigma and help seeking for mental health among college students. *Med Care Res Rev*. 2009;66:522-541.
- Kulesza M, Pedersen E, Corrigan P, Marshall G. Help-seeking stigma and mental health treatment seeking among young adult veterans. *Mil Behav Health*. 2015;3: 230-239.
- Chandra A, Minkovitz CS. Stigma starts early: gender differences in teen willingness to use mental health services. *J Adolesc Health*. 2006;38:754.e751-e758.
- Clement S, Schauman O, Graham T, *et al*. What is the impact of mental health-related stigma on help-seeking? A systematic review of quantitative and qualitative studies. *Psychol Med*. 2015;45:11-27.
- Penn D, Judge A, Jamieson P, Garczynski J, Hennessy M, Romer D. Treating and Preventing Adolescent Mental Health Disorders: What We Know and What We Don't Know. New York: Oxford University Press with the Annenberg Foundation Trust at Sunnyslands and the Annenberg Public Policy Center at the University of Pennsylvania; 2005.
- Active Minds. Send Silence Packing. <http://www.activeminds.org/our-programming/send-silence-packing>. Accessed February 11, 2015.
- Active Minds. Active Minds—programs. <http://www.activeminds.org/our-programming/chapters/chapter-resources/program-bank/browse>. Accessed January 19, 2018.
- Ilakkuvan V, Snyder M, Wiggins J. Peer involvement in campus-based suicide prevention: key considerations; 2011. <http://www.campusuicidepreventionva.org/PeerInvolvement/CompleteAug16.pdf>. Accessed February 7, 2018.
- Active Minds. Active Minds—about: FAQ. <http://activeminds.org/about/faq>. Accessed January 19, 2018.
- Corrigan PW, Powell KJ, Michaels PJ. Brief battery for measurement of stigmatizing versus affirming attitudes about mental illness. *Psychiatry Res*. 2014;215: 466-470.
- Jorm AF, Kitchener BA, Sawyer MG, Scales H, Cvetkovski S. Mental health first aid training for high school teachers: a cluster randomized trial. *BMC Psychiatry*. 2010; 10:51.
- Murray J, Farrington D, Eisner M. Drawing conclusions about causes from systematic reviews of risk factors: the Cambridge Quality Checklists. *J Exp Criminol*. 2009;5:1-23.
- Schwartz G. Estimating the dimensions of a model. *Ann Stat*. 1978;6:461-464.
- Ramaswamy V, DeSarbo W, Reibstein D, Robinson W. An empirical pooling approach for estimating marketing mix elasticities with PIMS data. *Market Sci*. 1993;12:103-124.
- Allison P. Fixed Effects Regression Models, Vol 160. Thousand Oaks, CA: Sage Publications; 2009.
- Collins R, Wong EC, Cerully JL, Schultz D, Eberhart N. Interventions to Reduce Mental Health Stigma and Discrimination: A Literature Review to Guide Evaluation of California's Mental Health Prevention and Early Intervention Initiative; TR-1318. Santa Monica, CA: RAND Corporation; 2012.
- Kitchener BA, Jorm AF. Mental health first aid training: review of evaluation studies. *Aust N Z J Psychiatry*. 2006;40:6-8.
- Corrigan P, Gelb B. Three programs that use mass approaches to challenge the stigma of mental illness. *Psychiatr Serv*. 2006;57:393-398.
- Kirsch DJ, Pinder-Amaker SL, Morse C, Ellison ML, Doerfler LA, Riba MB. Population-based initiatives in college mental health: students helping students to overcome obstacles. *Curr Psychiatry Rep*. 2014;16:525.