



Internal and External Validity of Three School Climate Scales on the School Climate Bullying Survey

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Abstract

Two studies examined the internal and external validity of three school climate scales on the School Climate Bullying Survey (SCBS), a self-report survey used to measure attitudes and behaviors associated with school bullying. In Study 1, exploratory (EFA) and confirmatory (CFA) factor analyses performed with 2,111 students from four Virginia middle schools established reasonable fit for 20 items with three hypothesized scales labeled: 1) Prevalence of Teasing and Bullying; (2) Aggressive Attitudes; and (3) Willingness to Seek Help. Multi-group confirmatory factor analyses (MGCFA) indicated good overall model fit and identified only two items as sources of variance across gender and race groups. Study 2 found that the scales were related to external measures of school disorder in a sample of 7,318 ninth grade students from 291 Virginia public high schools.



“Bullying” is the use of one’s strength or status to injure, threaten, or humiliate another person. It can be physical, verbal, or social. It is *not* bullying when two students of about the same strength argue or fight.

Rationale

Bullying prevention programs attempt to modify school climate by changing student attitudes that promote bullying and fostering behaviors that prevent it. To monitor program progress, schools need to assess: 1) the extent of teasing and bullying; 2) aggressive attitudes that support peer aggression; and 3) student willingness to seek help for victims.

Study 1

Participants. The sample consisted of 2,111 middle school students (grades 6-7-8) from central Virginia participating in the Olweus Bullying Prevention Program. The students were 70% Caucasian, 11% African American, 7% Asian, 4% Hispanic, and 7% Other. Students completed the SCBS anonymously in their classrooms.

Measures. The SCBS is a 45-item self-report instrument used to examine the nature of school bullying problems. The focus of this study was the three school climate scales: the 4-item Prevalence of Teasing and Bullying scale ($\alpha = .65$), 7-item Aggressive Attitudes scale ($\alpha = .80$), and 9-item Willingness to Seek Help scale ($\alpha = .80$). All items used a Likert response scale (strongly disagree, disagree, agree, strongly agree).

Results. The sample was divided into two sub-samples for EFA and CFA. EFA with SPSS 15.0 was performed on 24 school climate items using the first sub-sample (N = 1034). Using principal axis factor extraction, 4 items did not load as expected and were removed. A 20-item factor solution satisfied Kaiser’s criterion of eigenvalues greater than 1.00, Cattell’s minimum scree requirement, and Horn’s parallel analysis, accounting for 36% of item variance.

CFA with AMOS 7.0 was performed on the second sub-sample

(N = 1077) with maximum likelihood estimation of covariance matrices. The covariance between factors was estimated freely and each item was constricted to load only on its hypothesized factor. The resulting comparative fit index of .86 and population-based Steiger’s Root Mean Square Error of Approximation fit index of .06 indicated reasonable model fit.

MGCFA with AMOS 7.0 was performed on the second sub-sample to evaluate whether items functioned similarly across gender and race groups. The χ^2 difference test between the unconstrained model of race and the fully constrained factor loading matrix across gender (χ^2 difference = 81.54, df difference = 22, $p < .05$) and race groups (χ^2 difference = 86.85, df difference = 22, $p < .05$) were statistically significant.

Follow-up tests indicated invariance between gender groups due to only one item (“Students here try to stop bullying when they see it happening”), and invariance between race groups also due to one item (“If another student brought a gun to school, I would tell one of the teachers or staff at school”).

Study 1. School Climate Factor Loadings

Factor Items	EFA			CFA		
	F1	F2	F3	F1	F2	F3
Factor 1 (Willingness to Seek Help)						
1. Students tell teachers when other students are being bullied.	.64	.14	.11	.55		
2. If I tell a teacher that someone is bullying me, the teacher will do something to help.	.64	.00	-.12	.65		
3. There are adults at this school I could turn to if I had a personal problem.	.60	-.05	-.02	.60		
4. Teachers here make it clear to students that bullying is not tolerated.	.56	-.03	.00	.56		
5. If another student was bullying me, I would tell one of the teachers or staff at school.	.52	-.01	-.13	.62		
6. Students here try to stop bullying when they see it happening.	.52	.14	.07	.44		
7. The teachers at this school are genuinely concerned about me.	.50	.01	.02	.42		
8. If another student talked about killing someone, I would tell one of the teachers or staff at school.	.48	-.22	-.16	.61		
9. If another student brought a gun to school, I would tell one of the teachers or staff at school.	.44	-.27	-.21	.53		
Factor 2 (Prevalence of Teasing and Bullying)						
1. Students here often get teased about their clothing or physical appearance.	.01	.66	-.06		.67	
2. Bullying is a problem at this school.	-.00	.64	.02		.58	
3. There is a lot of teasing about sexual topics at this school.	.17	.45	-.14		.51	
4. Students here often get put down because of their race or ethnicity.	-.03	.40	-.22		.47	
Factor 3 (Aggressive Attitudes)						
1. Students who are bullied or teased mostly deserve it.	-.03	-.06	-.68			.55
2. It feels good when I hit someone.	.04	.01	-.63			.66
3. If someone threatens you, it is okay to hit that person.	.05	.06	-.62			.65
4. Bullying is sometimes fun to do.	.03	.04	-.61			.63
5. If you fight a lot, everyone will look up to you.	.02	-.02	-.56			.57
6. Sometimes you only have two choices – get punched or punch the other person first.	-.02	.14	-.54			.59
7. If you are afraid to fight, you won’t have many friends.	.01	.06	-.49			.53
Eigenvalues	5.14	2.28	1.62			
Percent Variance	22.6	8.20	5.00			
Cumulative Percent Variance	22.6	30.8	35.8			

Study 2

Participants. The sample consisted of 7,318 ninth grade students in 291 Virginia public high schools: 63% Caucasian, 23% African American, 5% Hispanic, 3% Asian American, 1% American Indian, and 5% Other. School climate surveys were completed anonymously online as part of the Virginia High School Safety Study (VHSSS) and Virginia’s 2006-07 school safety audit program.

Measures. This survey included 18 of 20 items from the SCBS: all Prevalence of Teasing and Bullying items ($\alpha = .78$), 6 of 7 Aggressive Attitudes items ($\alpha = .88$), and 8 of 9 Willingness to Seek Help items ($\alpha = .89$).

School disorder has been conceptualized as acts of incivility perpetrated by students or experienced by students and teachers at school (Gottfredson et al., 2005). In this study, measures of student suspensions and expulsions, as well as teacher reports of bullying and teasing, student help-seeking behaviors, and gangs at school were used to assess the level of disorder in a school.

Measures of school suspensions and expulsions were collected from the state database. Because of their low frequency, long-term suspensions and expulsions at each school were summed.

The ninth grade teacher version of the school safety survey included perceptions of the extent of bullying and teasing among students ($\alpha = .78$) and student willingness to seek help from adults at school for bullying-related problems ($\alpha = .82$). These scales were designed to correspond with the student scales, with wording to reflect the teacher’s perspective.

Teachers also were asked “During the last 6 months, how often have gangs been involved in fights, attacks, or other violence at your school?” with 5 Likert-type answer choices, ranging from “Never,” to “Almost everyday.” The average response across teachers in each school was used as an index of gang violence.

Results. Multiple regression analyses indicated a consistent pattern of correlations between the 3 school climate scales and the measures of school disorder and teacher reports of student help-seeking. The three scales cumulatively accounted for a significant proportion of the variance in short-term suspensions (16%), teacher reports of bullying and teasing among students (12%), student help-seeking behaviors (12%), and gang violence (15%).

Study 2. Relations Between School Climate Scales and School Disorder

Measures of School Disorder	Prevalence of Teasing and Bullying r	Aggressive Attitudes r	Willingness to Seek Help r	Multiple Regression R^2
Short-term Suspensions	.25**	.35**	-.33**	.164**
Long-Term Suspensions/Expulsions	.13	.18*	-.16*	.042
Teacher Reports of Bullying and Teasing	.30*	.22**	-.23**	.125**
Teacher Reports of Gang-Related Violence	.25**	.27**	-.33**	.152**
Teacher Reports of Help-Seeking Behaviors	-.26*	-.13*	.28**	.122**

Note. * $p < .05$. ** $p < .01$. The r values indicate simple Pearson correlations. The R^2 represents the total variance accounted for when all three school climate scales are entered simultaneously.

Conclusions

The present study investigated aspects of school climate that are important to bullying prevention. Theoretically, in order to reduce bullying, schools must first ascertain the extent to which bullying is a problem by measuring student perceptions of teasing and bullying behaviors. Next, school staff must convince students that it is acceptable for them to seek help and that they will receive support when they do so. Third, interventions should be aimed at student attitudes that support bullying and peer aggression. In Study 1, the school climate scales showed a reliable three-factor structure and MGCFA demonstrated stability across gender and race groups.

Study 2 results supported the construct validity of the school climate scales and suggest that interventions designed to improve these aspects of the school may be associated with less school disorder.

The Prevalence of Teasing and Bullying scale was significantly correlated with higher levels of short-term suspensions. In such

schools, teachers reported a more hostile environment for students, characterized by teasing and bullying, as well as gang-related violence. Teachers also reported less student willingness to seek help.

Higher scores on the Aggressive Attitudes scale were correlated with more short-term suspensions as well as long-term suspensions/expulsions. In addition, schools characterized by students with more aggressive attitudes were associated with more bullying and gang violence at school, and less student help-seeking behaviors as reported by teachers.

Finally, high scores on the student Willingness to Seek help scale were associated with less school disorder. Schools with students who reported more willingness to seek help had both fewer short-term suspensions and long term suspensions/expulsions. Additionally, the Willingness to Seek Help scale was significantly correlated with teacher reports of a more positive school climate characterized by less bullying and gang violence.

Research indicates that well-implemented demonstration programs can be quite successful in reducing violent and disruptive behavior, but routine prevention programs are less effective (Wilson, Lipsey, & Derzon, 2003). There are mixed results for bullying prevention efforts (Smith, Schneider, Smith, & Ananiadou, 2004) and a clear need to identify some means of improving outcomes. One strategy for improvement may be to monitor and address critical features of school climate such as those identified in this study.

Limitations and Future Directions. Study 1 was limited to students attending grades six to eight, while Study 2 was limited to ninth grade students. It would be useful to extend the study to other age groups and to compare the perceptions of younger and older students.

In addition, there are aspects of school climate not addressed in this study that have been linked to negative adolescent adjustment and could influence bullying prevention efforts, such as the quality of school structure and discipline (Gregory & Cornell, in press). Future research efforts might be improved by including investigation of such additional school climate factors.

The findings in Study 2 demonstrate a correlational but not causal relationship between school climate and measures of school disorder. Controlled studies using an experimental design are needed to demonstrate that alterations in the dimensions of school climate measured in this study can produce changes in school disorder.



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