Youth & Society
2018, Vol. 50(3) 328–350

DOI: 10.1177/0044118X15598029
journals.sagepub.com/home/yas
SAGE

School Disorder, School Connectedness, and Psychosocial Outcomes: Moderation by a Supportive Figure in the School

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Abstract

The current study examined whether students' perceptions of school disorder influenced their psychosocial outcomes directly and indirectly via connectedness to school. The current study also explored moderation by the presence of a supportive figure in the school and investigated gender differences. Participants were 28,104 high school students. Results indicated that students' perceptions of school disorder predicted more externalizing behaviors and internalizing symptoms directly and indirectly via reduced connectedness to school. Perceived school disorder also indirectly predicted lower academic grades. The presence of a supportive figure in the school lessened the detrimental influence of school disorder on student outcomes. Results also indicated that male students may stand to benefit more from the protective influence of a supportive figure in the school.

Keywords

education, delinquency, mental health, quantitative methods, structural equation modeling

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Ecological theories of development suggest that students' perceptions of their school environments influence students' academic adjustment and social and emotional well-being. When school environments do not meet students' needs for structure and consistency, their academic performance and psychological and behavioral health may be jeopardized (Connell & Wellborn, 1991; Eccles et al., 1993). A disordered or chaotic school environment may negatively influence student outcomes in a variety of ways. For example, a disordered school environment may signal to students a lack of adult concern (Mijanovich & Weitzman, 2003), leading students to feel less connected to their schools (Bradshaw, Sawyer, & O'Brennan, 2009; Wilson, 2004). When students are less connected to their schools, they are less likely to invest in classroom learning and adhere to expectations for school behavior (McNeely, Nonnemaker, & Blum, 2002).

A disordered school environment also may breed more disorder (Plank, Bradshaw, & Young, 2009). For example, when students cannot trust the adults in their school environments to keep them safe, they may engage in behaviors such as carrying weapons or fighting as means of self-protection (Anderson, 1999). Students also may skip or cut class in an effort to avoid exposure to a disordered environment. Similarly, students who feel uncared for and disconnected from their schools may be more likely to feel isolated and unsafe leading to symptoms of depression and anxiety (LaRusso, Romer, & Selman, 2008; Resnick et al., 1997; Suldo, McMahan, Chappel, & Loker, 2012). Research also suggests that traditional learning goals fall secondary to concerns about a disordered school environment leading the academic performance of students in disordered school environments to suffer (Barnes, Belsky, Broomfield, Melhuish, & National Evaluation of Sure Start, 2006; Buckley, Schneider, & Shang, 2005).

However, relationships with supportive figures in the school may reduce the noxious effects of school disorder on student outcomes by providing students with a direct source of support in the school that can help them be less vulnerable to the detrimental influences of school disorder on their psychosocial outcomes (Newman, Newman, Griffen, O'Connor, & Spas, 2007). In the current study, we tested direct associations between students' perceptions of school disorder and student outcomes (i.e., internalizing symptoms, externalizing behaviors, and academic grades) and indirect associations via students' connectedness to school. In addition, we assessed whether the presence of a supportive figure in the school may moderate the previously described associations. Notably, the current study is one of the first to examine whether the presence of a supportive figure in the school may serve a protective function among students in the context of a disordered school environment. Lastly, in light of research suggesting differing influences of school climate perceptions on students' psychosocial outcomes (Kuperminc, Leadbeater, Emmons, &

Blatt, 1997; Loukas & Robinson, 2004; Suldo et al., 2012), we also examined gender differences in these models. This study builds on previous research by both examining gender differences in potential effects of school disorder on key psychosocial outcomes and also exploring gender differences in the potential of supportive figures in the school to moderate these associations.

School Disorder, Connectedness to School, and Student Outcomes

School connectedness has been defined as students' experiences of belongingness and closeness with others in school (Resnick et al., 1997). Given that adolescents spend more waking hours in school than in any other context, how connected they feel to this context is highly important for their psychosocial development and academic performance (Eccles & Roeser, 2011). Furthermore, feelings of connection and belonging to school are particularly important as adolescents become more independent from their parents and rely more on other relationships such as those with their peers and adults in their schools (Goodenow, 1993).

Indeed, research has demonstrated that students who do not feel that they belong in school are more likely to behave inconsistently with the norms and values of the school and display internalizing symptoms (Bond et al., 2007; Catalano, Haggerty, Oesterle, Fleming, & Hawkins, 2004; Johnson, Crosnoe, & Elder, 2001; Resnick et al., 1997; Shochet, Dadds, Ham, & Montague, 2006). It may be that lacking an attachment to one's school can both lead students to act out and lead students to feel more marginalized. When students do not feel properly integrated in their school community, they are more likely to form relationships with more deviant peers, which can foster greater externalizing behaviors (Dornbusch, Erickson, Laird, & Wong, 2001). Lower levels of school connectedness have also been associated with lower levels of academic achievement and higher likelihood of repeating a grade or dropping out (Bond et al., 2007; Catalano et al., 2004). This association may be direct or indirect via increases in externalizing and internalizing symptoms.

Previous research suggests that perceived school disorder may reduce students' sense of connectedness to school (Waters, Cross, & Shaw, 2010). Thus, among students, experiencing their school environment as disordered seems to lead to a reduced sense of belonging and closeness with other members of the school. Although a more chaotic school environment may directly and indirectly contribute to more negative student outcomes via reduced connectedness to school, the presence of a supportive figure in the school may buffer against the negative effects of school disorder on students' connectedness to school and psychosocial outcomes.

Moderation by a Supportive Figure in the School

The stress-buffering model of social support posits that social support may reduce the negative effects of stressors on psychosocial outcomes (Cohen, Underwood, & Gottlieb, 2000; Turner, 1999). Previous research has found that social support may be protective for adolescents in the context of stressful situations (Newman et al., 2007). Supportive figures in the school may reduce the harmful effects of stressors such as school disorder through several pathways. Supportive figures in the school, for example, may lessen the harmful effects of negative school climate on student outcomes through the provision of emotional support to students. By listening to and validating the experiences of students exposed to stressful environments, supportive figures may reduce students' vulnerability to these stressful contexts (Rhodes, 2005). Moreover, supportive figures in the school may offer valuable advice on managing stressors leading students to be less negatively affected by the stressors (Hurd & Zimmerman, 2010).

Supportive figures also may connect youth with additional resources in the school setting (e.g., school counseling or mental health services) that can be utilized to ward off negative outcomes resulting from exposure to stressful school contexts. Finally, supportive figures in the school may model effective coping strategies that students can observe and subsequently incorporate into their own coping repertoire (Rhodes, Spencer, Keller, Liang, & Noam, 2006). Limited research has examined the stress-buffering model of social support within the school context.

Gender Differences

Perceptions of school disorder may have different implications for psychosocial functioning across gender (Kuperminc et al., 1997; Loukas & Robinson, 2004; Suldo et al., 2012). Interestingly, the findings of studies investigating gender differences in the influences of perceived school climate on student outcomes have been inconsistent. Kuperminc and colleagues (1997) found that students' perceptions of school climate may have broader impacts on psychosocial outcomes among boys in comparison with girls. In particular, they found that perceptions of school climate were associated with both externalizing behaviors and internalizing symptoms among boys but only with externalizing behaviors among girls. Furthermore, they found that perceptions of school climate explained more variance in boys' externalizing behaviors than in girls' externalizing behaviors. In contrast, Suldo et al. (2012) found that perceptions of school climate explained more variance in girls' internalizing symptoms than in boys' internalizing symptoms. This

inconsistency in findings is likely due to differences in dimensions of perceived school climate and varying ages of study participants (i.e., middle school vs. high school students).

Although previous research has indicated that boys and girls benefit similarly from relationships with supportive figures (Hurd, Sánchez, Zimmerman, & Caldwell, 2012; Hurd & Zimmerman, 2010), there is reason to believe that supportive figures in the school context may play a more influential role in buffering stressful events among male students in comparison with their female counterparts. In fact, researchers have found that girls are more likely to develop ties with supportive figures within the home environment, whereas boys are more likely to develop supportive ties outside of the home (e.g., school or neighborhood contexts; Hirsch, Mickus, & Boerger, 2002). Therefore, the potential protective benefits of a relationship with a supportive figure in the school may be lower for female than for male students due to the tendency for female students to receive support from other sources, whereas male students may be more reliant and consequently more influenced by support received in the school context.

The Current Study

In the current study, we tested a conceptual model wherein high school students' perceptions of school disorder influenced their internalizing symptoms, externalizing behaviors, and academic grades directly and indirectly via students' connectedness to school. We also explored whether internalizing symptoms and externalizing behaviors influenced students' academic grades. We expected that students' perceptions of school disorder would predict more externalizing behaviors and internalizing symptoms directly and indirectly via reduced connectedness to school. We also expected that perceived school disorder would directly predict lower academic grades and also indirectly predict lower academic grades via school connectedness, internalizing symptoms, and externalizing behaviors. In addition, we explored whether a supportive figure in the school may lessen the detrimental influence of school disorder on connectedness to school, internalizing symptoms, externalizing behavior, and academic grades. Moreover, we explored potential differences in associations between study variables by gender and examined the potential protective effects of a supportive figure in the school separately for male and female participants. The overall focus of the current study on the link between school connectedness and student outcomes, and variation by gender is particularly timely, given the increased federal interest in various dimensions of school climate (Bradshaw, Waasdorp, Debnam, & Johnson, 2014).

Method

Participants

Participants included 28,104 high school students attending 58 Maryland high schools. Participant mean age was 15.9 years (range = 12-21; *SD* = 1.33). The sample was evenly split between female (50%) and male participants. The sample was racially and ethnically diverse with 49% of participants self-identifying as White or Caucasian, 32% as Black or African American, 5% as Latino or Hispanic, 4% as Asian, 2% as American Indian or Alaskan Native, 1% as Hawaiian or Other Pacific Islander, and 7% reporting membership in Other racial/ethnic groups.

Procedure

Data for the current study come from the Maryland's Safe and Supportive Schools Initiative (MDS3) during the spring of 2012. A primary goal of MDS3 was to implement a sustainable system for assessing school climate statewide. The anonymous survey was administered online using a passive parental consent process and youth assent process. All student participation was voluntary. At each school, the survey was administered online in language arts classrooms by trained school staff. The Institutional Review Board at Johns Hopkins University approved the study prior to data collection.

Measures

The MDS3 Climate Survey was developed by the Johns Hopkins Center for Youth Violence Prevention in collaboration with project partners. The measure drew heavily from previously published survey indicators, such as items from the 2011 Youth Risk Behavior Surveillance System, which have been previously validated for use in research studies (CDC, 2011).

Perceived school disorder. Five items were used to measure students' perceptions of disorder in their school (Haynes, Emmons, & Ben-Avie, 2001; Plank et al., 2009). Participants were asked to indicate how much they agree with statements such as "At this school, students disobey the rules," and "At this school, misbehaving students get away with it." Response options ranged from 1 (*strongly disagree*) to 4 (*strongly agree*). The mean for study participants was 2.73 (*SD* = 0.62; $\alpha = .67$).

Connectedness to school. Participants' connectedness to school was measured using three items (Hanson & Kim, 2007; Haynes et al., 2001). These items

asked participants to express the extent to which they agreed with items such as "At this school, I feel like I am part of this school." Response options ranged from 1 (*strongly disagree*) to 4 (*strongly agree*). The mean for study participants was 2.77 ($SD = 0.73$; $\alpha = .80$).

Internalizing symptoms. Participants were asked to indicate the frequency with which they have experienced internalizing symptoms. This measure included five items such as "I am sad" and "I am lonely" and response options ranged from 1 (*never*) to 4 (*almost always*), which were adapted from the Behavior Assessment System for Children (Reynolds & Kamphaus, 2004). The mean for study participants was 1.88 ($SD = 0.73$; $\alpha = .85$).

Academic grades. A single item was used to assess students' average grades (Bradshaw et al., 2009). This item read, "On your last report card, what grades did you receive?" The response options ranged from mostly Fs (1) to mostly As (5). High correlations between self-reported grades and official high school transcripts have been documented in previous research (Dornbusch, Ritter, Mont-Reynaud, & Chen, 1990).

Externalizing behaviors. Three items were used to assess externalizing behaviors (CDC, 2011). One item was specific to truancy. Truancy was assessed through the following question "During the past 30 days, how many days of school have you missed because you skipped or cut?" The response options ranged from 1 (0 days) to 5 (6 or more days). Another item assessed physical fighting at school ("During the past 12 months, how many times were you in a physical fight on school property?"). Response options ranged from 1 (0 times) to 8 (12 or more times). A third item assessed weapon carrying. This item read "During the past 30 days, how often did you carry a weapon, such as a knife or gun, on school property?" and response options ranged from 1 (0 days) to 5 (6 or more days).

Supportive figure in the school. One item was used to assess the presence of a supportive figure in the school. Students were asked to indicate how much they agreed with the following statement, "There is someone at school who I can talk to about personal problems." For the purposes of the present study, participants who disagreed or strongly disagreed were coded as 0 for this variable and students who agreed or strongly agreed were coded as 1 for this variable.

Youth demographic characteristics. Participants were asked a series of questions regarding their basic demographic characteristics, including age, gender, and race/ethnicity.

Data Analysis

We conducted structural equation modeling using Mplus 7 software (Muthén & Muthén, 2012). Full information maximum likelihood (FIML) methods were used to handle missing data under the missing at random (MAR) assumption. Initially, our plan had been to conduct a multilevel mediation analysis by aggregating students' perceptions of school disorder to the school level and treating it as a Level 2 factor. However, after we aggregated the perceived school disorder variables and created unconditional models to generate intraclass correlation coefficients (ICCs) for all outcome variables, we realized that a very small proportion of the variance in these outcome variables was explained at the school level (fewer than 4%). Thus, we opted to treat perceptions of school disorder as a Level 1 factor. Following recommendations by Enders and Tofighi (2007), we group-mean centered the perceived school disorder variables to remove bias associated with clustering within schools. We then used all of the perceived school disorder items as indicators of a perceived school disorder latent factor. We also created latent factors for connectedness to school, internalizing symptoms, and externalizing behaviors.

After evaluating our measurement model, we proceeded to test our structural model, which included direct and indirect paths from perceived school disorder to participants' internalizing symptoms, grades, and externalizing behaviors via participants' connectedness to school (and paths from internalizing and externalizing behaviors to students' grades). Our model also included the following demographic variables as predictors of all intervening and outcome variables: participants' age, participants' gender (dummy coded: 0 = male, 1 = female), and participants' race/ethnicity (dummy coded such that the reference group was White and comparison groups included Black/African American, Hispanic/Latino, Asian/Pacific Islander, Native American, Native Hawaiian/Pacific Islander, and Other). We correlated all exogenous variables with each other and correlated the disturbances of the latent factors for externalizing and internalizing symptoms with each other. We assessed model fit with the chi-square statistic, comparative fit index (CFI), the Tucker–Lewis index (TLI), the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR). We generated bootstrapped confidence intervals (CIs) of the indirect effects. We determined a significant indirect effect if the 95% CI of the standardized specific indirect effect did not include 0.

In addition, we conducted several sets of multigroup analyses. First, we conducted a set of multigroup analyses to determine whether the presence of a supportive figure in the school moderated the associations between perceptions of school disorder and student outcomes. Next, we tested for structural

invariance in the model across male and female participants. Finally, we conducted a set of multigroup analyses to explore moderation by a supportive figure in the school separately for male and female participants. In our multigroup analyses, we imposed equality constraints across paths for the two groups and subsequently freed these paths one-by-one to determine whether freeing each path resulted in a statistically significant reduction (i.e., a reduction of 3.8 for the loss of 1 degree of freedom, $p < .05$) in the chi-square value (indicating a better fitting model). We also tested a competing model wherein participants' internalizing symptoms and externalizing behaviors predicted their perceptions of school disorder, connectedness to school, and academic grades. We used the Akaike Information Criterion (AIC) statistic of each model to determine which model had the best fit (the model with the lowest AIC is the best fitting model).

Results

Measurement Model

Our measurement model demonstrated good fit to the data; $\chi^2(df = 38, N = 28{,}104) = 1{,}132.56$, $p < .01$; CFI = .99, TLI = .98, RMSEA = .033 (95% CI for RMSEA = [.031, .034]), SRMR = .02. Factor loadings of indicators on latent constructs ranged from .53 to .87 across model constructs.

Structural Model

Our structural model also demonstrated good fit to the data, $\chi^2(df = 125, N = 28{,}104) = 3{,}424.71$, $p < .01$; CFI = .97, TLI = .95, RMSEA = .031 (95% CI for RMSEA = [.030, .032]), SRMR = .02. Figure 1 displays all significant pathways. We found that perceived school disorder was negatively associated with internalizing symptoms and connectedness to school. Despite a negative direct relationship with internalizing symptoms, greater perceived school disorder was indirectly related to greater internalizing symptoms via connectedness to school (standardized indirect effect = .24; 95% CI for standardized indirect effect = [.22, .25]). Perceived school disorder was positively related to externalizing behaviors, both directly and indirectly via connectedness to school (standardized indirect effect = .11; 95% CI for standardized indirect effect = [.09, .12]). Although perceived school disorder was not directly related to students' academic grades, perceived school disorder was indirectly related to students' academic grades via connectedness to school such that greater perceived school disorder predicted lower academic grades (standardized indirect effect = −.07; 95% CI for standardized indirect

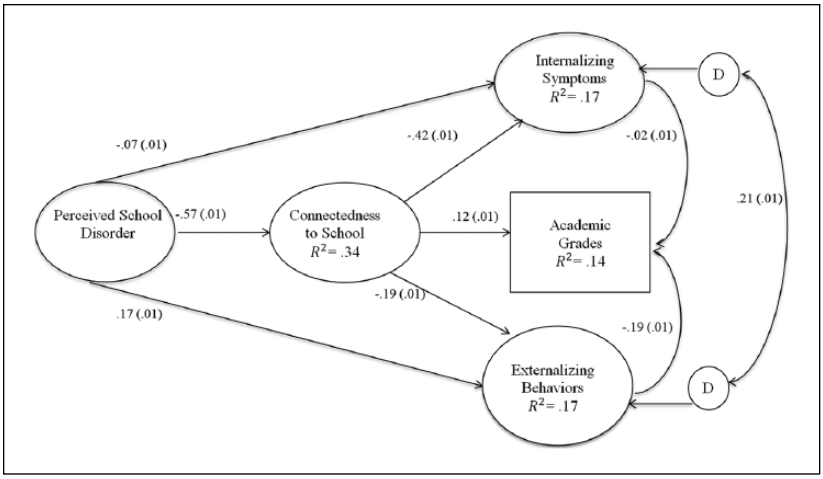

Figure 1. Associations between perceived school disorder and connectedness to school, internalizing symptoms, academic grades, and externalizing behaviors.
Note. Model accounts for potential effects of participants' age, gender, and race/ethnicity on all outcomes. $\chi^2(125) = 3{,}424.71$; CFI = .97, TLI = .95, RMSEA = .031 (95% CI = [.030, .032]), SRMR = .02; Bootstrapped CIs (95%) indicate significant indirect effects. Model displays standardized coefficients and standard errors (in parentheses) for significant paths only.
CFI = comparative fit index; TLI = Tucker–Lewis index; RMSEA = root mean square error of approximation; CI = confidence interval; SRMR = standardized root mean square residual.

effect = [−.08, −.05]). We also found that greater internalizing symptoms and externalizing behaviors were inversely related to students' academic grades. Indirect effects from perceived school disorder to academic grades also existed via connectedness to school and internalizing symptoms (standardized indirect effect = −.01; 95% CI for standardized indirect effect = [−.01, −.01]) and via connectedness to school and externalizing behaviors (standardized indirect effect = −.02; 95% CI for standardized indirect effect = [−.02, −.02]).

Moderation by Supportive Figure

Our subsequent set of analyses investigated whether the presence of a supportive figure in the school moderated the associations found between perceived school disorder and study outcomes. Of note, 2,939 participants had missing data on this variable and were dropped from this set of analyses. Of the remaining 25,165 participants, 66% indicated the presence of a supportive figure in the school. We proceeded to fit the covariance matrices of both

Table 1. Results of Multigroup Analyses Comparing Differences in Pathways Between Participants Without a Supportive Figure in the School and Participants With a Supportive Figure in the School.

	No supportive figure in the school				Supportive figure in the school			
	B	*b*	*SE* of *b*	*p* value	*B*	*b*	*SE* of *b*	*p* value
Perceived school disorder to connectedness to school	−.62	−0.94	.03	.001	−.49	−0.67	.02	.001
Perceived school disorder to externalizing behaviors	.50	0.58	.03	.001	.10	0.09	.01	.001
Perceived school disorder to internalizing symptoms	−.03	−0.05	.03	.07	−.07	−0.10	.02	.001

groups (i.e., participants without a supportive figure in the school constituted one group and participants with a supportive figure in the school constituted the other group) simultaneously to the same model. We constrained the factor loadings, paths, and covariances of the two groups to be equal. Our model achieved acceptable fit, $\chi^2(df = 316, N = 25{,}165) = 5{,}992.51$, $p < .01$; CFI = .94, TLI = .93, RMSEA = .038 (95% CI for RMSEA = [.037, .039]), SRMR = .04, suggesting that the model fit both groups. Upon releasing equality constraints one by one, we identified three paths that once freed, resulted in improved model fit (see Table 1). Specifically, we found that the association between perceived school disorder and connectedness to school was weaker among participants who possessed a supportive figure in the school in comparison with their counterparts without a supportive figure in the school. Similarly, we found that the association between perceived school disorder and externalizing behaviors was weaker among participants who possessed a supportive figure in the school in comparison with their counterparts without a supportive figure in the school. In addition, we found that perceived school disorder was only related to internalizing symptoms among participants who possessed a supportive figure in the school. Among this group, perceived school disorder predicted fewer internalizing symptoms. The final model with the three freed paths demonstrated improved model fit, $\chi^2(df = 313, N = 25{,}165) = 5{,}504.38$, $p < .01$; CFI = .94, TLI = .93, RMSEA = .036 (95% CI for RMSEA = [.036, .037]), SRMR = .03.

Moderation by Gender

We next tested our original model for structural invariance across gender. After removing gender from our model, we proceeded to fit the covariance

Table 2. Results of Multigroup Analyses Comparing Differences in Pathways Between Male and Female Participants.

	Male participants				Female participants			
	B	*b*	*SE* of *b*	*p* value	*B*	*b*	*SE* of *b*	*p* value
Perceived school disorder to connectedness to school	−.60	−0.88	.02	.001	−.54	−0.74	.02	.001
Perceived school disorder to externalizing behaviors	.37	0.39	.02	.001	.10	0.09	.01	.001
Perceived school disorder to internalizing symptoms	−.11	−0.15	.02	.001	−.02	−0.02	.02	.226

matrices of both groups (i.e., male and female participants) simultaneously to the same model. As in our previous multigroup analyses, we constrained the factor loadings, paths, and covariances of the two groups to be equal. Our model achieved acceptable fit, $\chi^2(df = 296, N = 27{,}062) = 5{,}441.80$, $p < .01$; CFI = .94, TLI = .93, RMSEA = .036 (95% CI for RMSEA = [.035, .037]), SRMR = .04, suggesting that our model fit well for both male and female participants. We again released the equality constraints one-by-one and identified three paths that once freed, resulted in improved model fit (see Table 2). These analyses indicated that the negative association between perceived school disorder and connectedness to school was stronger among male participants than among female participants. The positive association between perceived school disorder and externalizing behaviors also was stronger among male participants than among female participants. Last, perceived school disorder was negatively associated with internalizing symptoms among male participants; however, there was no association between perceived school disorder and internalizing symptoms among female participants. The final model with these three freed paths demonstrated improved model fit, $\chi^2(df = 293, N = 27{,}062) = 5{,}099.71$, $p < .01$; CFI = .95, TLI = .94, RMSEA = .035 (95% CI for RMSEA = [.034, .036]), SRMR = .03.

Moderation by a Supportive Figure: Male Participants

We proceeded to test for moderation by the presence of a supportive figure in the school separately among male and female participants. Among male participants, 65% reported the presence of a supportive figure in the school. We fit the covariance matrices for both groups (i.e., male participants without a supportive figure in the school constituted one group and male participants

Table 3. Results of Multigroup Analyses Among Male Participants Comparing Differences in Pathways Between Participants Without a Supportive Figure in the School and Participants With a Supportive Figure in the School.

	No supportive figure in the school				Supportive figure in the school			
	B	*b*	*SE* of *b*	*p* value	*B*	*b*	*SE* of *b*	*p* value
Perceived school disorder to connectedness to school	−.66	−1.02	.04	.001	−.50	−0.68	.02	.001
Perceived school disorder to externalizing behaviors	.53	0.78	.05	.001	.09	0.11	.02	.001
Perceived school disorder to internalizing symptoms	−.02	−0.03	.04	.510	−.11	−0.16	.03	.001

with a supportive figure in the school constituted the other group) simultaneously to the same model. After constraining all factor loadings, paths, and covariances of the two groups to be equal, we found that our model achieved acceptable fit, $\chi^2(df = 296, N = 12{,}339) = 2{,}778.33$, $p < .01$; CFI = .94, TLI = .93, RMSEA = .037 (95% CI for RMSEA = [.036, .038]), SRMR = .05. We again freed paths one at a time to determine whether freeing a path resulted in improved model fit (i.e., chi-square reduction of 3.8 for every 1 degree of freedom lost) and found three paths that once their equality constraints were released yielded improved model fit (see Table 3). Among male participants, the negative association between perceived school disorder and connectedness to school was reduced among male participants with a supportive figure in the school in comparison with their male counterparts who lacked a supportive figure in the school. Also, the positive association between perceived school disorder and externalizing behavior was weaker among male participants with a supportive figure in the school in comparison with their male counterparts who lacked a supportive figure in the school. Perceived school disorder was negatively related to internalizing symptoms among male participants with a supportive figure in the school but was not related to internalizing symptoms among male participants without a supportive figure in the school. The final model with these three paths freed reflected improved model fit, $\chi^2(df = 293, N = 12{,}339) = 2{,}442.17$, $p < .01$; CFI = .95, TLI = .94, RMSEA = .034 (95% CI for RMSEA = [.033, .036]), SRMR = .04.

Moderation by a Supportive Figure: Female Participants

Sixty-seven percent of female participants reported the presence of a supportive figure in the school. As before, we fit the covariance matrices for both groups (i.e., female participants without a supportive figure in the school

Table 4. Results of Multigroup Analyses Among Female Participants Comparing Differences in Pathways Between Participants Without a Supportive Figure in the School and Participants With a Supportive Figure in the School.

	No supportive figure in the school				Supportive figure in the school			
	B	*b*	*SE* of *b*	*p* value	*B*	*b*	*SE* of *b*	*p* value
Perceived school disorder to connectedness to school	−.57	−0.85	.04	.001	−.47	−0.65	.02	.001
Perceived school disorder to externalizing behaviors	.43	0.29	.03	.001	.11	0.07	.01	.001

constituted one group and female participants with a supportive figure in the school constituted the other group) simultaneously to the same model and constrained all factor loadings, paths, and covariances of the two groups to be equal. Our model achieved acceptable fit, $\chi^2(df = 296, N = 12{,}630) = 2{,}660.93$, $p < .01$; CFI = .94, TLI = .93, RMSEA = .036 (95% CI for RMSEA = [.034, .037]), SRMR = .04. After freeing paths one at a time to determine whether freeing a path resulted in improved model fit, we found two paths that once their equality constraints were released yielded improved model fit (see Table 4). Among female participants, the negative association between perceived school disorder and connectedness to school was reduced among participants with a supportive figure in the school in comparison with their counterparts who lacked a supportive figure in the school. Also, the positive association between perceived school disorder and externalizing behavior was weaker among female participants with a supportive figure in the school in comparison with their female counterparts who lacked a supportive figure in the school. The final model with these two paths freed reflected improved model fit, $\chi^2(df = 294, N = 12{,}630) = 2{,}536.58$, $p < .01$; CFI = .94, TLI = .93, RMSEA = .035 (95% CI for RMSEA = [.034, .036]), SRMR = .03.

Competing Model

Our final set of analyses involved testing a competing model and comparing its fit with our original model. We created a structural model wherein students' internalizing symptoms and externalizing behaviors predicted students' perceptions of school disorder, connectedness to school, and academic grades. As in our original model, we controlled for the potential effects of age, gender, and race/ethnicity on all outcome variables. The AIC of this competing model was 749,535.13. The AIC of our original model was 747,888.05. The model with the lowest AIC is the best fitting model. Hence, we found that our original model achieved the best fit to the data.

Discussion

Our study findings are consistent with the results of previous research studies that have found effects of students' perceptions of school climate on their academic and psychosocial outcomes (Barnes et al., 2006; Buckley et al., 2005; Johnson et al., 2001; Waters et al., 2010). In particular, our findings underscore the potential of perceived school disorder to yield more problem behavior (Plank et al., 2009) and to detract from students' academic performance (Johnson et al., 2001). Notably, our findings highlight an important pathway through which perceived school disorder may be influencing students' behavioral, psychological, and academic outcomes. These findings suggest that when students experience their school context as more chaotic, they feel less close with other members of the school and a lower sense of belonging to the school which, in turn, contribute to more externalizing behaviors, internalizing symptoms, and reduced academic performance. Consistent with previous research, school connectedness appears to play a central role in fostering students' socioemotional and academic success (McNeely, 2005).

Although perceived school disorder predicted more internalizing symptoms via reduced school connectedness, there was a direct negative association between perceived school disorder and internalizing symptoms such that greater perceived school disorder predicted fewer internalizing symptoms. Our additional analyses revealed that this association only held for male students who possessed a supportive figure in the school. A possible explanation of this finding is that experiencing more disorder in the school may lead boys to utilize their supportive figures more, thereby resulting in fewer internalizing symptoms. Greater perceived school disorder may prompt boys to initiate more conversations with their supportive figure which may lead to more received support pertaining to school climate stressors and potentially to other stressors in boys' lives. This additional support may serve to reduce male students' internalizing symptoms. In addition, supportive figures in the school may direct male students to additional support resources in the school such as mental health services that also may serve to reduce their internalizing symptoms.

Possessing a supportive figure in the school appeared to weaken the negative association between perceived school disorder and connectedness to school such that students with a supportive figure in the school were less negatively affected by perceived school disorder. Similarly, the positive association between perceived school disorder and externalizing symptoms was significantly reduced among students with a supportive figure in the school in comparison with their peers who lacked a supportive figure in the school. Although experiencing one's school environment as chaotic may lead

students to feel uncared for, resulting in less connection to school and more problem behaviors, the presence of at least one supportive figure in the school appears to lessen the negative effects of school disorder and students' attitudes and behaviors. This suggests that although perceived school disorder remains a harmful influence, supportive figures may facilitate less vulnerability and improved coping among high school students (Hurd & Zimmerman, 2010; Rhodes et al., 2006).

Our exploration of gender differences indicated that male students seem to be more affected by perceived school disorder in comparison with their female peers. This is consistent with some previous research findings (Kuperminc et al., 1997). These findings suggest that boys may be more vulnerable than girls to stressors in the school environment. Yet our findings indicated that male and female students benefited similarly from supportive figures in the school. Thus, though supportive figures in the school appear to serve a comparable stress-buffering role among male and female students, they may be a more critical resource for male students in light of male students' heightened susceptibility to negative influence from perceived school disorder.

Consistent with previous research (Fan, Williams, & Corkin, 2011), we found more variation in perceptions of school disorder within schools rather than between schools. Our original plan had been to aggregate students' perceptions of school disorder to the school level and examine school-level effects on students' outcomes. In light of the substantive variability in students' perceptions within schools (and within classrooms), we decided that aggregating this variable to the school- or classroom-level would be inappropriate. The fact that we found substantial variability in students' perceptions of school disorder within the same schools (and classrooms) suggests that individual factors influence how students' perceived their school environment and also that students within the same schools may have vastly different experiences of school disorder. Although previous studies have found associations between demographic characteristics and students' perceptions of school climate (Fan et al., 2011; Koth, Bradshaw, & Leaf, 2008), we did not find associations between perceived school disorder and students' gender, age, or race/ethnicity.

We also tested a competing model wherein students' internalizing symptoms and externalizing behaviors predicted students' perceptions of school disorder and found that this competing model had worse fit to the data than our original model wherein perceived school disorder predicted internalizing symptoms and externalizing behaviors. Therefore, we have reason to believe that our findings are not simply due to students with more mental health and behavioral problems being more likely to perceive their school contexts more negatively. Nevertheless, other individual factors not measured in the current study may have bearing on students' perceptions of school disorder. These

may include students' socioeconomic status as well as their experiences outside of the school and previous school environments. Undoubtedly, students' perceptions of school disorder are relative to their previous school and current nonschool (e.g., home, neighborhood) environments. Also, experiences within the school may vary due to students' social status and friendship networks (Kuperminc, Leadbeater, & Blatt, 2001; Kuperminc et al., 1997).

Informed by Bandura's (2001) social cognitive perspective, researchers have argued that students' subjective experiences of their school contexts have more influence on students' psychosocial outcomes than objective measures of school contexts (Connell & Wellborn, 1991; Eccles et al., 1993; Kuperminc et al., 1997; Way, Reddy, & Rhodes, 2007). The findings of our study suggest that students' perceptions of the amount of disorder in their school affects their academic performance in addition to their psychological and behavioral health. Yet given that students within the same school environments perceive these environments differently, it is less clear how to intervene to facilitate more positive perceptions of the school environment. More research that investigates how school characteristics (e.g., organizational structure, physical environment, instructional practices) shape students' perceptions of the school environment may help to identify opportunities for school-level interventions aimed at boosting all students' positive perceptions of the school climate (Koth et al., 2008; Kuperminc et al., 1997). Furthermore, research efforts aimed at uncovering factors that predict differential school experiences within the same schools will help inform intervention efforts targeted at improving the school experiences of those who have the most negative perceptions of the school environment.

Limitations and Directions for Future Research

Several study limitations should be noted. One limitation is the cross-sectional nature of our data. Given that all measures were collected at the same time, assessing the potential direction of influence among study variables proved challenging. To address this limitation, we tested a plausible competing model wherein internalizing symptoms and externalizing behavior predicted perceived school disorder, school connectedness, and academic grades. Notably, this competing model did not achieve better fit to the data in comparison with our original model allowing us to feel more confident that our hypothesized direction of influence was more accurate. Moreover, it is worth noting that researchers who have implemented longitudinal studies investigating associations among students' perceptions of school climate and their psychosocial outcomes have found that earlier perceptions of school climate predict later psychological and behavioral health (Kasen, Cohen, Chen, Johnson, & Crawford, 2009; Loukas

& Murphy, 2007; Shochet et al., 2006). Furthermore, researchers have found that the longitudinal direction of effects tends to be unidirectional (with perceived school climate influencing later psychosocial outcomes) rather than bidirectional (Way et al., 2007).

Additional study limitations include the absence of data on students' socioeconomic status, limited data on the nature of students' relationships with supportive figures in the school, and a complete reliance on self-report data. Although participants were asked to report their age, gender, and race/ethnicity, they were not asked to provide information regarding their family's socioeconomic position. Findings from previous research studies indicate that students' socioeconomic positioning may moderate the association between perceptions of school climate and student outcomes (Kuperminc et al., 1997). We were unable to explore this possibility in the current study. In addition, we did not collect additional data regarding the characteristics of the supportive figure in the school or more details regarding the nature of the relationship. Findings of previous research suggest that characteristics of supportive figures as well as relationship quality may determine the effectiveness of these relationships in fostering resilience (DuBois & Silverthorn, 2005; Hurd & Sellers, 2013; Hurd & Zimmerman, 2013). Therefore, future studies should include assessments of students' socioeconomic positioning and more thorough evaluations of supportive relationships within the school context. Also, our study would have been strengthened by the inclusion of data from additional sources other than self-report to help account for shared method variance. Student surveys were anonymous which precluded us from linking students' survey responses to data from other sources (e.g., academic records, teacher reports). The anonymity of the survey may have encouraged more truthful responses; however, replication of our study findings with data collected from multiple sources will be a valuable next step. Moreover, caution must be used when attempting to generalize these study findings given that data for the current study were derived from students in one state only.

Conclusion

Collectively, our study findings underscore the potential of perceptions of school disorder to harm high school students' psychosocial outcomes and the potential of supportive figures in the school to buffer against the harmful influence of perceived school disorder on students' academic performance and psychological and behavioral health. In particular, our findings indicate that male students may be more vulnerable to perceptions of school disorder and consequently, may stand to benefit more from the protective influence of a supportive figure in the school. More research is needed to better understand (a) how to

intervene to foster more positive perceptions of school climate among *all* students and (b) how to encourage the formation of supportive bonds within the school environment. The findings of our study suggest that interventions targeting both of these factors will be the most successful in promoting more positive academic, psychological, and behavioral outcomes among students.

Acknowledgment

We would like to thank the Maryland State Department of Education and Sheppard Pratt Health System for their support of this research through the Maryland Safe and Supportive Schools Project.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This work was funded in part by grants from the National Institute on Drug Abuse (RO1HD060072) awarded to Silvia Martins, as well as grants from the U.S Department of Education and William T. Grant Foundation awarded to the third author.

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