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RELATIONS AMONG SCHOOL CONNECTEDNESS, HOPE, LIFE SATISFACTION, AND BULLY VICTIMIZATION

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This study investigates the role of school connectedness in mediating the relation between students' sense of hope and life satisfaction for three groups: Bullied Victims, Peer Victims, and Nonvictims. Students in grades 5 to 12 ($N = 866$) completed the California Bully/Victim Scale, School Connectedness Scale, Children's Hope Scale, and Students' Life Satisfaction Scale. Multigroup latent mean analysis revealed significant group mean differences in hope, school connectedness, and life satisfaction, supporting our bullying classification. Multigroup structural model analysis showed differential patterns between hope, school connectedness, and life satisfaction. Specifically, school connectedness partially mediated the relation between hope and life satisfaction for the Nonvictims only. The effect of hope on school connectedness was stronger for the Bullied Victims than the Nonvictims, and the effect of hope on life satisfaction was stronger for the Peer Victims and Bullied Victims than the Nonvictims group. Implications for research and practice are discussed. © 2008 Wiley Periodicals, Inc.

Resnick et al. (1997) focused interest on the potential broad resilience influences of school connectedness with the publication of "Protecting Adolescents from Harm: Findings from the National Longitudinal Study of Adolescent Health." Subsequently, this study has been cited a remarkable 701 times in the PsychInfo database (as of October 25, 2007). The perceived import of this construct was such that the Centers for Disease Control and Prevention convened a special study group to summarize what was seen as the emerging power that school connectedness had to promote positive youth developmental and educational outcomes (Blum & Libbey, 2004).

Although the school connectedness construct was empirically developed as a general indictor of a student's perceived bonding and quality of relationship with peers and teachers, Whitlock (2006) later proposed a theoretical model to explain how it might operate as a protective force for youth. She found support for a conceptual model based on the linkages of connectedness with increased student (a) involvement in meaningful roles at school, (b) safety at school, (c) opportunities for creative engagement, and (d) opportunities for academic engagement. Researchers have reported that school connectedness is associated with reduced risk of negative development outcomes. For example, it has been shown to buffer against aggressive behavior and exposure to violent behavior (Brookmeyer, Fanti, & Henrich, 2006). In addition, school connectedness is positively associated with the reduction of substance use (Wang, Matthew, Bellamy, & James, 2005), exposure to weapon violence (Henrich, Brookmeyer, & Shahar, 2005), the initiation of smoking (Dornbusch, Erickson, Laird, & Wong, 2001), and the prevention of dropping out of school (Miltich, Hunt, & Meyers, 2004). In this study, we extend this research by exploring the mediating influences of school connectedness for a group of students who are vulnerable to having strained peer relationships and poor developmental outcomes (Hawker & Boulton, 2000)—bullied students—for whom it would be important to better understand the protective potential of school connectedness.

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School Connectedness and Bullying

Only a few studies have specifically explored the relation between bullying and school connectedness. These studies show that lower levels of connectedness are associated with increased risk of peer victimization. Skues, Cunningham, and Pokharel (2005) examined the relation of school connectedness and self-esteem for a sample of more than 900 Australian students in levels 7 to 12 and found that bullied students had lower self-esteem and were less socially connected to their peers and teachers than their Nonbullied counterparts. Young (2004) examined the relation of school connectedness to bullying experiences at schools for a sample of nearly 800 Alabama students in grades 5 to 8. She found that strong school bonds were associated with reduced risk of both victimization and bullying behaviors, a finding also reported by Iimori (2003). The most sophisticated and revealing related analysis to date was completed by Buhs, Ladd, and Herald (2006), who examined factors that mediated the relation between peer rejection in kindergarten, and classroom participation and academic achievement across grades 3 to 5. They found that early peer rejection, measured via sociometric procedures, was related to being chronically excluded and abused by peers and disengaged from school, which explained the negative relation between early peer rejection and academic achievement. These findings suggest that addressing peer maltreatment and school connectedness may be important to improve achievement for students who are victims of bullying. Interest to foster school connections for bullied students via social skills training is based on findings of these few studies and the larger body of school connectedness research (DeRosier, 2007; Nickerson, Brock, Chang, & O'Malley, 2006; Young, 2004). However, for older students who may have been tormented by peers over a long period, their internal capacity to trust and respond to positive overtures at school may have been negatively affected. Hence, there may be value in using strategies that also see to understand how a victim's own internal beliefs affect how they are able to engage in efforts to rebuild positive school connections. Analyses to date have linked school connectedness to lowered bullying victimization (Nickerson et al., 2006), but have not examined the processes of how victimization diminishes well-being, perhaps through lowered school connectedness.

Dispositional Influences on Life Satisfaction

A link between goal-related behavior and individual beliefs to reach those goals is hope (Lopez, Rose, Robinson, Marques, & Pais-Ribeiro, in press). According to Snyder and colleagues (1997), hope is a dispositional construct that consists of two correlated self-perception components, pathways and agency, which relate to goal-oriented cognitions and behaviors. Pathways involve envisioning ways to attain desired goals. Agency references the motivation or energy to act on the pathways. Thus, hope represents a construct referring to youths' global sense of how they can maintain focus on goals and their ability to manage obstacles that arise.

Theoretically, high levels of hope should promote well-being. Gilman, Dooley, and Florell (2006) found that compared with youth clustered into low- or average-hope groups, the high-hope youths reported significantly better personal adjustment, global life satisfaction, and school academic performance. Valle, Huebner, and Suldo (2006) viewed hope as an internal cognitive, motivational asset that encourages a child to consider their life experiences, to wonder why experiences happened, and to energize themselves toward future success expectations. Hope is enhanced by successful life experiences and can be diminished by failure experiences, which are associated with depression (Snyder, 2005; Snyder, Lopez, Shorey, Rand, & Feldman, 2003) and decreased life satisfaction (Valle, Huebner, & Suldo, 2004). Bully victimization is one significant failure experience common in the school setting that could diminish hope and life satisfaction.

Bully victimization can be considered to be a sequence of related experiences that thwart a student's progress toward desired goals, especially toward the goal of meeting social-development

needs for affiliation and bonding with peers. For example, one of the outcomes associated with chronic peer victimization is an increased risk of depression and associated hopelessness (Ivarsson, Broberg, Arvidsson, & Gillberg, 2005; Klomek, Marrocco, Kleinman, Schonfeld, & Gould, 2007). The exploitive and repeated use of power by one peer over another differentiates bully victimization from peer victimization (Solberg & Olweus, 2003). Thus, bullying in particular may diminish the agency and pathway aspects of hope in victims of bullying. The pathway attributions of bullied victims may increasingly reflect the emergence of self-blame, which includes self-perceptions of being weak and ineffectual. Simultaneously, repeated abuse and the experience of being unable to end the abuse could diminish victims' beliefs that they can stop the bullying in the future.

The emerging body of research on life satisfaction, an aspect of well-being, supports the contention that life satisfaction is associated with positive social and emotional functioning in children and adolescents. Ash and Huebner (2001) found that as secondary school students experienced recurring negative life experiences, their sense of internal control and perceived quality of life decreased. Thus, students who are chronically victimized by a more powerful peer would be expected to have diminished life satisfaction. Youth who report the highest (top 20%) life satisfaction showed remarkable adaptive functioning, with none reporting clinical levels of emotional and behavioral problems. In contrast, of the students with the lowest life satisfaction (bottom 20%), 42% had clinical problems (Gilman & Huebner, 2006). Of particular relevance to this investigation, Gilman and Huebner also found that students who report low life satisfaction also reported significantly lower hope. Based on these findings, understanding relations among bullying, school connectedness, hope, and life satisfaction may provide additional information regarding dispositional influences for planning interventions to promote well-being among bullied victims.

Purpose of Study

Our goal is to examine the mediating role of school connectedness in the relation between hope and life satisfaction for groups of students with different levels of exposure to peer victimization (i.e., no victimization, some victimization, and chronic victimization with a power imbalance). Hope is a dispositional cognitive-motivational construct known to be associated with positive social-emotional and academic outcomes. On the converse, peer and bullying victimization is associated with diminished developmental outcomes. Hence, we hypothesize that bullying, which involves repeated victimization and a power imbalance that inhibits the victim's ability to respond assertively to stop future victimization, is associated with low levels of hope. Because it has been found that lower levels of hope are also associated with lower levels of global life satisfaction, we further hypothesize that compared with Peer Victims (with no power imbalance) and Nonvictims, Bullied Victims will report lower levels of life satisfaction. Although previous research points to school connectedness as a factor that diminishes negative developmental outcomes, research has not yet examined if school connectedness explains the relation between dispositional influences, such as hope, and positive health outcomes, such as life satisfaction. Given school connectedness may relate to hope through reinforcement of success, we hypothesize that school connectedness will mediate the relation between hope and global life satisfaction for students regardless of victimization experiences. Figure 1 displays the hypothesized model.

METHOD

Participants

Participants were students in grades 5 through 12 from four schools located in the central coast region of California—a K to 8 school (enrollment = 233), a K to 6 elementary school (enrollment = 283), a grades 7 and 8 junior high school (enrollment = 905), and a grades 9 to 12 senior high

school (enrollment = 1,790). The demographics of the schools were representative of their West Coast geographic region comprised primarily of Latino (39%–75%) or White students (21%–52%). There was a fair amount of students from lower socioeconomic backgrounds, with 13% to 27% of the parents not having a high school diploma, and 25% to 59% being eligible for the free/reduced price lunch program. Finally, about one to three fifths (20%–57%) of the students were considered to be English language learners, although all students were able to respond to the survey questions in English.

A total of 866 students provided usable surveys with 396 (45.7%) males, 459 (53.0%) females, and 11 (1.3%) students who did not indicate their gender. There were 54 (6.2%) 5th graders, 43 (5.0%) 6th graders, 143 (16.5%) 7th graders, 112 (12.9%) 8th graders, 202 (23.3%) 9th graders, 103 (11.9%) 10th graders, 103 (11.9%) 11th graders, 85 (9.8%) 12th graders, and 21 (2.4%) students who did not indicate grade level. The self-designated ethnic backgrounds of this sample included 405 (46.8%) Caucasian/White and 322 (37.2%) Hispanic/Latino(a)/Mexican, and the remainder reported being of other ethnic backgrounds. Based on Institutional Review Board recommendations to protect the confidentiality of participants, we did not collect more specific data regarding other ethnicities due to their small numbers in the selected communities.

Missing Data

As in many studies using survey methods, our data set contains missing responses. Pairwise/listwise deletion and substitution with a sample estimate (e.g., mean, median) are often used for handling missing data. However, these common methods tend to produce incorrect estimates (Schafer, 1997). To obtain unbiased estimates of the parameters of interest, despite the incompleteness of the data, this study used maximum likelihood estimation with the expectation/maximization algorithm (Yuan & Bentler, 2000).

Measures

School Connectedness Scale. The School Connectedness Scale (SCS; Resnick et al., 1997) uses questions included in the Add Health longitudinal study questionnaire (Tourangeau & Shinn, 1999). The internal consistency of the scale was assessed across multiple sociodemographic groups using the large Add Health sample with the social bonding items showing better reliability (alpha = 0.64–0.92) than the student–teacher relationship items (alpha = 0.44–0.70; McNeely, 2005). In this study, we used the version of the SCS that was adapted for use as part of the California Healthy Kids Survey (www.wested.org/hks), a statewide school-administered surveillance instrument. Cronbach's alpha coefficient of the SCS for the current sample was 0.82.

Children's Hope Scale. The Children's Hope Scale (CHS) was developed by Snyder and associates (1997) to assess a "goal-approach conceptualization" of hope in children. After initial item development analyses were completed, a 6-item scale was formed with three pathway items (e.g., "When I am having a problem, I can come up with lots of ways to solve it") and three agency items (e.g., "I think I am doing pretty well"). With respect to the scale's internal reliability, a median alpha coefficient of 0.77 was reported by Snyder et al. and 0.83 by Valle et al. (2004), with Gilman and Huebner (2006) reporting an alpha of 0.88 for the total score. The CHS has shown good concurrent and discriminative validity (Snyder, 2005), with correlations of −0.19 to −0.48 with the Children Depression Inventory (Kovacs, 1985) and −0.31 with the internalizing syndrome score of the Youth Self-Report (Achenbach, 1991). Cronbach's alpha coefficient of the CHS for the current sample was 0.89.

Students' Life Satisfaction Scale. Drawing on previous perceived quality of life research, Huebner (1991a, 1991b) developed the Students' Life Satisfaction Scale (SLSS) as a unidimensional measure of students' general life satisfaction. The SLSS is a 7-item instrument that employs a 6-point Likert response format (1 = *strongly disagree* to 6 = *strongly agree*; Huebner, Suldo, & Valois, 2005). It is used with students in grades 3 to 12, with higher scores reflecting positive satisfaction. Exploratory and confirmatory factor analyses have supported the SLSS's unidimensional structure (Huebner, 1995). Psychometric properties include an alpha coefficient of 0.86 (Suldo & Huebner, 2006), robust test–retest correlations, and a 1-year stability coefficient of 0.61 (Valle et al., 2006). Cronbach's alpha coefficient of the SLSS for the current sample was 0.83.

California Bully/Victim Scale. The California Bully/Victim Scale (CBVS) was specifically developed to asses the power imbalance component of bullying victimization among students in grades 5 to 12 (Furlong, Sharkey, Felix, & Tanigawa, in press). The survey assesses students' experiences of victimization, including seven types of verbal, physical, and relational bullying and harassment with the following response scale: 1 = *not in the past month*, 2 = *once in the past month*, 3 = *two or three times in the past month*, 4 = *about once a week*, and 5 = *several times a week*. Victimization items include wording and a response scale to assess the repetition and intentionality components of bullying. In addition, the power imbalance element of bullying is addressed by three items that ask victims to comment on their perceptions of relative power compared to a perpetrator in terms of popularity, intelligence, and strength.

Furlong, Sharkey, Tanigawa, and Felix (2007) found good 2-week stability (Kappas, 0.46–0.66; percentage agreement, 77%–89%) of the responses of 133 students in grades 5 to 8 to the seven individual victimization items. In addition, the test-retest stability of the total number of victimization items selected (range, 0–7; $r = 0.77$) and total weighted victimization score (range, 0–28; $r = 0.80$) both demonstrated good short-term response consistency. The CBVS classification procedure scheme was compared with responses 2 weeks later and to the global bullying victimization item used by Swearer (2001). The stability of the CBVS bullied status compared favorably to that of the Bully Scale. The Cronbach's alpha coefficient of the CBVS for the current sample was 0.84.

Formation of Victim Groups. Responses to the CBVS were used to form three groups based on their reported experiences of recent peer victimization at school: Nonvictims (reported no victim experiences; $n = 512$, 59.1%), Peer Victims (reported some victimization, but no power imbalance with the perpetrator, $n = 171$, 19.7%), and Bullied Victims (reported at least one type of victimization two to three times or more a month and perceived a power imbalance with the perpetrator; $n = 183$; 21.1%). The use of the frequency of two to three times or more a month of victimization for the Bullied Victims group followed recommendations made by Solberg and Olweus (2003).

Procedure

Students with written parental consent completed the survey in their classroom under teacher supervision. Students were informed that they could choose to not take the survey, and if started, they could stop at any time. Students were asked not to put their names on the survey in order to protect their anonymity. The elementary and junior high school students completed the survey in June 2006, and the senior high students completed the survey in November 2006.

Overview of the Statistical Analyses

Analyses were conducted in two stages of using structural equation modeling (SEM): multigroup latent mean analysis (LMA) and multigroup structural analysis. In stage one, LMA was used

to test the true mean differences in students' hope, school connectedness, and life satisfaction across groups (i.e., Nonvictims, Peer Victims, Bullied Victims). LMA was chosen because most traditional approaches (e.g., *t*-test or multiple analysis of variance [MANOVA]) are subject to measurement error related to the use of the measured items or composite scores. We used the following SEM procedures: confirmatory factor analysis, a series of factorial invariance tests, and LMA. Group differences in the means of latent variables can be estimated only if the latent variables are on the same scale in all groups (Steenkamp & Baumgartner, 1998). Thus, confirmatory factor analysis and factorial invariance tests were performed first to examine whether the prerequisite conditions for testing the differences in latent means could be met. This procedure involved a series of hierarchical analyses that evaluated the different types of invariance across multiple groups: configural invariance, metric invariance, and scalar invariance. *Configural invariance* is the first, but weakest type of invariance because it only tests whether the basic model structure (i.e., the pattern of salient and nonsalient factor loadings) is invariant across groups. Confirmatory factor analyses were performed to test the fit of the measurement model of this study's three latent factors (i.e., hope, school connectedness, life satisfaction) for each group. This model is the baseline model for all subsequent models in the hierarchical invariance tests. *Metric invariance* is the second step of the invariance test. It tests whether the loadings of latent factors are equal across groups using the baseline model. If a latent factor has equal loadings across groups, this ensures that each group responds to the items in the same way. Thus, the differences in the latent factor can be comparable across groups. *Scalar invariance* is the third step of the invariance test. It tests whether the intercepts of measurement items are equal across groups. When this invariance test is met, it allows the meaningful comparisons of latent means. After conducting a series of invariance tests, we proceeded with the assessment of LMA. We used the Bullied Victims as the reference group for the LMA because we hypothesize that they would have the lowest scores across the three factors.

In stage two, multigroup structural analyses were conducted to test the group differences in postulated theoretical models. Multigroup analysis is suitable for this study because it evaluates between-group differences with respect to the role of school connectedness in mediating the relation between students' sense of hope and life satisfaction. First, we tested two competing theoretical models (partial mediation model and full mediation model) to choose the baseline structural model across the three student groups. After choosing the baseline model, we ascertained the measurement invariance across groups to contrast the groups on their path coefficients. Therefore, the equality constraints were imposed on the corresponding factor loadings across groups. Finally, the structural paths of the model across groups were constrained to be equal in order to test the group differences in the structural relations. All procedures were performed using the EQS structural equation modeling program (Bentler, 2006).

Model Evaluation. Results show that data were multivariately kurtose; all analyses were based on robust statistics. When data are nonnormally distributed, maximum likelihood estimation can produce distorted results (Curran, West, & Finch, 1996). Therefore, the Satorra-Bentler (2001) scaled statistic (S-B χ^2) was used because it provides a correction to test statistics and standard errors when data are nonnormally distributed. We paid less attention to chi-square due to its sensitivity to sample size. Instead, we assessed the data model fit using a two-index presentation strategy recommended by Hu and Bentler (1999): standardized root-mean-square residual (SRMR) and root-mean-square error of approximation (RMSEA; Steiger & Lind, 1980) with 90% confidence interval. For study criterion, the combination of SRMR < 0.08 and RMSEA < 0.08 was used. In reporting on evidence of invariance, two criteria must be met: (a) the multigroup model must exhibit an adequate fit to the data, and (b) the determination of multigroup invariance must be based on ΔCFI, that is, when the differences in comparative fit index (CFI; Bentler, 1990) values between models are less

than 0.01 (Cheung & Rensvold, 2002). Furthermore, Lagrange multiplier (LM) test modification indices were examined to find which equality constraints are untenable.

Results

Descriptive Statistics

A summary of means and standard deviations, and score ranges for all variables used in this study are presented in Table 1. Statistics are presented separately for each group: Nonvictims, Peer Victims, and Bullied Victims. The Nonvictims group reported greater hope, life satisfaction, and school connectedness than other groups, whereas the Peer Victims reported higher scores than the Bullied Victims. This trend gave us a valid foundation for our classification of victimization group because of disparate scores among three groups.

Stage I. Latent Mean Analysis

We applied confirmatory factor models across Nonvictims, Peer Victims, and Bullied Victims groups. Several factor models were tested to assess how well the survey items measured hope,

Table 1
Means and Standard Deviations of Study Variables for Each Victimization Group

	Nonvictims		Peer Victims		Bullied Victims	
Variable	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*
School Connectedness (1 = strongly disagree, 5 = strongly agree)						
1. I feel close to people at this school.	3.94	0.94	3.87	0.96	3.43	1.23
2. I am happy to be at this school.	4.17	0.93	3.93	0.98	3.69	1.16
3. I feel like I am a part of this school.	3.90	0.99	3.73	1.07	3.43	1.10
4. The teachers at this school treat students fairly.	3.67	1.11	3.52	1.06	3.33	1.17
5. I feel safe in this school.	3.90	0.87	3.74	1.03	3.43	1.14
Hope (1 = none of the time, 6 = all of the time)						
1. I think I am doing pretty well.	4.67	1.15	4.57	1.03	4.23	1.29
2. I can think of many ways to get the things in life that are most important to me.	4.62	1.19	4.57	1.14	4.23	1.32
3. I am doing just as well as other kids my age.	4.79	1.28	4.71	1.23	4.26	1.44
4. When I have a problem, I can come up with lots of ways to solve it.	4.46	1.26	4.36	1.39	3.85	1.48
5. I think the things I have done in the past will help me in the future.	4.60	1.36	4.34	1.39	3.99	1.56
6. Even when others want to quit, I know that I can find ways to solve the problem.	4.37	1.33	4.22	1.43	3.93	1.44
Life Satisfaction (1 = strongly disagree, 7 = strongly agree)						
1. My life is going well.	5.14	1.12	4.75	1.23	4.39	1.39
2. My life is just right.	4.80	1.19	4.44	1.41	3.96	1.46
3. I would like to change many things in my life.[a]	3.81	1.65	3.26	1.58	3.01	1.66
4. I wish I had a different kind of life.[a]	4.84	1.47	4.27	1.75	3.92	1.85
5. I have a good life.	5.12	1.24	4.65	1.44	4.52	1.52
6. I have what I want in life.	4.68	1.33	4.40	1.45	4.22	1.52
7. My life is better than most kids.	4.63	1.38	4.47	1.46	4.21	1.64

[a]Reverse coded.

Table 2
Summary of Model Fit Statistics

Group	S-B χ^2	*df*	*CFI	SRMR	*RMSEA (CI)
Model 1: Second-order three-factor model					
Nonvictims	372.695	116	0.897	0.057	0.085 (0.077, 0.093)
Peer Victims	178.518	116	0.911	0.063	0.080 (0.063, 0.096)
Bullied Victims	252.092	116	0.879	0.073	0.095 (0.081, 0.109)
Model 2: Noncorrelated three-factor model					
Nonvictims	706.603	119	0.764	0.285	0.107 (0.100, 0.115)
Peer Victims	894.247	119	0.793	0.258	0.098 (0.083, 0.113)
Bullied Victims	402.444	119	0.749	0.282	0.124 (0.110, 0.137)
Model 3: Correlated three-factor model					
Nonvictims	372.695	116	0.907	0.057	0.072 (0.064, 0.080)
Peer Victims	178.521	116	0.918	0.063	0.063 (0.044, 0.080)
Bullied Victims	252.089	116	0.880	0.073	0.087 (0.072, 0.101)
Model 4: Full mediation model					
Nonvictims	501.418	117	0.846	0.058	0.088 (0.080, 0.095)
Peer Victims	216.749	117	0.868	0.119	0.079 (0.062, 0.095)
Bullied Victims	314.880	117	0.825	0.131	0.104 (0.090, 0.118)
Model 5: Partial mediation model					
Nonvictims	372.711	116	0.907	0.058	0.072 (0.064, 0.080)
Peer Victims	178.514	116	0.918	0.063	0.063 (0.044, 0.080)
Bullied Victims	252.096	116	0.880	0.073	0.087 (0.072, 0.101)

Note. S-B χ^2 = Satorra-Bentler scaled chi-square statistic; *CFI = robust comparative fit index; SRMR = standardized root-mean-square residual; *RMSEA = robust root-mean-square error of approximation; CI = confidence interval.

school connectedness, and life satisfaction. These models included a second-order three-factor model (Model 1), a noncorrelated three-factor model (Model 2), and a correlated three-factor model (Model 3). Specifically, Model 1 tested whether the three factors are explained by a higher-order factor, Model 2 tested if survey items are well represented by three uncorrelated factors, and Model 3 tested Model 2 with correlated three factors. As shown in Table 2, compared to Models 1 and 2, Model 3 showed better fit in terms of SRMR and RMSEA. Model 3's fit was acceptable across all groups; therefore, it was selected. The estimated correlation between the factors in Model 3 was medium to moderately high (range, 0.468–0.782), which suggests discriminant validity. The good fit of Model 3 across all groups indicated that students' general psychological well-being is best represented by three subdimensions (i.e., hope, school connectedness, life satisfaction). Because Model 3 fit, configural invariance was achieved. Model 3 was tested simultaneously for Nonvictims, Peer Victims, and Bullied Victims. This multigroup model (Model 1 in Table 3) served as a baseline model for the subsequent invariance tests.

As a second step, we tested the invariance of factor loadings (metric invariance) across groups. Equality constraints were imposed on all factor loadings except those that were fixed to 1 for identification and scaling (Model 2 in Table 3). This test yielded an acceptable fit to the multigroup data. However, the LM test suggested the following five factor loadings to be noninvariant between Nonvictims and Bullied Victims groups: items 2, 3, and 4 measuring school connectedness and items 4 and 6 measuring hope. Therefore, as suggested by the LM test, these constraints were dropped, and the model was respecified. The respecified model (Model 3 in Table 3) yielded a better model fit to the data than was the case for the total invariant model.

Table 3
Model Fit Indices for Invariance Tests

Model and invariance level	S-B χ^2	*df*	*CFI	SRMR	*RMSEA (CI)
Stage I. Mean structure analysis					
Model 1 (baseline model): Configural invariance	809.436	348	0.902	0.065	0.074 (0.067, 0.081)
Model 2: Full metric invariance	854.624	376	0.899	0.076	0.073 (0.066, 0.079)
Model 3: Partial metric invariance	831.988	371	0.902	0.070	0.070 (0.065, 0.078)
Model 4: Partial metric and full scalar invariance	934.136	399	0.904	0.096	0.074 (0.068, 0.081)
Model 5: Partial metric and partial scalar invariance	912.341	395	0.903	0.093	0.074 (0.067, 0.080)
Stage II. Structural path analysis					
Model 6 (baseline model): Partial mediation model	809.449	348	0.902	0.065	0.074 (0.067, 0.081)
Model 7: Partial metric invariance	993.408	371	0.902	0.070	0.072 (0.065, 0.078)
Model 8: Partial metric and structural path invariance	837.310	408	0.902	0.071	0.071 (0.065, 0.078)

Note. S-B χ^2 = Satorra-Bentler scaled chi-square statistic; *CFI = robust comparative fit index; SRMR = standardized root-mean-square residual; *RMSEA = robust root-mean-square error of approximation; CI = confidence interval.

Table 4
Results of Structured Means Analyses with Bullied Victims as the Referent Group

	Nonvictims			Peer Victims		
Variable	Factor intercept (*SE*)	*z*	Effect Size (*d*)	Factor intercept (*SE*)	*z*	Effect Size (*d*)
School connectedness	0.363 (0.077)	4.724***	0.321	0.232 (0.095)	2.431**	0.205
Hope	0.526 (0.095)	5.552***	0.709	0.384 (0.140)	2.737**	0.518
Life satisfaction	0.723 (0.110)	6.566***	0.715	0.381 (0.142)	2.671**	0.377

Note. The latent mean values for the Bullied Victims group were set to zero.
** $p < .01$, *** $p < .001$.

Because the partial metric invariance model was supported, scalar invariance was tested. Full scalar invariance was tested by constraining the intercepts of 14 indicators to be the same across the three groups (Model 4 in Table 3). Results from this test yielded a modestly well-fitting model. However, LM tests suggested four intercepts to be noninvariant. After dropping these four constraints, the respecified model (Model 5 in Table 3) showed a better fit. Byrne, Shavelson, and Muthen (1989) contended that as long as at least one item is invariant, partial metric/scalar need not preclude the meaningfulness of subsequent analysis (e.g., LMA). Furthermore, the decrease in *CFI values was negligible (less than 0.01) for each invariance comparison, indicating good evidence for the equality of factor loadings and intercepts across all three groups. Thus, we proceeded to test for differences in the latent means in three factors.

To test the latent mean differences across three groups, the mean factor structure model was created. In LMA, means of latent variables can be estimated by specifying the path leading from the constant (V999 in the EQS program) to each of the latent variables. Given that the bullied group was designated as the reference group, factor means were fixed to zero. The bullied group had significantly lower factor means on all three factors than the other two groups (Table 4).

To evaluate the magnitude of the mean differences in three factors across the three groups, Cohen's (1988) *d* index of effect size was computed. By computing effect size, the mean differences can be converted to a common and familiar metric. The *d* index indicates the difference between the means of the two groups divided by the pooled standard deviation across groups. According to

the Cohen's guidelines, $d = 0.2$, 0.5, and 0.8 are defined as small, medium, and large, respectively. Using bullied group as the reference group, we found small to medium differences in three latent means.

Stage II. Multigroup Structural Model Analysis

This study hypothesized that the relation between hope and life satisfaction is mediated by school connectedness. To assess the plausibility of our hypothesis, we tested the two hypothesized structural models across three student groups. The initial structural model reflecting full mediation was specified with indirect paths from hope to life satisfaction through school connectedness as a full mediator. The initial model (Model 4) showed a poor fit with the sample data (Table 2).

As a second structural model, a partial mediation model (Model 5) was assessed. The partial mediation model is identical to the full mediation model, except this model has an additional path from hope to life satisfaction (Figure 1). The partial mediation model showed a better fit in terms of SRMR and RMSEA compared to the full mediation model in all groups. The fit of Model 5 was acceptable across all groups; therefore, we chose the partial mediation model as the final structural model. The standardized parameter estimates for this model are provided in Figure 1. Results showed differential patterns of relations among three constructs across groups. Specifically, the mediating effect of school connectedness between hope and life satisfaction was supported only for the Nonvictims group. Direct effects of hope on school connectedness and life satisfaction are significant across all groups, but the effect was differential across groups.

To test whether each effect (or structural path coefficient) is statistically different across groups, we conducted multigroup SEM (Model 6 in Table 3). Based on the results from stage one, the partial metric invariance was imposed on the baseline model (in this case, partial mediation model). Overall, the fit was deemed quite satisfactory (Model 7 in Table 3). Thus, as a next step, the structural portion of the model was constrained to be equal across groups to evaluate whether each pair of

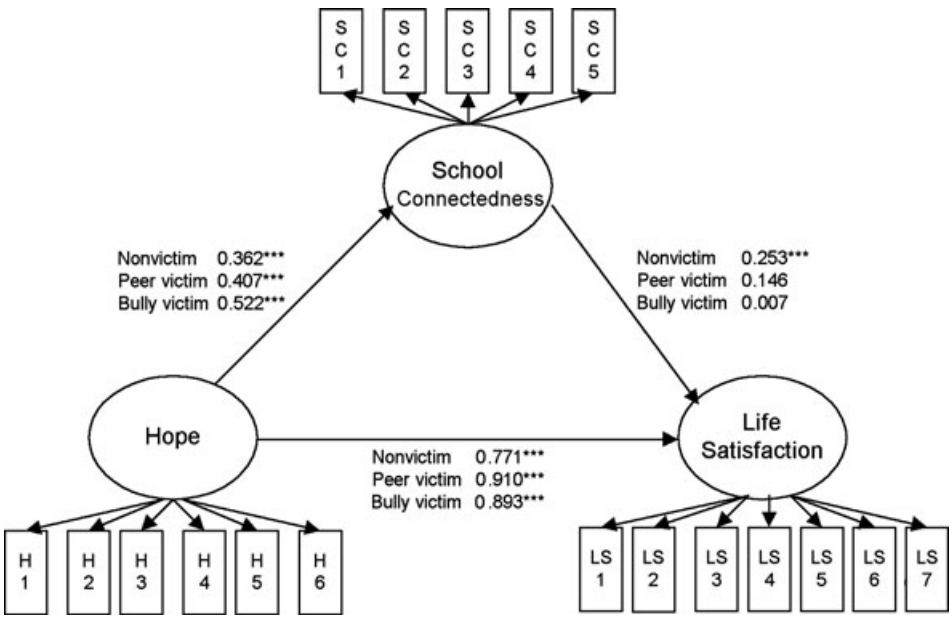

FIGURE 1. Partial mediation model with standardized regression coefficients (*** $p < .001$; error terms are omitted for simplicity of representation).

structural coefficients were different across groups. LM test modification indices were examined to pinpoint which paths were significantly different across groups. On the path from hope to school connectedness, there were significant differences between Nonvictims and Bullied Victims groups, indicating that the effect of hope on school connectedness is stronger for Bullied Victims than for Nonvictims. On the path from hope to life satisfaction, there were significant differences among all groups, indicating that the effect of hope on life satisfaction is stronger for Peer Victims and Bullied Victims than for the Nonvictims.

Discussion

Our objective in this study was to extend understanding about the relation of school connectedness to dispositional influences and healthy psychological outcomes for a group of students who are mistreated at school and for whom school connections may be compromised and diminished. Using LMA, we found that students less powerful than their peer victimizers (i.e., Bullied Victims) reported significantly lower levels of school connectedness than both Nonvictims and Peer Victims (who reported no perceived power imbalance). Contrary to our hypothesis, school connectedness did not mediate the relation between the goal-focused psychological construct of hope and life satisfaction for either the Peer Victims or the Bullied Victims. However, school connectedness did partially explain the relation between hope and enhanced global life satisfaction for students who were not in either victim group. This finding supports previous studies demonstrating the role of school connectedness in healthy outcomes for Nonvictims (Resnick et al., 1997). However, for this study's victimized students, the influence of school connectedness was not maintained. It appears that students who are victimized at school experience less hope and lower levels of connectedness to school, both of which are associated with lower life satisfaction.

Bullied children are not only vulnerable to having negative mental health outcomes (Hawker & Boulton, 2000; Volk, Craig, Boyce, & King, 2006), but our findings suggest that victimization also negatively impacts other positive internal assets, such as hope, and external resources, such as school connectedness, that are linked to resilience (e.g., Lackaye, Margalit, Ziv, & Ziman, 2006). We found higher life satisfaction among students who (a) were able to more readily envision multiple pathways to desired goals, (b) had the self-beliefs and interests needed to move toward their goals, and (c) felt better connected to their schools. However, this was found only for Nonvictims, which is not the group for whom it would be most advantageous for school connectedness to provide a protective influence. Although there is limited research in this area, Dornbusch and colleagues (2001) found that school connectedness helped prevent youth from initiation of risky behaviors such as smoking and substance use, but once initiated, did not temper the intensity of use. This raises the possibility that school connectedness protects against negative outcomes by preventing uptake of risky behaviors but may not function the same for already vulnerable youth, such as victims of bullying.

Implications for Research and Practice

Considering these results in light of prior research, it appears that simply encouraging school connectedness may not be adequate to promote healthy outcomes for students who have been victimized by their peers in the school setting. The cumulative effects of being purposefully and chronically victimized by a peer and repeated failed efforts to assertively deflect these unjust attacks may make the goal of stopping the bullying seem too elusive to pursue. This, in turn, may adversely affect a victim's beliefs that he or she can deter future attacks. As more failure is experienced, hope may diminish. This could make it more difficult for the bullied child to trust peers, thereby making the formation and maintenance of peer connections more challenging.

To the extent that future research can verify and expand on the preliminary findings of this study, they may point to potential intervention strategies. Nickerson and associates (2006) suggested that targeted interventions for bullied students should focus on building meaningful social support networks. Although the process for how hope impacts life satisfaction through school connectedness is different for victimized students, as found in this study, efforts to rebuild social connections may nonetheless be helpful. Such an approach suggests that in addition to implementing traditional social skills training for bullied children, an enhanced approach to the prevention of school bullying may draw on principles of positive psychology. Bullying prevention programs do not have a strong record of success generalization (Rigby, 2004). Perhaps intervention effectiveness can be enhanced by using strategies that seek to enhance both cognitive pathways (e.g., hope, life satisfaction) and social contexts (e.g., school connectedness) in an effort to disrupt the bullying cycle by reducing the vulnerability of the victim to chronic attacks.

A practical implication of this study is that school psychologists should attend to the cognitive processes experienced by bullied students. As suggested by Huebner, Suldo, Smith, and McKnight (2004), the associations of life satisfaction with other cognitive process such as locus of control and self-efficacy point to the use of strategies that help bullied students use more optimistic coping explanatory styles (external, temporary, and narrow for failure experiences and internal, pervasive, and permanent for success experiences) (Huebner, Gilman, & Suldo, 2007). The results of this study suggest that bullied youth also lose access to the potentially reinforcing effects of positive social connections at school, could potentially benefit from efforts to resituate them into more nurturing and caring social contexts (e.g., Nickerson & Nagle, 2004; Nickerson et al., 2006), and thereby work to rebuild their positive social connections at school, as a way to simultaneously boost their hope.

Limitations and Strengths

A main limitation of this study is that the generalizability of the findings are restricted by the use of cross-sectional data and to samples that include a balanced mix of White and Latino(a) students. We plan to address this in future studies that follow students across two school years in other school contexts. This will also allow us to assess the recursive influences of changes in life satisfaction on subsequent outcomes (McKnight, Huebner, & Suldo, 2002). In addition, it is important to extend the analysis to multiethnic samples and cross-cultural comparisons. Such studies would provide a much richer understanding of the invariance properties of three scales and their structure across different samples.

As one of the first studies to examine the operations of positive psychology constructs with bullied students, our results are limited to the latent traits selected and measurement strategy employed. Relations among other contextual factors (e.g., school climate; Worrell & Hale, 2001), psychological-motivational influences (e.g., self-efficacy; Andreou & Metallidou, 2004), and measures of well-being need to be further explored. In addition, we relied on students' self-reports. It is warranted to include the corroborative information from parents, peers, and teachers.

An advantage of this study was the use of SEM techniques that has implications for future research in school psychology. The use of multigroup LMA and multigroup structural analysis demonstrated that the SEM modeling is a powerful and flexible analytic method in dealing with multigroup comparisons in association with latent traits. These SEM procedures offer increased precision over traditional ANOVA and regression procedures in testing group differences in latent trait and its relations. In addition, the configural, metric, and scalar invariances of the measures were assessed before the analysis proceeded. This practice has the potential to facilitate comparisons across studies. It is warranted for researchers to further address the measurement invariance issues in their research. Without evidence for the invariance of the scales, the interpretation of group differences on associated features using these scales is problematic.

Conclusion

A final implication that can be drawn from this study is the ability of increased precision in bully victimization measurement to inform research examining psychosocial health and positive outcomes. The procedure used to create the three bullying groups by attending specifically to power imbalance was useful to distinguish impacts based on type of victimization experience. Previous bullying research has not done this well due to lack of differentiation between victimization with and without a power imbalance (Furlong et al., in press; Tarshis & Huffman, 2007). As in this study, future studies should include tools valid for the purpose of examining individual differences to investigate ways in which being bullied not only leads to poor mental health outcomes, but also diminishes positive developmental resources, both internal and external. With measures validated for the purpose of understanding the bully victimization experience, bullying researchers could explore a broader range of outcomes than has been done to date to provide new insights into how the bullying erodes a child's psychological well being, school connections, and resilience.

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