Development of a Middle School Assessment of Climate and Student Mental Health Issues

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Abstract

This proposal describes an effort to develop a reliable and useful measure of school climate and student mental health for middle school settings. Analyses of the survey domains, reliability, and relationship between school climate and common student mental health issues were conducted in two pilot studies with a sample of over three hundred students for each pilot in three middle schools in Southern California. The survey exhibited a stable dimensional structure with a high level of internal consistency. Preliminary results on the relationship between school climate ratings and student mental health suggest that school climate domains (e.g. social, emotional and physical security) were negatively associated with mental health domains: depression, anxiety, and stress.

Objectives or purposes

Researchers and educators increasingly have recognized the importance of school climate in learning and youth development (Center for Social and Emotional Education, 2010). School climate is an important factor in the successful implementation of school reform programs (Gregory et al., 2007). School climate impacts staff's ability to make change, emotional exhaustion, retention, relationships and trust, feelings of accomplishment, and sense of efficacy (Grayson & Alvarez, 2008; Miller et al., 1999; Singh & Billingsley, 1998; Hoy & Woolfolk, 1993). And for students school climate impacts their learning, academic achievement, motivation, safety, absenteeism, group cohesion, stress, mutual trust, and feelings of connectedness and attachment to school (Fleming et al., 2005; Ma & Klinger, 2000; Brand et al., 2003; Freiberg, 1999; Griffith, 1995; Comer, 1984; Goodenow & Grady, 1993; Eccles et al., 1993; Ghaith, 2003; Kerr et al., 2004; Devine & Cohen, 2007). In addition, research has shown that students' psychological and behavioral health is associated with school climate (Brand et al., 2003; Way et al., 2007; Eccles & Roeser, 1999; Roeser el al., 1998, 2000).

While there are several school climate surveys available for middle schools most have no student mental health content, per se (National School Climate Center, 2002; Brand et al., 2003; WestEd, 2011; Alliance for the Study of School Climate, 2008). The most widely used risk behavior measurement in California, the Healthy Kids Survey (HKS), contains one item measuring depression risk in the middle school (grade 7 only) survey and no items on anxiety, the most common mental health issue of youth (Austin & O'Malley, 2012; NAMI, 2012; Stein, et al.

2012) . The one item about suicide ideation is only included in the ninth and eleventh grade HKS and considering the early onset of behavioral and mood disorders (Austin & O'Malley, 2012; Stein, et al. 2012), there is a need to assess youth at an earlier age. The authors did not find any school climate measures specifically for middle school youth that assess the range and frequency of symptomology of the most prevalent emotional health issues of this population--stress, anxiety, and depression (NAMI, 2012; Stein et al., 2012). After using the HKS along with additional mental health instruments to conduct a study of youth involvement in high- risk behaviors, Dowdy et al.(2013) conclude that there is a need for a "balanced approach to youth surveillance that includes additional mental health content…(to) provide additional directions for intervention and provide a more comprehensive understanding of youth risk behaviors." Additionally, there is a need to track the middle school (grades 6-8) students' trajectory of change associated with dimensions of school climate over time and the associated psychological and behavioral adjustments (Way et al. 2007) with a single assessment that is designed to be used across each of the middle school grades. This type of school-wide snapshot data can be used to make a case for the prevention and early identification of student mental health issues through professional development for staff and parents, student screening for common mental health disorders, development of student-centered interventions, and the monitoring of school-wide and targeted student mental health initiatives.

The current study 1) develops a measure of school climate and common mental health issues for middle and junior high school students, and 2) investigates the relationship between school climate and student mental health issues, specifically depression, anxiety, and stress.

Perspective(s) or theoretical framework

The National School Climate Council (2007) defines school climate as "the quality and character of school life. School climate is based on patterns of people's experiences of school life and reflects norms, goals, values, interpersonal relationships, teaching, learning, leadership practices, and organizational structures"(p. 2). There is growing evidence that school climate not only impacts student learning, academic achievement, and school success, but also impacts youth social, emotional and psychological development (Center for Social and Emotional Education, 2009; Center for Mental Health in Schools, 2007; Cohen et al., 2009). Investigating school climate can provide data to support a comprehensive approach to addressing barriers to learning, teaching, and performance. For students these barriers can include educational and psychosocial problems, external stressors, and psychological disorders (Adelman & Taylor, 2006).

The study of school climate in the middle school setting is especially important. Middle school provides a critical context in the development of adolescents. During their school experience, students learn about themselves and relationships, and how to navigate the difficulties of adolescence. There is evidence that the interpersonal, instructional, and organizational climate of middle school strongly influences students' psychological and behavioral adjustment across

multiple domains (Eccles & Roeser, 1999; Roeser et al., 1998, 2000; Kuperminic et al., 1997; Skinner & Wellborn, 1997). Roeser et al. (1998) found that school climate can account for some of the difficulties that arise for adolescents often challenging their adaptive capacities. Given that depressive symptoms, low self-esteem and behavioral difficulties often arise during the middle school years, there is a modest set of empirical findings that show how school climate shapes these emotional and behavioral consequences (Bachman & O'Malley, 1986; Brand et al., 2003; Hoge et al., 1990; Kuperminic et al., 1997; Roeser & Eccles, 1998; Way & Robinson, 2003).

School climate has been shown to affect a wide range of emotional and mental health outcomes in students (Hoge et al., 1990; Kuperminic et al., 2001; Kuperminic et al., 1997; Payton et al., 2008; Shochet et al., 2006; Way et al., 2007). Way et al. (2007) found that students' perceptions of school climate dimensions such as teacher support, peer support, student autonomy, and consistency in school rules declined over a three-year period, and that these declines were associated with decline over time in students' psychological and behavioral adjustments. Brand et al. (2003) found that students' perceptions of different dimensions of school climate, including teacher support, structure, commitment to achievement, positive peer interactions, and instructional innovation, were significantly associated with higher levels of self-esteem and lower levels of depressive symptoms. Lastly, when children with strong social supports are under stress, even high levels of stress, they exhibit fewer symptoms of anxiety than do children with less support (Weigel & Wertlieb, 1986).

This proposal describes an effort to develop a reliable and useful measure of whole school climate and student mental health for middle school settings. Drawing upon lessons from prior research on school climate, twelve school climate and three mental health domains are identified for the survey. Ten of the school climate domains identified in previous research are summarized by four overarching dimensions: safety (rules and norms; physical safety; social-emotional safety); relationships (respect for diversity; social supports from adults; social support between peers); teaching and learning (support for learning; social and civic learning); and the institutional environment (school connectedness & engagement; physical surrounding) (Center for Social and Emotional Education, 2010). In addition to these ten school climate domains, two additional domains were added: “cyberbullying” and “social support adult to adult”. Cyberbullying is associated with a host of psychosocial and physical problems in children and teens. Victims of cyberbullying have low self-esteem and higher levels of depression (Ybarra et al., 2006).

There is some evidence that the health of the school's adult culture has impacts on students. Student achievement was improved in middle schools where teachers and administrators had strong professional and emotional relationships or adult to adult social support (Hoy & Sabo, 1997). Both academic press (engaging students in intellectual activities and setting goals) and

staff social support predict achievement regardless of students' backgrounds and their school demographics (Hoy & Sabo, 1997).

For mental health domains, the survey focused on the common internalizing behaviors of stress, anxiety, and depression (Tomb et al., 2004) as these have been the primary focus of preventative efforts (Greenberg et al., 2000). There is growing evidence that youth are experiencing stress as never before (Diekstra, 1995) and adolescence is characterized by a significant increase in stress (Ge et al., 1994, 2001; Rudolph & Hammen, 1999; Seiffge-Krenke, 2000). Among adolescents prevalence rates of depression are as high as 28% (NAMI, 2012) and rates of anxiety disorder are one in ten (NAMI, 2012). When young people are distressed, their energy is directed away from the learning process, thereby interfering with optimal school performance and age-appropriate psychosocial development (Compas & Hammen, 1994; Kovacs et al., 1997).

Methods, techniques, or modes of inquiry

The following existing surveys were examined in the process of survey development: California Healthy Kids Survey (WestEd, 2011), California School Climate Survey (WestEd, 2011), Comprehensive School Climate Inventory (National School Climate Center, 2002), Inventory of School Climate-Student (Brand et al., 2003), and School Climate Assessment Instrument (Alliance for the Study of School Climate, 2008). For the mental health items, investigators examined existing measures of anxiety: Spence Children's Anxiety Scale (Spence, 1997), stress: Perceived Stress Scale (Cohen et al., 1983), and depression: Short Mood and Feelings Questionnaire (Angold et al., 1995).

The student survey was constructed and tested iteratively in three phases. Middle schools were invited to participate in the pilots with the goal of developing a sound and reliable school climate survey. Three middle schools responded to the invitation: two public schools and one private school. To ensure the pilot samples consisted of representative student populations, we sampled students in four classes in different grade level from one core subject area.

One hundred and thirteen school climate items and 28 mental health items were tested in the first pilot (April 2012). The school climate items asks respondents to rate how much they agree or disagree with each item using a 5-point scale (1=strongly disagree; 5=strongly agree). Items are based on a multidimensional conceptualization of school climate suggested in the School Climate Research Summary by the National School Climate Center (2010). The mental health items asks respondents to rate how often each item is true for them using a 4-point (0=never; 3=fairly often).

A series of analyses were conducted to study the reliability and validity of the survey. These analyses included exploratory factor analysis (used to identify items with stable loadings, examine the degree to which items exhibited strong and stable relationships with the constructs, and stable relationships with the constructs and identify items for possible deletion), Cronbach's

alpha (used to assess the items' internal consistency), item analysis (used to study the characteristics of particular items), and item response theory (used to study the function of the likert scale). A refined set of items were tested in the second pilot (June 2012), and similar types of analyses were conducted for further survey refinement. A third pilot will be scheduled in May/June 2013 as the final testing of the survey. The factor structure of the survey will be examined through confirmatory factor analyses.

Preliminary analysis of the relationship between school climate and student mental health was done by using factor scores that reduce the large number of survey items to a smaller number of dimensions underlying the data set (DiStefano et al., 2009). Based on the factors derived from the exploratory factor analysis, the sums of the raw scores of corresponding items were calculated. Summed factor scores preserve the variation in the original data, and this approach is generally acceptable for most exploratory research situations (Tabeachinck & Fidell, 2001).

Data sources, evidence, objects, or materials

The data source consists of students' responses to the survey from the two pilots. Three hundred and eighty-four students completed the first version of the survey and 323 students completed the second version of the survey.

Results and/or substantiated conclusions or warrants for arguments/point of view

The following section discusses the preliminary results obtained. Part I includes the results from the validity and reliability analyses of the survey. Part II includes preliminary results on the relationships between school climate and mental health.

Part I: Validity and Reliability for Survey

A principal axis factor analysis was performed on the data and rotated using an oblique rotation procedure which allows factors to correlate (Costello & Osborne, 2005). One hundred and thirteen school climate items and 28 mental health items were tested in pilot one. After the series of analyses, eighty-one school climate items and 24 mental health items were tested in pilot two. The factor structures were observed in both pilot results. The resulting school climate factors together accounted for 48% of the variance in the first pilot and 62% in the second pilot. The resulting mental health factors together accounted for 42% of the variance in pilot one and 58% in pilot two. Table 1 and Table 2 show the factor structures for the school climate and mental health items respectively from pilot two data.

Eleven school climate factors and two mental health factors were derived from the analysis. Differing from the domains suggested by previous research, the results suggested that 1) physical safety and social-emotional safety should be combined as one subscale and 2) the two additional domains, "cyberbullying" and "social support adult to adult" were derived. Additionally, the results indicated that anxiety and stress should be combined as one subscale. Figure **1** provides a description on all the domains of school climate included in the survey.

Table 1. School Climate Items

Items	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10	Factor 11
Factor 1: Support for Learning											
32. My teachers encourage us to try out new ideas and think independently.	.623										
34. My teachers encourage students to work hard so we can be successful in school.	.618										
29. My teachers give helpful feedback to students like me.	.613										
31. My teachers try to relate classroom lessons to real life.	.609										
36. My teachers go out of their way to help students like me.	.592										
30. My teachers give us different opportunities to show what we know.	.584										
33. My teachers encourage us to take part in classroom discussions or activities.	.528										
39. My teachers like us to try unique projects.	.525										
35. We are given clear instructions about how to do our work in class.	.477						-.207				
37. My teachers help us to organize our work.	.424									.216	
38. My teachers help us to catch up when we return from an absence.	.373						-.212			.243	
Factor 2: Sense of Social Emotional & Physical Security											
20. Harassment or bullying among students is a problem at this school.[a]		.793									
19. I worry that I will be teased at school.[a]		.684									
21. It's common for students to tease and insult one another at this school.[a]		.659									
18. There are areas of this school where students do not feel physically safe.[a]		.628									
22. I worry that someone from this school will spread mean rumors or lies about me at this school.[a]		.582		-.276							
17. I am afraid of being beaten up at this school.[a]		.569		-.227							
16. Physical fighting between students is a problem at this school.[a]		.451									
23. Harassment or bullying towards lesbian or gay students is a problem at this school.[a]		.436									
15. I am safe from being hit, pushed or tripped on purpose at this school.		.375							.298		

Items	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10	Factor 11
Factor 3: Social Support Student to Student											
73. I have friends at this school who I can trust and talk to when I have problems.			-.833								
69. There are students at this school who care about me.			-.801								
70. There are students at this school who I can talk to about personal problems.			-.791								
71. I feel close to other students at this school.			-.782								
74. There are students at this school who are kind to me.			-.768								
75. There are students at this school who are friendly to me.			-.765								
72. I have friends at this school that I can turn to if I have questions about homework.			-.759								
Factor 4: Cyberbullying											
28. I frequently have received nasty, upsetting or silent phone calls from other students at this school.[a]				-.855							
26. I frequently have had mean rumors or lies spread about me on the internet by other students at this school.[a]				-.839							
25. I frequently have received mean or nasty text messages or emails from other students at this school.[a]				-.814							
27. I frequently have had nasty pictures, photos, or videos sent to others about me.[a]				-.761							
Factor 5: Social Support Adult to Student											
65. Listens to what I have to say.					.932						
64. Acknowledges and pays attention to students like me.					.887						
66. Tells me when I do a good job.					.831						
67. I trust.					.826						
68. Takes a personal interest of me.					.815						
63. I can go to for help with personal problems.					.735						
Factor 6: School Connectedness & Engagement											
76. I am happy to be at this school.						-.783					
79. I like coming to this school.						-.775					
77. I feel like I am part of this school.						-.713					
80. I feel good about myself at this school.						-.649					
78. I learn a lot at this school.						-.533					
81. I am motivated to learn.	.254					-.418					
Factor 7: Social Support Adult to Adult											
61. Are friendly to each other.							-.812				
60. Are kind to each other.							-.796				

Items	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10	Factor 11
62. Enjoy working together.							-.767				
58. Care about each other.							-.716				
59. Are close to each other.							-.715				
Factor 8: Social & Civic Learning											
49. We talk in class about how to be a good person.								.598			
51. This school has students examine our own cultural, racial, or ethnic biases through classroom discussions or other processes.								.509			
52. Students here appreciate and respect students who have different cultural or ethnic backgrounds.								.496			.488
45. Students here learn ways to manage our emotions.								.479			
56. At this school, we celebrate different races and cultures.								.463			
50. In classes, we are given assignments to help us learn about things outside of school.								.450			
46. At this school, we talk about ways to help us control our emotions.								.438	.218		
48. At this school, we talk about the ways our behavior will affect others.								.384			
44. Adults at this school help us find better ways to handle conflict.								.376	.228		
Factor 9: Norms & Rules											
12. No matter who you are, the punishment for breaking school rules is the same.									.784		
10. All students are treated in the same way when they break school rules.									.661		
13. At this school, students know what would happen to them if they break school rules.									.649		
14. Teachers mean it when they make a rule.									.585		
9. All adults at this school enforce the same rules.									.558		
11. At this school, the school rules are fair.						-.251			.494		
Factor 10: Physical Surrounding											
87. There are enough lunch tables, bathrooms, and other necessary things outside of the classroom.										.723	
86. There are plenty of class materials for all students.										.607	
85. Students here take care of this school.						-.216				.531	
89. If things are broken at this school, they get fixed immediately.										.456	

Items	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10	Factor 11
88. Current student work is displayed in the classroom.			-.248							.411	
84. This school is a very clean place.						-.311				.382	
Factor 11: Respect for Diversity											
54. I have been disrespected by others at this school because of my race, ethnicity, or culture.[a]	.210										.596
57. Racial or ethnic conflict among students is a problem at this school.[a]											.566
55. I can feel the tension in this school between people of different cultures, races, or ethnicities.[a]											.503
53. At this school, I feel that my cultural, racial, or ethnic background is respected.						-.225		.286			.454

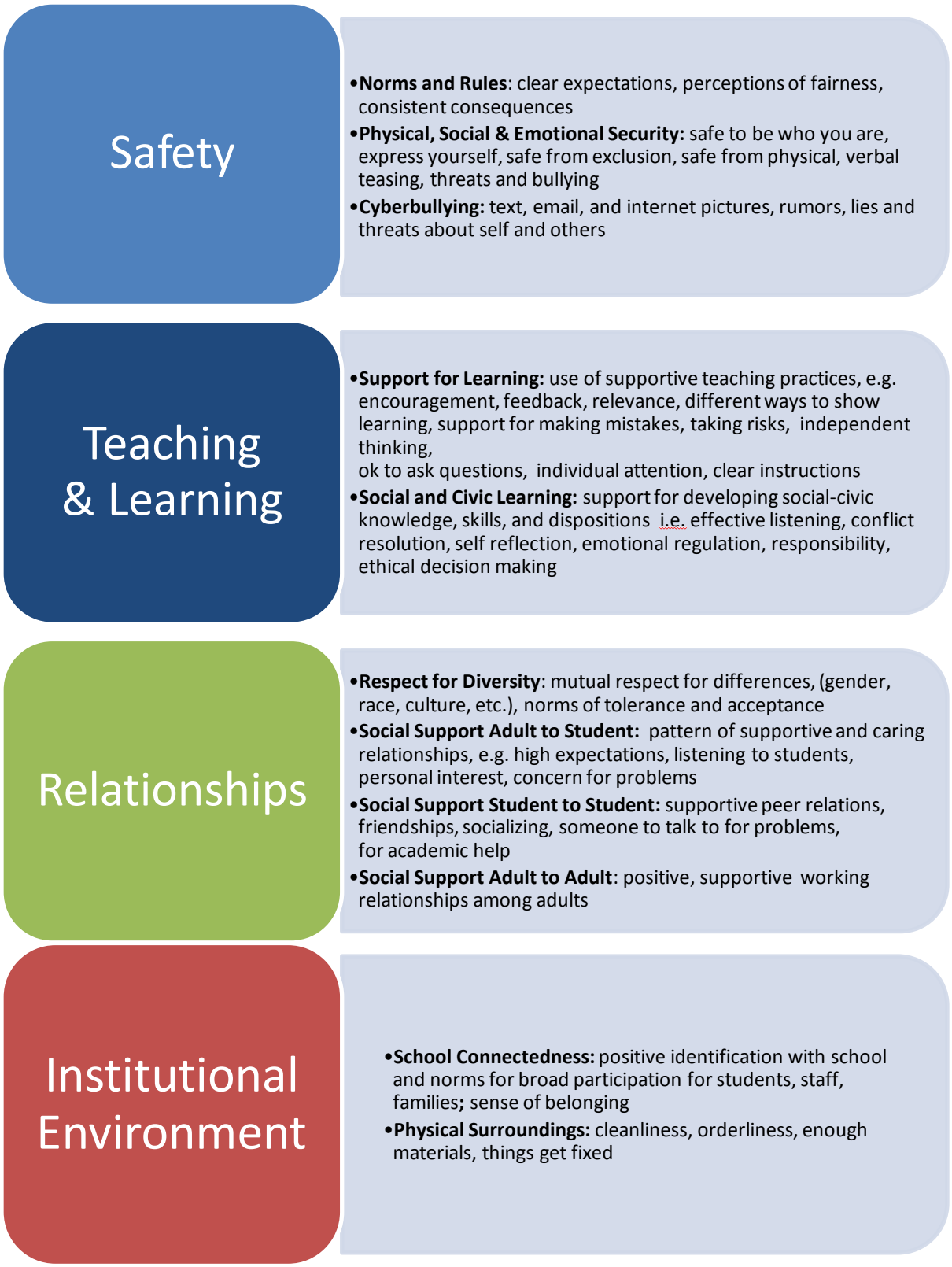
Note. Factor loadings less than .20 are not included for the sake of clarity. [a]This item is reverse coded.

Table 2. Mental Health Items

Items	Factor 1	Factor 2
Factor 1: Depression		
108. I hated myself.	0.925	
111. I thought nobody really loved me.	0.906	
105. I felt I was no good any more.	0.856	
110. I felt lonely.	0.804	
113. I did everything wrong.	0.776	
106. I cried a lot.	0.771	
112. I thought I could never be as good as other kids.	0.722	
109. I was a bad person.	0.713	
102. I didn't enjoy anything at all.	0.698	
101. I felt miserable or unhappy.	0.647	
107. I found it hard to think properly or concentrate.	0.517	0.314
104. I was very restless.	0.502	0.238
103. I felt so tired I just sat around and did nothing.	0.450	
Factor 2: Anxiety & Stress		
96. Felt nervous or stressed?		0.844
97. Found that you couldn't handle all the things that you had to do?		0.817
100. Got easily upset?		0.764
99. Found it difficult to relax?		0.748
91. Had a funny feeling in your stomach when you have a problem?		0.744
94. Worried that something bad will happen to you?		0.735
93. Had your heart beating really fast when you have a problem?		0.728
95. Felt shaky when you have a problem?		0.722
92. Felt afraid?		0.720
98. Tended to over-react to situations?		0.709
90. Worried about things?		0.704

Note. Factor loadings less than .20 are not included for the sake of clarity.

Figure 1. Description of School Climate Domains



Cronbach's alpha reliability coefficient is calculated to study reliability of the survey. As shown in Table 3, reliability was ascertained from alpha scores for each subscale and the overall survey.

Table 3. Scale Reliability for Pilot 2 Data

Subscales	**Alpha**	**Number of Items**
Norms & Rules	0.844	6
Social Emotional & Physical Security	0.865	9
Cyberbullying	0.892	5
Support for Learning	0.933	11
Social & Civic Learning	0.890	8
Respect for Diversity	0.743	6
Social Support Adult to Adult	0.934	5
Social Support Adult to Student	0.940	6
Social Support Student to Student	0.935	7
School Connectedness & Engagement	0.946	8
Physical Surrounding	0.865	6
School Climate – Unified Scale	**0.968**	**81**
Anxiety & Stress	0.938	11
Depression	0.942	13
Mental Health – Unified Scale	**0.952**	**24**

Part II: Preliminary Results on School Climate and Mental Health

As shown in Table 4, the preliminary analysis of the relationship between school climate and student mental health issues indicates that "depression" and "anxiety & stress" are significantly negatively correlated with most of the school climate domains and unified scale; when high levels of depression, anxiety, and stress are reported, students perceive school climate to be less positive.

Table 4. Correlation Matrix

	SC-1	SC-2	SC-3	SC-4	SC-5	SC-6	SC-7	SC-8	SC-9	SC-10	SC-11	SC	MH-1	MH-2	MH
School Climate (SC)															
1. Norms & Rules	1.00	.33***	.22***	.52***	.56***	.40***	.43***	.36***	.26***	.57***	.61***	.63***	-.21***	-.26***	-.26***
2. Social Emotional & Physical Security		1.00	.50***	.22***	.27***	.56***	.22***	.16***	.26***	.28***	.31***	.50***	-.42***	-.46***	-.48***
3. Cyberbullying			1.00	.26***	.17**	.32***	.26***	.16**	.19**	.31***	.16**	.42***	-.35***	-.39***	-.40***
4. Support for Learning				1.00	.65***	.36***	.63***	.52***	.28***	.66***	.59***	.76***	-.14**	-.25***	-.21***
5. Social & Civic Learning					1.00	.40***	.55***	.48***	.38***	.61***	.58***	.74***	-.13*	-.26***	-.20***
6. Respect for Diversity						1.00	.31***	.25***	.37***	.39***	.40***	.58***	-.24***	-.29***	-.29***
7. Social support Adult to Adult							1.00	.50***	.45***	.56***	.49***	.67***	ns	-.21***	-.15*
8. Social Support Adult to Student								1.00	.35***	.54***	.46***	.65***	ns	-.20**	-.14*
9. Social Support Student to Student									1.00	.40***	.34***	.57***	ns	-.20**	ns
10. School Connectedness & Engagement										1.00	.66***	.81***	-.31***	-.40***	-.38***
11. Physical Surrounding											1.00	.76***	-.15*	-.23***	-.20**
School Climate – Unified Scale												1.00	-.28***	-.42***	-.38***
Mental Health (MH)															
1. Anxiety & Stress													1.00	.64***	.93***
2. Depression														1.00	.88***
Mental Health – Unified Scale															1.00

***p<.001, **p<.01, *p<.05, ns represents non-significant.

Scientific or scholarly significance of the study or work

The present study has both theoretical and practical significance to the study of school climate and student mental health. Theoretically, this study provides additional evidence for the relationship between school climate and student mental health. It also explores new and additional dimensions of school climate. Practically, the survey provides schools an assessment tool for school climate and student mental health that provides stakeholders data for informed action planning to improve school climate for students while supporting a comprehensive approach to student success including academic, social, and emotional development and well-being. The present study also investigates a different way of looking at mental health issues on campus. Student mental health is examined at an aggregated level intending to support a preventative approach to student mental health (Durlak & Wells, 1997; Greenberg et al., 2000). It is hoped that survey data providing a macro lens on student mental health will encourage educators to attend to the early identification and support of students' mental health issues. Lastly, relatively little is known about the stability and change of school climate over time (Way, 2003). Taking data at various times on campus in response to various situations or interventions provides adults the evidence and data to inform decisions and action planning.

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