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The association of school climate, depression literacy, and mental health stigma among high school students

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Human Subjects Approval Statement

The Institutional Review Boards at Johns Hopkins University approved all study procedures (Protocol NA00073580) and the University of Virginia (Protocol 2015-0049-00).

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Abstract

BACKGROUND—Although school climate is linked with youth educational, socioemotional, behavioral, and health outcomes, there has been limited research on the association between school climate and mental health education efforts. We explored whether school climate was associated with students' depression literacy and mental health stigma beliefs.

METHODS—Data were combined from 2 studies: the Maryland Safe Supportive Schools Project and a randomized controlled trial of the Adolescent Depression Awareness Program. Five high schools participated in both studies, allowing examination of depression literacy and stigma measures from 500 9th and 10th graders. Multilevel models examined the relationship between school-level school climate characteristics and student-level depression literacy and mental health stigma scores.

RESULTS—Overall school climate was positively associated with depression literacy (OR= 2.78, $p < .001$) and negatively associated with stigma (Est.=−3.822, $p = .001$). Subscales of engagement (OR= 5.30, $p < .001$) and environment were positively associated with depression literacy (OR= 2.01, $p < .001$) and negatively associated with stigma (Est.=−6.610, $p < .001$), (Est.=−2.742, $p < .001$).

CONCLUSIONS—Positive school climate was associated with greater odds of depression literacy and endorsement of fewer stigmatizing beliefs among students. Our findings raise awareness regarding aspects of the school environment that may facilitate or inhibit students' recognition of depression and subsequent treatment-seeking.

Keywords

adolescent depression; school climate; depression literacy; stigma

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The American Recovery and Reinvestment Act[1] earmarked $3 billion for School Improvement Grants with the aim of promoting academic achievement in the nation's most poorly performing schools.[2] Recognizing the critical importance of school climate for all aspects of youth development, educators and regulatory bodies sought to harness school climate as a means of promoting child and adolescent learning and health.[3–5] Target outcomes include academic achievement, socio-emotional and character development, and psychosocial well-being.[6] In this paper we aimed to understand the association between school climate and characteristics important for successful identification and treatment of mental health problems, particularly students' depression literacy and mental health stigma.

Positive school climate promotes "a supportive academic, disciplinary, and physical environment" that encourages and maintains "respectful, trusting, and caring relationships throughout the school community…"[5] School climate also exerts a critical contextual

influence on many other domains of youth development and health. The school environment has a profound effect on students' attitudes toward learning, including whether students like school, enjoy class, and their intrinsic academic motivation.[7] These processes are associated consistently with academic achievement.[8,9] School climate also effects psychological well-being over time.[9–11] and is inversely associated with externalizing behavior problems,[8,12] health complaints,[9,11,13–15] development of risk behaviors over time,[16] and absenteeism.[8,17,18]

Depression is among the most commonly occurring psychological disorders that can threaten adolescents' psychological well-being and academic performance.[19–21] Many school-based programs exist for the prevention or early detection of depression.[22,23] To our knowledge, however, few studies have addressed the role of school climate in relation to depression knowledge among students and teachers and the degree to which students and staff hold stigmatizing attitudes toward people with mental health concerns. If aspects of the school environment discourage recognition and disclosure of depressive symptoms, students may be placed at risk for negative academic and health outcomes associated with untreated depression.[24]

At the organizational level, school climate bears a relationship to implementation of health promotion and illness prevention programs in classroom teaching.[25,26] For example, schools with more positive organizational climates are more likely to implement cardiovascular health promotion programs than schools with less positive climates[26] and to incorporate education about smoking, drugs/alcohol, and sexual risk behavior into their regular curricula.[18] At the student level, educational and social norms encountered in school are associated with adoption of health promoting behaviors[18] and positive coping strategies.[14]

Of relevance to our study, school climate also influences students' interactions with one another[27] as well as teachers' relationships with students in the context of health education regarding depression and suicide.[16] Although most research on mental health stigma has been conducted with adults,[28,29] a nascent, yet, growing literature suggests that youth with psychiatric disorders are subject to similar processes of social exclusion. Despite the fact that peer acceptance is of critical importance among youth with mental illness,[30] studies suggest that adolescents with psychiatric disorders are not fully integrated in peer social circles[31] and fear bullying or harassment as a result of their illness.[32,33] Fear of stigmatization is a barrier to treatment-seeking[34,35] and secrecy is used by both youth and adults as a protective strategy against social rejection.[29,33] Avoiding disclosure of one's symptoms is particularly concerning given that depression is one of the most common mental health conditions among adolescents[36,37] and is associated with increased risk of suicide among young people.[38] We hypothesize that safety as a school characteristic may be associated with mental health stigma given that bullying often is directed toward members of marginalized subgroups in schools,[39] students with mental disorders frequently are marginalized,[40] and that awareness of these social processes may be reflected in overall perceptions of a school as safe or unsafe.

Existing literature suggests that school climate could play an important role in the ability of school staff and students to recognize depression and may affect the valence of attitudes

toward people with mental health problems. Given the importance of understanding how school climate relates to students' understanding of depression, their experience of mental health stigma, and their willingness to disclose mental health concerns to peers and adults, this study addressed the following questions: (1) Is school climate (ie, safety, engagement, environment) associated with students' depression literacy? (2) Is school climate (i.e., safety, engagement, environment) associated with students' mental health stigma beliefs?

Data were combined at the school level from 2 separate surveys both conducted in the same schools during the 2012–2013 academic year. One dataset includes pre-test (before the intervention was delivered) depression knowledge and stigma measures from a randomized, controlled trial of the Adolescent Depression Awareness Program (ADAP). ADAP is a universal prevention program that educates high school students, teachers, counselors, and parents about the signs and symptoms of adolescent depression while simultaneously challenging myths about depression that increase stigma and reduce help-seeking. The curriculum's core message is to "tell a trusted adult" if a student or peer is experiencing depression symptoms. The program includes: (1) training for school-based educators and other ADAP instructors; (2) a school-based curriculum for students; and (3) parent education. Together, these elements of the ADAP program aim to increase awareness about depression and bipolar disorder, stressing the need for evaluation and treatment while decreasing the stigma associated with mood disorders.

The other dataset comes from the Maryland Safe and Supportive Schools (MDS3) Project, which is a collaborative statewide program that facilitates dissemination of Positive Behavioral Interventions and Supports (PBIS)[41] and an array of prevention programs throughout public and private schools.[42] Schools' participation was voluntary. Prevention efforts target academic performance, behavior, and mental health problems among adolescents and capitalize upon the existing architecture of school curricula.[43] One important aim of MDS3 is to develop and implement sustainable measures of school climate in Maryland schools.[44,45] The overlap between the 2 projects allowed us to examine the relationship between school climate, depression knowledge, and mental health stigma.

METHODS

Participants

MDS3 school climate surveys were collected from a subset of private Catholic high schools that also participated in a randomized controlled trial of ADAP. Five schools overlapped between the 2 studies. A total of 2386 students completed the MDS3 School Climate Survey in schools that implemented ADAP; of these, 500 9th and 10th grade students completed the ADAP measures. Both studies employed a waiver of active parental consent and youth assent procedures. Participation was voluntary.

Instrumentation

The MDS3 School Climate Survey measures 3 aspects of school climate (safety, engagement, and environment) based on the school climate model developed by the U.S. Department of Education.[42,45] The 56-item instrument collects student, parent, and teacher

ratings of school climate via an anonymous, Web-based interface once per school year. Student-rated school climate data aggregated at the school level were used for this study. Example items from each of the 3 student-rated subscales include: “I feel safe at this school” [Safety], “My teachers care about me” [Engagement], and “There are clear rules about student behavior” [Environment]. Items are scored on a 4-point Likert-type scale (“strongly agree to strongly disagree”) with higher scores representing more positive school climate. An aggregated measure combining all 3 subscales [Overall School Climate] was also utilized. Exploratory and confirmatory factor analyses using 2 separate waves of data from over 25,000 youth supported the 3-subscale factor structure as well as the robustness of this factor structure across racial/ethnic and sex subgroups.[45] MDS3 school climate surveys and ADAP data were linked at the school level using unique school identifiers.

As part of ADAP, students received the Adolescent Depression Knowledge Questionnaire (ADKQ) as a pre-test before participating in the ADAP program. The ADKQ is an assessment of knowledge and attitudes about adolescent depression.[22] Thirteen yes-no questions and 4 multiple-choice vignettes evaluate factual knowledge about depression. For example, students select “yes” or “no” in response to the following statement: “A change in behavior is a symptom of depression.” Students were considered “depression literate” if they responded correctly to 14 out of 17 items (82% correct). The ADKQ has demonstrated adequate psychometric properties as well as measurement invariance across sexes.[46]

Included in the ADAP study is the Reported and Intended Behaviours Scale (RIBS), an 8-item scale that measures individuals’ current experiences with people who have mental disorders as well as their future intentions to associate with them.[47] The first 4 items are used to assess current experience with people who have mental disorders and do not contribute to the stigma score. The last 4 items measure future behavioral intentions and are scored on a 5-point, Likert-type scale, with lower scores reflecting less stigma toward individuals with mental disorders. The RIBS instrument exhibits strong psychometric properties across multiple samples.[47] ADAP students completed this measure at the same timepoints as the ADKQ.

Procedure

The ADAP curriculum is 3 hours long and is taught in 2 or 3 consecutive health classes. The curriculum employs several teaching methods, including interactive lectures, videos, group projects, and homework assignments. Teachers received a standardized toolkit containing instructional DVDs, a teaching manual, PowerPoint lectures, handouts, and group activity cards along with a 6-hour, in-person training on how to teach ADAP. Teachers administered the ADKQ prior to program delivery and 6 weeks later.

The MDS3 School Climate Survey was administered to a random sample of 9th–12th graders during the spring term of the 2012–2013 school year. Students completed the survey using an anonymous, Web-based platform. The student survey was administered during English classes with the goal of obtaining a representative sample from each grade level. Teachers were given a script to introduce the survey and provide details about using the online survey system.

Data Analysis

Preliminary analyses were performed in SPSS 22.0 to compute univariate statistics. Four 2-level models were conducted in Mplus V. 7.1 to examine the relationship between school-level climate variables (safety, engagement, and environment subscales and the overall school climate score) and student-level depression literacy and mental health stigma outcomes. For depression literacy, we fit a logistic hierarchical model (literate vs. non-literate) and the results are reported in terms of unadjusted odds ratios. All models were run using the cluster command, which allows for the calculation of robust standard errors to account for clustering of students within schools. School climate variables were included as between level variables to explore the association of overall school climate and as well as the 3 individual subscales (engagement, environment, safety) with depression literacy and mental health stigma. Although the number of schools comprising our cluster variable was low (N = 5), we had over 100 students per school, which is more than the minimum standard needed to produce reliable multilevel estimates.[48]

RESULTS

Descriptive Statistics

Table 1 shows the univariate statistics for the variables included in the model. About 20% of the sample was considered depression literate (they answered at least 80% of the ADKQ questions correctly). All subscales of the school-level school climate measure (engagement, environment & safety) were significantly correlated with each other ($p < .001$). The correlation between student-level depression literacy and mental health stigma scores approached significance ($r = -.104$, $p = .063$).

Depression Literacy and School Climate

The multilevel model evaluating the association between overall school climate (comprised of the subscales safety, engagement, and environment) and students' depression literacy was assessed using overall school climate as the between-level variable and school serving as the cluster variable (Table 2). The model fit the data well (CFI=.998). Overall School Climate was significantly associated with individual students' depression literacy (OR = 2.78, $p < .001$), suggesting that a more positive school climate is related to greater odds of depression literacy. Further exploratory analyses investigated the relationship of each school climate subscale with depression literacy. Engagement (OR = 5.30, $p < .001$) and environment (OR = 2.01, $p < .001$) were also significantly associated with depression literacy. The safety subscale was not associated significantly with depression literacy (Est.=.317, p =.129).

Mental Health Stigma and School Climate

The relationship between overall school climate at the school-level and individual student reports of mental health stigma was explored using the RIBS.[47] The model fit the data well (CFI=.977) (Table 2). Overall school climate was inversely associated with mental health stigma (Est.=−3.822, $p = .001$) suggesting that positive school climate is associated with lower mental health stigma. In further analyses, the school climate subscales were explored for their relationship with mental health stigma. As with depression knowledge, an inverse

relationship was demonstrated between engagement and mental health stigma (Est.=−6.610, $p < .001$) and between environment and mental health stigma (Est.=−2.742, $p < .001$), suggesting that when a school has high levels of engagement or positive environment, individual students' reports of stigma are lower. Safety was not associated significantly with mental health stigma (Est.=−1.260, $p = .276$).

DISCUSSION

Our findings indicate that school climate may be an important factor to consider when implementing depression education programming. The significant relationships between school climate, depression literacy, and stigma in this study may provide guidance for tailoring depression education programs to enhance the quality of the learning experience and promote acceptance of people with depression. Our results provide a snapshot of youth depression knowledge and stigma prior to receiving a depression education curriculum, pointing to the possibility that the quality of the environment in which students learn may moderate the effects of depression programming on individual students' knowledge and belief outcomes.

Individual students' depression knowledge was positively related to characteristics of their school environment, which included the quality of the educational environment and the connectedness of teachers, parents, and peers in the school setting (engagement). In addition, students' endorsement of stigmatized beliefs about people with mental health problems was inversely related to these same school characteristics. In summary, students surrounded by a more positive school climate demonstrated higher rates of depression literacy and fewer stigmatized beliefs than students who attended schools with less positive climates.

These findings carry important implications for help-seeking on the part of students who are struggling with depression. Recognition of symptoms is a vital first step toward seeking help, but it is not the only step. Young people who recognize that they may be experiencing depression require the assistance of adults in order to obtain treatment; rarely are they able to initiate assessment and treatment on their own.[49] Disclosing depression concerns is an inherent component of help-seeking; this may be a highly vulnerable point in the help-seeking process that is influenced by the attitudes of fellow students.[24] Thus, school climate may influence help-seeking in 2 ways: (1) through students' willingness to acknowledge to themselves that they have depression and (2) their willingness to disclose those concerns to others who will support students and link them with the appropriate individuals and services in their school or community.

School climate may be highly relevant to school-based anti-stigma programs. Although there is a relative paucity of anti-stigma programming for youth,[50] programs exist that might be deployed in conjunction with depression education interventions. Few studies have examined the relationship between school climate and outcomes of anti-stigma or help-seeking programming for youth. One such study focused on altering school characteristics that arguably are components of school climate, such as students' social connectedness, perceptions of adults' ability to provide assistance for suicidal students, and norms about the

acceptability of students' turning to trusted adults for help with suicidal thoughts.[51] Examining the role that school climate plays in perpetuating or ameliorating negative attitudes toward people with depression may shed light on why program outcomes vary in the extent to which they modify students' attitudes regarding mental illness.

Of particular interest, the school-level safety subscale of the MDS3 School Climate Survey was not associated significantly with depression literacy or stigma in our sample. We hypothesized that safety would be associated with mental health stigma given that bullying often is directed toward members of marginalized subgroups in schools,[39] students with mental disorders frequently are marginalized,[40] and that awareness of these social processes may be reflected in overall perceptions of school safety. We explored these findings more fully by examining mean differences in safety subscale ratings between Catholic schools that did and did not participate in the ADAP program and between Catholic and secular schools in the larger MDS3 sample. We hypothesized that high levels of school safety could explain the lack of significant association between safety and depression knowledge/stigma. However, findings indicated that average safety ratings were *lower* for the Catholic schools that participated in ADAP (Est=3.06, SE =.05) than for Catholic schools that did not (Est=3.39, SE=.02); [$t(42) = 65.16$, $p < .001$]. It is possible that these schools recognized areas for improvement in safety and chose to implement the MDS3 and ADAP programs to enhance safety for students. In comparison, however, mean safety scores were significantly *higher* for Catholic schools (Est=3.26, SE=.05) than for secular schools (Est=2.58, SE=.03); [$t(99) = -85.09$, $p < .001$] in the MDS3 sample. These findings may lend some support for the hypothesis that safety concerns are less of an issue for students in Catholic schools than for students in secular schools, offering a potential explanation for the lack of significant relationship between safety ratings, depression knowledge, and stigma. This question requires further study.

Limitations

This study was conducted in a small sample of private, Catholic schools in one mid-Atlantic state. Findings may not generalize to secular schools or schools in other geographic areas. We also were unable to assess student-level correlates of depression knowledge or stigma, such as whether students have experienced depression themselves or have family members with mental illness. Personal contact with someone who has a mental disorder tends to be associated with more positive attitudes toward those with mental illness,[52] and thus, information regarding the extent of these social contacts would be useful in future research. Additionally, we were not able to examine individual students' perceptions regarding school climate characteristics and thus could not examine associations between individual students' depression knowledge, mental health stigma, and their specific school climate ratings. The findings are cross-sectional, and thus no causal conclusions can be drawn based on these data. Strengths of this study include use of school climate, depression knowledge, and stigma measures with strong psychometric properties, self-report methods that measure youths' own perspectives regarding study variables, and its unique contribution to the literature on school climate and youth well-being.

Conclusions

Findings from this study coincide with existing literature suggesting that school climate is significantly associated with youth health and well-being and adds additional evidence that school climate is related to youths' knowledge about depression and stigmatizing beliefs about people with mental illness. These results are particularly important given that youth and their peers often are in the best position to recognize and seek help for depression[53] and that depression knowledge is a vital first step in treatment-seeking.[54] Our findings regarding stigma are particularly meaningful given that peers frequently confide in each other, are important sources of support, and can facilitate linkage with treatment for teens struggling with symptoms of depression.[53] Important questions for future research include measuring youth perceptions of the receptivity of their peers toward engaging in discussions about mental health and the relationship this bears to help-seeking as well as gathering information regarding students' social experiences following disclosure and help-seeking and how aspects of school climate can be improved to facilitate treatment and recovery for young people with depression.

IMPLICATIONS FOR SCHOOL HEALTH

Depression is a widespread, potentially life-threatening illness that often appears during adolescence.[55–57] Left untreated, it can interfere with key developmental milestones such as academic performance, education completion, and relationship formation.[19–21] Our findings raise awareness regarding aspects of the school environment that may facilitate or inhibit students' recognition of depression and subsequent treatment-seeking. Additionally, our results highlight the potential roles educators, administrators, and other members of the school community might play in encouraging depression recognition and creating a culture of acceptance toward students with mental disorders. School administrators should:

- Incorporate routine measurement of school climate from the perspectives of students, parents, and teachers and focus improvement efforts on areas of concern indicated by these measures. Targeting specific areas of concern based on data can be a cost-effective way of improving school climate. Correspondingly, it can also highlight areas in which a school is doing well.
- Augment health education by incorporating evidence-based depression education programs accompanied by anti-stigma campaigns.
- Provide teacher, administrator, and staff skills training such as that offered by Mental Health First Aid.[58] Youth Mental Health First Aid is an evidence-based program that offers "first aid" skills and training for teachers, school staff, and others who work with youth. These skills are highly valuable for helping young people receive support and access treatment for mental health concerns such as depression.

An important facet of a safe and supportive school climate is the ability to show empathy and respect for others as well as developing and maintaining positive relationships.[5] The dissemination and uptake of evidence-based, effective depression education curricula such as

ADAP, in combination with anti-bullying and other school climate interventions can be part of a broader national initiative to create safe and supportive schools.

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Table 1

Descriptive Data for School Climate Scales, Depression Literacy Rates, and Stigma Scores

	Mean	Std. Deviation	Range	N (%)
Overall Climate	2.98	.092	2.85–3.12	
Engagement	3.09	.058	3.01–3.17	
Environment	2.81	.135	2.61–2.92	
Safety	3.02	.146	2.90–3.34	
Depression Literate				105 (20.8%)
Depression Stigma	4.72	3.28	0–16	

Table 2

Multilevel Results Predicting Depression Literacy and Depression Stigma

	School Climate		Engagement		Environment		Safety	
	OR	**CI**	**OR**	**CI**	**OR**	**CI**	**OR**	**CI**
Depression Literacy	2.78*	2.34–3.3	5.30*	3.53–7.95	2.01*	1.81–2.23	1.37	.802–2.35
Depression Stigma	.022*	.001–.432	.001*	.000–.051	.064*	.011–.371	.284	.014–5.60

Note.

* p ≤ .001