Mitigating the effect of family poverty on academic and behavioral outcomes: The role of school climate in middle and high school

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A B S T R A C T
The persistent achievement gap between students from poor families and their peers calls for research that examines risk factors associated with poverty and strategies for promoting resilience. Research demonstrates the impact of school climate on behavior and academic achievement, especially in high-poverty schools. The present study examines associations between family poverty, social supports, students' perceptions of school climate, behavior, and grades. Poverty is associated with poor grades and behavior, while positive perceptions of school climate are associated with positive grades and behavior. Perceptions of school climate moderate the association between poverty and behavior, such that students from poor families who perceive a positive school climate exhibit similar behaviors to their peers from higher income families. Implications for practice, policy, and research are discussed.

1. Introduction
A persistent achievement gap continues to place students from poor families at disproportionately high risk for dropout. The dropout rate among these students is ten times the rate among students from higher income families (Cataldi, Laird, & Kewal Ramani, 2009). They experience higher rates of problem behavior in school and academic difficulty (Becker & Luthar, 2002; Raver, Gershoff, & Aber, 2007). Specifically, students who participate in the free and reduced price lunch program are likely to perform poorly in reading and math (Okpala, Smith, Jones, & Ellis, 2000), receive low scores on standardized tests (Caldas & Bankston, 1997), and report low overall GPA (Malecki & Demaray, 2006). The proposed explanations for this disparity include stressors that students experience in their homes, schools, and communities that result from a lack of resources (Berliner, 2006; Fraser, Kirby, & Smokowski, 2004).

The research literature provides evidence that social supports for students can moderate the impact of poverty and its associated stressors. Increasingly, research points to characteristics of the school environment as critical for learning and healthy development. School climates characterized by supportive relationships, emotional and physical safety, and shared goals for learning are associated with school connectedness and academic success (Cohen & Geier, 2010). A positive school climate may be especially important for students living in poverty (Eccles et al., 1993). The focus of this paper is to examine whether perceptions of school climate moderate the effects of family poverty on grades and behavior.

1.1. Risk and resilience from an ecological perspective
Theoretical models of risk and resilience provide a useful framework for understanding why school climate may have a disproportionately strong effect on students from poor families. According to these models, youth outcomes are influenced by the accumulation of risk and protective factors. Protective factors may operate as compensatory factors or moderators of risk factors in predicting outcomes. Compensatory models of risk and resilience propose that protective factors increase the likelihood of positive outcomes independently and compensate for the effect of risk factors (Masten et al., 1988). Interactive models propose that protective factors are moderators, or factors that change the intensity of the effect of risk factors (Fraser et al., 2004; Rutter, 2006).

According to ecological theory, risk and protective factors operate within different ecological domains, including the peer group, family, school, and neighborhood to influence development (Bowen, Rose, Powers, & Glennie, 2008; Bronfenbrenner, 1979; Richman, Bowen, & Woolley, 2004). Bronfenbrenner (1979) proposed that proximal processes, or the interactions between individuals and others within their immediate environment, have the most direct impact on development. In a school setting, these proximal processes would include students' interactions with peers and adults within the school.
1.1.1. Family poverty, social support, and risk for academic failure

The negative behavioral and academic outcomes associated with poverty are likely due to multiple stressors that result from a lack of resources (Crosnoe & Cooper, 2010). The stressors that students from poor families face in their homes and communities may accumulate over time, compounding the likelihood of negative outcomes (Garmezy, 1993). Research examining risk factors for academic failure reveals that students living in poverty face stressors at multiple ecological levels, including the family system, the school environment, and neighborhood (Crosnoe & Cooper, 2010; Fraser et al., 2004). The stressors associated with economic hardship can result in fewer social supports in students' homes, neighborhoods, and schools. For example, increased stress on economically disadvantaged parents results in fewer positive parenting behaviors and less investment in parenting (Gershoff, Aber, Raver, & Lennon, 2006).

Similarly, the disorganization and safety problems that often come with living in a low income neighborhood create a stressful environment in which there are too few resources and positive role models, resulting in lower rates of academic achievement and high school graduation (Fraser et al., 2004). Too often, these neighborhood problems are plagued by crime and violence that compromise the safety and wellbeing of students and teachers (Berliner, 2010). Students living in these communities are unlikely to find the social supports that students can access in higher income communities. Because research indicates that poor families tend to have fewer social supports across ecological domains, the current study includes measures of social support in the analysis examining the relationship between poverty and academic outcomes.

Research points unequivocally to the relationship between poverty and poor academic performance. However, schools cannot be held responsible for the many stressors in low income households and communities that compromise learning. Risk factors in students' families and neighborhoods, as well as medical problems, strongly influence achievement. Importantly, small reductions in family poverty improve academic performance and behavior in school. Thus, the most powerful interventions are likely to be policies that reduce family poverty (Berliner, 2010). However, schools can use data-informed strategies for assessing students' needs and creating a responsive environment that may mitigate some of the risk factors associated with poverty.

1.1.2. Resilience and the importance of social context

Resilience is defined as an ability to experience adversity and avoid negative outcomes, such as mental health disorders, substance abuse, school dropout, and delinquency (Richman et al., 2004). However, resilience is not merely an intrinsic ability to perform well in adverse circumstances. The combination of risk factors, the degree of risk, and the context of risk exposure interact to create the conditions for resilience (Rutter, 2006).

While resilience relates to the combination of risk and protective factors and individual experiences, it goes beyond examining risk and protective factors alone. The concept of resilience also encompasses the social context in which those events occur (Rutter, 2006). Thus, in addition to understanding the risk and protective factors experienced by children, it is important to examine the social processes in which children are engaged when they are exposed to risk. The importance of the social context helps to explain why resilience is associated with communication skills, relationship skills, and positive relationships with caring adults (Werner, 1995, 2004). It is the importance of the social context that points to school climate as the condition for resilience in a school setting.

1.2. School climate

The National School Climate Council defines school climate as the “quality and character of school life”. It refers to the psychological impact of the organizational environment on children and adults within the school. It encompasses norms, goals, values, relationships, organizational structure, and methods of teaching and learning (Cohen & Geier, 2010). These school characteristics shape the experience of all individuals within the school and determine whether they feel supported, valued, respected, and safe.

Although researchers present competing ideas about the most important dimensions of school climate, most agree that climate is determined by perceptions of safety, relationships within the school, goals related to teaching and learning, and the learning environment, which encompasses school structure and feelings of connectedness to school (Cohen & Geier, 2010). Research in the area of positive youth development parallels school climate research in its emphasis on school connectedness. Students' feelings of being part of the school community and cared for by the members of that community create the conditions for healthy development and avoidance of risk behavior (Blum, McNeely, & Rinehart, 2002).

Students' perceptions of climate are defined by their relationships with others at school. Positive climates are characterized by supportive relationships, such that students and school personnel feel cared for as individuals. When individuals within a school feel connected to each other, students experience positive academic, health, and behavioral outcomes (Kuperminc, Leadbeater, & Blatt, 2001; Loukas, Suzuki, & Horton, 2006; McNeely, Nonnemaker, & Blum, 2002; Ruus et al., 2007; Whitlock, 2006). The quality of a school's climate is characterized by four levels of interactions: 1) interactions among students, 2) interactions between school personnel and students, 3) interactions among school personnel, and 4) interactions between the school, families, and community (Richman et al., 2004).

A growing body of research has examined interactions among students as important in shaping their perceptions of school climate (Loukas & Robinson, 2004). Much of this research has focused on the effects of bullying on school climate and academic outcomes (Cohen, 2006). Interactions among school personnel are also important, as students perform better in schools in which staff collaborate in decision making, share a common mission, and trust each other (Bowen, Rose, & Ware, 2006; Bryk & Schneider, 2002; Harris & Hopkins, 2000; Hofman, Hofman, & Guldemong, 2001; Keys, Sharp, Greene, & Grayson, 2003; Lee & Smith, 1993). Similarly, positive interactions between staff members and students' families are associated with family involvement in school, school engagement, and academic achievement (Fraser et al., 2004).

Among the four levels of interactions that define a school's climate, perhaps the most important and extensively studied are interactions between students and school personnel. Students perform better in schools in which there is a positive relationship between students and school staff members, especially teachers. Positive student-teacher relationships are associated with academic achievement (Niebuhr & Niebuhr, 1999; Waxman, Anderson, Huang, & Weinstein, 1997). Middle and high school students who report receiving support from teachers are engaged in school and avoid problem behaviors, such as truancy, arguing with teachers, and fighting with students (Brewster & Bowen, 2004; Powers, Bowen, & Rose, 2005; Rosenfeld, Richman, & Bowen, 2000). When school personnel demonstrate respect for students and seek their input in developing rules and policies, students experience fewer risk behaviors, such as substance use and violence (Blum et al., 2002; Erickson, Mattaini, & McGuire, 2004; Osterman, 2000).

1.2.1. School climate in high poverty schools

A positive climate seems to have the strongest positive impact on student outcomes in high poverty schools (Battistich, Solomon, Kim, Watson, & Schaps, 1995). Schools with large numbers of students from poor families are most successful in meeting learning objectives when they have school climates characterized by collegiality, collaboration, shared decision-making, positive attitudes, high quality
instruction, and a clear mission (Allington & McGill-Franzen, 1993; Anderson & Pellicer, 1998; Frazee, 1996; George, Grisson, & Just, 1996; Reeves, 2003). Stewart (2008a; 2008b) found that the severity of educational problems commonly found in urban, minority schools are reduced by a cohesive social context. A positive school climate also predicts better social skills and school adjustment (Esposito, 1999). These findings are consistent with literature pointing to effective school climate characteristics for the general student population but suggest that they may be more critical in schools serving poor students (Becker & Luthar, 2002).

The impact of school climate may be more important for students from low income families because it is the accumulation of risk and protective factors that is important in predicting school success. A negative school climate increases risk for academic difficulty. For a student living in poverty, this may be an additional risk factor added to other accumulated stressors in their environment that serves to compound the likelihood of negative outcomes. Conversely, a positive school climate could serve as a protective factor that serves to buffer the impact of other stressors.

A positive school climate is not only a protective factor but also provides a broader context in which vulnerable students can develop the social supports that are the foundation for resilience. A school climate characterized by supportive relationships between students and teachers is likely to support resilience because it is within the context of these supportive relationships that students learn coping and problem-solving skills that are associated with resilience. They also have a trusted network of individuals from whom they can draw support during times of stress. Extra support from a teacher, for example, may compensate for a home environment in which there is little academic support due to a parent needing to work extended hours or multiple jobs.

1.2.2. Demographic variations in the effect of climate on academic outcomes

The current study examines the influence of gender and ethnicity, as research indicates that the influence of school climate varies by these characteristics. For example, a positive school climate seems to have a disproportionately strong impact on academic outcomes in schools serving predominantly ethnic minority students (Esposito, 1999). Research suggests that boys experience more problems than girls when student–teacher relationships are poor (Van de gaer, Pustjens, Van Damme, & De Munter, 2006). Gender and socioeconomic status also interact, such that low income boys perform worse behaviorally and academically than low income girls in a negative school climate (Alexander, Entwisle, & Olson, 2007).

1.3. The present study

As described above, the extant research has expanded our understanding of school climate characteristics that are protective for students in general and in high poverty schools. In order to further develop this knowledge base, there is a need for research that compares perceptions of school climate among students from poor families and their peers from higher income families. An equally important consideration is whether perceptions of school climate have a disproportionately strong effect on outcomes for students living in poverty.

The research questions for this study are informed by the research on poverty, resilience, and school climate, as well as knowledge developed through previous studies using the School Success Profile (SSP), the measure administered during the present study. Research conducted using the SSP indicates that behavior and grades deteriorate significantly over time for students from poor families (Bowen et al., 2008). Other research points to protective factors in the general student population. For example, positive relationships with adults in youths’ families, schools, and neighborhoods compensate for the negative effects of risk exposure (Woolley & Bowen, 2007). Supportive relationships with teachers promote school engagement and positive behavior (Brewster & Bowen, 2004), and a positive school climate predicts improved behavior and academic performance (Woolley & Grogan-Kaylor, 2006).

The present study builds on this literature by examining whether the effect of positive perceptions of school climate can moderate the association between family poverty and grades and behavior in one school district. The research questions addressed are: 1) How do students from poor families compare with their peers in grades and behavior when controlling for other key demographic characteristics and social supports? 2) Are positive perceptions of school climate associated with positive grades and behavior? 3) To what extent do perceptions of school climate moderate the association between family poverty and grades and behavior?

2. Method

This study employed a cross-sectional design. Students attending the middle and high school within a school district in New York completed the School Success Profile (SSP), a survey of risk and protective factors in multiple ecological domains: neighborhood, school, family, peer, and individual. The students enrolled in the district are predominantly non-Hispanic white (86%), and 52 percent of students are eligible for participation in the free or reduced price lunch program (New York State Education Department, 2008). Participation in the program qualifies children whose families are within 130% of the federal poverty level for free lunches. Those whose families are within 185% of the federal poverty level qualify for reduced price lunches that cost no more than 40 cents (United States Department of Agriculture, 2011).

2.1. Settings, participants, and consent procedures

The district’s middle school and high school participated in the study. These schools are similar in size and student–faculty ratio. Since the district has only one public middle school and one high school, the middle school (grades six through eight), serves as the primary feeder school for the high school (grades nine through twelve). The research team and superintendent decided to administer surveys to this group of students because the research indicates that this is a time during which students’ school experiences strongly influence future academic outcomes (Becker & Luthar, 2002).

Study procedures were approved by the University at Albany Institutional Review Board. School administrators sent information to parents in the form of mailed letters and emails that described the content of the surveys, and they were given the opportunity to refuse their child’s participation using a passive consent form. Students were also told that their participation was voluntary and that they could decline to participate at any time. Surveys were anonymous and the researchers had access to no information that could link responses with individual students. Of the 639 eligible students, 485 (76%) participated in the survey. The response rate was 85% for middle school students and 68% for high school students. Other than two students whose parents declined participation, school personnel reported that all students in attendance during the day of administration completed surveys. Thus, absences account for many of the missing respondents. However, it is likely that some students who agreed to participate chose not to complete the survey when it was administered, since the number of missing respondents exceeded the typical rate of student absences, which is 90% for the district.

2.2. Measures

Participating students completed the 217-item School Success Profile (SSP), which was designed to measure risk and protective
factors associated with academic outcomes for students in middle and high school. The SSP includes 217 items within 28 subscales measuring academic outcomes and risk and protective factors in the following ecological domains: Neighborhood, School, Friends, and Family. Students completed the SSP online in the school’s library and computer lab. Reliability and validity of the SSP have been empirically established in multiple studies of both high school and middle school students (Bowen, Rose, & Bowen, 2005).

2.2.1. Predictor and control variables

*Family Income* was measured with a dichotomous item pertaining to participation in the free or reduced price lunch program (0 = does not receive free/reduced lunch; 1 = receives free/reduced price lunch). Although researchers disagree about whether this measure should be used as a proxy for family poverty, research confirms that it is a valid measure related to other indicators of poverty (Ensminger et al., 2000).

*Perceptions of School Climate* were measured with a seven-item scale. Students were asked to provide Likert style responses (1 = strongly disagree; 4 = strongly agree) to indicate their level of agreement with statements pertaining to their perceptions of the quality of their school, their feelings of connectedness to school, and their relationships with adults at school. High scores on this scale indicate positive perceptions of climate. Internal consistency reliability tests from our sample resulted in an alpha of .84.

*Social Supports* included three variables measuring social support across ecological domains: parent support, neighbor support, and friend support. Higher scores on each of these measures indicated more support. In assessing whether the model should include all three social support variables, a preliminary examination of correlations among these variables revealed that they were only marginally correlated. Thus, these variables are tapping into different dimensions of support. *Parent support* was measured with a five-item scale. Students were asked to indicate how often in the past 30 days (1 = never; 2 = once or twice; 3 = more than twice) adults in the home provided support in terms of expressing love, appreciation, and encouragement. *Neighbor support* was measured with a seven-item scale. Students were asked to provide Likert style responses (1 = strongly disagree; 4 = strongly agree) to indicate their level of agreement with statements pertaining to social support and monitoring they received from adults in their neighborhood. *Friend support* was measured with a five-item scale. Students were asked to indicate whether statements about social support from friends described them (1 = not like me; 2 = a little like me; 3 = a lot like me). Reliability tests from our sample indicated that these scales had strong internal consistency, with alphas of .90 for parent support, .86 for neighbor support, and .88 for friend support.

*Gender* (0 = female; 1 = male) was included in the analysis, as research indicates that boys often experience more problems than girls when school climate conditions are poor (Van de Gaer et al., 2006). *Race/Ethnicity* (0 = non-Hispanic white; 1 = non-white) was also included, as a positive school climate may have disproportionately strong impact on academic outcomes for ethnic minority students (Esposito, 1999). The small number of minority students did not allow for assessing whether students from different racial and ethnic groups reported significantly different outcomes. The *School* (0 = middle school; 1 = high school) was included in the analysis, since there are likely to be significant differences in the school environments in middle and high school that could affect students’ perceptions of climate.

2.2.2. Outcome variables

*Trouble Avoidance Behavior* was measured with a composite scale of eleven items pertaining to avoidance of problem behavior in school. Students were asked to respond about the frequency during the past month (1 = never; 2 = once or twice; 3 = more than twice) of various problem behaviors, including truancy, missing homework, arguments with teachers, fights with other students, and suspensions. For the purposes of analysis, the items on the scale were reverse coded, so that high scores indicated avoidance of problem behavior and low scores indicated less avoidance of problem behaviors. Reliability tests from our sample resulted in an alpha of .85.

*Grades* were measured by students’ reports of grades on their last report card. The original scale was reverse coded such that higher scores correspond to higher grades for this scale (1 = mostly D’s and F’s; 2 = mostly C’s and D’s; 3 = mostly C’s, 4 = mostly B’s and C’s; 5 = mostly A’s and B’s).

2.3. Analytic approach

T-tests examined whether students from poor and higher income families differed significantly in their grades, behavior, and perceptions of school climate. Since students living in poverty are assumed to have fewer supports across multiple ecological domains, t-tests also examined whether students differed in their reports of social support from parents, neighbors, and friends based on family poverty status. Hierarchical linear regression analyses examined the relationships between the independent and control variables and the dependent variables, as well as the interaction between perceptions of school climate and family poverty. Student characteristics, including family poverty, were entered in the first step. Social support variables were added in the second step, and student perceptions of school climate were entered in the third step. The final step included the term representing the interaction between family poverty and perceptions of climate. Separate regressions were run for each of the two dependent variables, trouble avoidance behavior and grades.

3. Results

3.1. Student sample characteristics

About 20% of the students who participated in the study had some type of missing data. An examination of missing data patterns revealed that there were no significant differences in the behavior or grades of students with valid and missing responses on the predictor variables. Following scoring instructions for the profile survey (Bowen & Richman, 2001), cases missing more than half of the items on any of the composite scales were excluded. The final scores for the scale are average scores computed by calculating the sum of items answered and dividing this sum by the number of valid responses for each case. Using these methods, 413 students had complete data on all variables included in the model examining grades, and 416 students had complete data on variables included in the model examining behavior. Table 1 describes the socio-

<table>
<thead>
<tr>
<th>Variable</th>
<th>Percent/mean (SD)</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free/reduced lunch</td>
<td>48%</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>47%</td>
<td></td>
</tr>
<tr>
<td>Non-white</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>High school</td>
<td>45%</td>
<td></td>
</tr>
<tr>
<td>Parent support</td>
<td>2.48 (.57)</td>
<td>1–3</td>
</tr>
<tr>
<td>Neighbor support</td>
<td>2.71 (.63)</td>
<td>1–4</td>
</tr>
<tr>
<td>Friend support</td>
<td>2.54 (.52)</td>
<td>1–3</td>
</tr>
<tr>
<td>Perceptions of climate</td>
<td>2.87 (.56)</td>
<td>1–4</td>
</tr>
<tr>
<td>Trouble avoidance</td>
<td>2.6 (.37)</td>
<td>1–3</td>
</tr>
<tr>
<td>Grades</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A and B</td>
<td>49%</td>
<td></td>
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<tr>
<td>B and C</td>
<td>29%</td>
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<tr>
<td>C</td>
<td>8%</td>
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<tr>
<td>C and D</td>
<td>10%</td>
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<tr>
<td>D and F</td>
<td>4%</td>
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</tbody>
</table>
demographic characteristics of the students in the study, their mean perceptions of social supports, school climate, and behavior, and their grades. The sample was predominantly white (80%) and was evenly divided between the middle and high schools, and also between boys and girls. Students reported moderate to high levels of social support, since the highest possible score for support from parents and friends was three, and the highest possible score for support from neighbors was four. The mean for school climate was 2.87, suggesting moderately positive perceptions of climate, given that the highest possible score was four. The mean for behavior was 2.6 out of three, with a score of three indicating greater avoidance of problem behaviors, suggesting that the average student tends to avoid problem behaviors at school. Almost half of the students (49%) reported receiving mostly A’s and B’s on their last report card. Almost half of students (48%) reported receiving free or reduced price lunches. This rate was similar to rates reflected in district data, which indicated that 52% of students were free or reduced price lunch recipients (New York State Education Department, 2008).

T-tests comparing students by participation in the free or reduced price lunch program indicated that students from poor families reported lower grades and were less likely to avoid problem behavior (t = 3.83, p < .001) (see Table 2). These students also reported significantly less support from adults in the neighborhood (t = 2.60, p < .01) and in the home (t = 2.19, p < .05) than students from higher income families. These findings are consistent with other research indicating that students living in poverty often have fewer supports across ecological domains. The t-test results indicated that students’ perceptions of school climate were not dependent upon their family poverty status (t = .53; p = .60). Despite a tendency toward negative academic outcomes and behavior, students from poor families did not differ from their peers in their perceptions of school climate.

3.2. Academic performance

A hierarchical linear regression examined the relationship between family poverty, other demographic characteristics, social supports, perceptions of climate, and grades. Tables 3 and 4 provide results of the regressions predicting grades and behavior, respectively. Demographic characteristics, including participation in the free and reduced price lunch program, were entered in step 1. Students from poor families (β = -.23; p < .001) and boys (β = -.23; p < .001) reported lower grades than other students. Social support from parents, neighbors and friends were entered in the second step. In this step, family poverty and gender remained significant. More support from parents (β = .15; p < .01) and neighbors (β = .11; p < .05) was associated with more avoidance of problem behavior. The addition of the social support variables reduced the effect of family poverty by about 20% from .20 in step 1 to .16 in step 2, suggesting some shared variance between family poverty and social supports in predicting behavior.

As in the previous model, perceptions of school climate were entered in the third step. Family income and gender remained significant, but supports from neighbors and parents were no longer significant. Positive perceptions of climate were associated with more avoidance of problem behavior (β = .35; p < .001). The effect of climate is much larger than the effect of the social supports and twice as large as the effect of family poverty. In this model, the interaction between family income and perceptions of climate was significant (β = .51; p < .05), supporting the prediction that perceptions of climate moderate the relationship between family poverty and avoidance of problem behavior. The effect size is considerably larger for the model predicting behavior than for the model predicting grades, as the model including all of the variables explains 25% of the variance in behavior (R² = .25).

3.4. The moderating effect of school climate perceptions on behavior

The significant interaction between family poverty and perceptions of school climate supports the proposition derived from the risk and resilience perspective that a positive school climate may mitigate the negative effect of family poverty on behavior. Regardless of their family income status, students reporting more positive perceptions of school climate reported more avoidance of problem behaviors. However, the effect of school climate was stronger for students from poor families. Fig. 1 illustrates this interaction between family poverty and perceptions of school climate for boys and girls.

The figure has been plotted using the actual values from school climate separately for four groups: boys receiving free or reduced priced lunch, boys not receiving free or reduced priced lunch, girls receiving free or reduced priced lunch, and girls not receiving free or reduced priced lunch. Trouble avoidance behavior (Y-axis) for all groups improved as perceptions of school climate improved (X-axis).
As expected, the girls from higher income families reported the most avoidance of problem behavior, and the boys from poor families reported the least avoidance. However, the slope (change) was steeper for students from poor families. As perceived school climate improved, they reported similar rates of avoiding problem behavior as their peers from higher income families. The effect was such that among students with the most positive perceptions of the school climate, there was no significant difference in the behavior of students from poor or higher income families. The interaction effect was similar for both boys and girls, as perceptions of climate moderated the influence of family poverty for both groups. In order to examine this statistically, the researchers tested the model with a three-way interaction between gender, family poverty, and perceptions of climate, but this interaction was not significant.

4. Discussion and implications

Resilience relates to the processes in which children are engaged when they are exposed to risk and the ability to draw on supports and skills during times of adversity (Rutter, 2006). Youths from impoverished communities tend to have fewer social supports in their homes and neighborhoods that create the context for resilience (Ardelt & Eccles, 2001; Crosnoe & Cooper, 2010; Gershoff et al., 2006). Thus, it is not surprising that students from poor families in the present study report less support from neighbors and parents than their peers. Interestingly, students did not differ by family poverty status in their perceptions of school climate, suggesting that students from poor families did not perceive less support from adults in the school.

Despite the fact that family poverty did not predict poor perceptions of climate, perceptions of climate were more strongly associated with behavior for students from poor families. Among students who perceived the climate to be less positive, students from poor families report significantly worse behavior than students from higher income families. Yet, among students who provided the most positive ratings for climate, there was no significant difference in the behavior of students from poor and higher income families. The disproportionately strong association between school climate and behavior for students from poor families suggests that climate plays an especially important role for these students.

The findings indicate that climate does not moderate the association between poverty and grades. One explanation for this discrepancy may involve the fact that perceptions of climate in combination with the other variables in the model explained a smaller proportion of the variance in grades than behavior. The full model including all variables explained 25% of the variance in behavior ($R^2 = .25$), and only 15% of the variance in grades ($R^2 = .15$). Another interesting difference between the models is the effect of climate relative to the effect of family poverty level. In the model examining grades, the effect of family poverty is stronger than the effect of climate.

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### Table 3
Predicting grades from income, perceptions of climate, and social supports.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Step 1: demographics ($R^2 = .09$)</th>
<th>Step 2: social support ($R^2 = .14$)</th>
<th>Step 3: school climate ($R^2 = .15$)</th>
<th>Step 4: interaction ($R^2 = .15$)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$B$ (SE) $\beta$</td>
<td>$B$ (SE) $\beta$</td>
<td>$B$ (SE) $\beta$</td>
<td>$B$ (SE) $\beta$</td>
</tr>
<tr>
<td>Constant</td>
<td>4.82 (.11) -23***</td>
<td>2.74 (.40) .20***</td>
<td>2.11 (.49) .21***</td>
<td>.11 (.55) .05</td>
</tr>
<tr>
<td>Family poverty</td>
<td>−.53 (.11) .23***</td>
<td>−.46 (.11) .20***</td>
<td>−.48 (.11) .21***</td>
<td>.44 (.11) −19***</td>
</tr>
<tr>
<td>Male</td>
<td>−.52 (.11) .23***</td>
<td>−.43 (.11) .19***</td>
<td>−.44 (.11) −19***</td>
<td>.44 (.11) −19***</td>
</tr>
<tr>
<td>Non-white</td>
<td>−.08 (.14) −.03</td>
<td>.05 (.14) .02</td>
<td>.04 (.14) .01</td>
<td>.04 (.14) .02</td>
</tr>
<tr>
<td>High school</td>
<td>.01 (.11) .01</td>
<td>.10 (.11) .04</td>
<td>.16 (.11) .07</td>
<td>.16 (.11) .07</td>
</tr>
<tr>
<td>Parent support</td>
<td>.30 (.10) .15**</td>
<td>.24 (.10) .12</td>
<td>.24 (.10) .12</td>
<td>.24 (.10) .12</td>
</tr>
<tr>
<td>Neighbor support</td>
<td>.09 (.09) .05</td>
<td>−.02 (.10) −.01</td>
<td>−.01 (.10) −.01</td>
<td>−.01 (.10) −.01</td>
</tr>
<tr>
<td>Friend support</td>
<td>.29 (.11) .13**</td>
<td>.26 (.11) .12</td>
<td>.25 (.11) .12</td>
<td>.25 (.11) .12</td>
</tr>
<tr>
<td>Perceptions of climate</td>
<td>.30 (.11) .15**</td>
<td>.40 (.14) .19**</td>
<td></td>
<td>.40 (.14) .19**</td>
</tr>
</tbody>
</table>

Note: the reference groups for all models were female, not eligible for lunch program, middle school, and white students.

* $p < .05$.
** $p < .01$.
*** $p < .001$.

### Table 4
Predicting trouble avoidance behavior from income, perceptions of climate, and social supports.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Step 1: demographics ($R^2 = .12$)</th>
<th>Step 2: social support ($R^2 = .16$)</th>
<th>Step 3: school climate ($R^2 = .24$)</th>
<th>Step 4: interaction ($R^2 = .25$)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$B$ (SE) $\beta$</td>
<td>$B$ (SE) $\beta$</td>
<td>$B$ (SE) $\beta$</td>
<td>$B$ (SE) $\beta$</td>
</tr>
<tr>
<td>Constant</td>
<td>2.82 (.04) .25 (.13)</td>
<td>1.97 (.13) .18***</td>
<td>2.15 (.15) .18***</td>
<td>.51 (.06) .01</td>
</tr>
<tr>
<td>Family poverty</td>
<td>−.15 (.04) .25 (.13)</td>
<td>−.14 (.03) .25 (.13)</td>
<td>−.51 (.17) .25 (.13)</td>
<td>.51 (.06) .01</td>
</tr>
<tr>
<td>Male</td>
<td>−.21 (.03) .25 (.13)</td>
<td>−.20 (.03) .25 (.13)</td>
<td>−.51 (.17) .25 (.13)</td>
<td>.51 (.06) .01</td>
</tr>
<tr>
<td>Non-white</td>
<td>−.09 (.04) .25 (.13)</td>
<td>−.06 (.04) .25 (.13)</td>
<td>−.51 (.17) .25 (.13)</td>
<td>.51 (.06) .01</td>
</tr>
<tr>
<td>High school</td>
<td>−.06 (.03) .25 (.13)</td>
<td>−.06 (.04) .25 (.13)</td>
<td>−.51 (.17) .25 (.13)</td>
<td>.51 (.06) .01</td>
</tr>
<tr>
<td>Parent support</td>
<td>−.09 (.03) .25 (.13)</td>
<td>−.05 (.03) .25 (.13)</td>
<td>−.51 (.17) .25 (.13)</td>
<td>.51 (.06) .01</td>
</tr>
<tr>
<td>Neighbor support</td>
<td>−.06 (.03) .25 (.13)</td>
<td>−.02 (.03) .25 (.13)</td>
<td>−.51 (.17) .25 (.13)</td>
<td>.51 (.06) .01</td>
</tr>
<tr>
<td>Friend support</td>
<td>−.04 (.03) .25 (.13)</td>
<td>−.02 (.03) .25 (.13)</td>
<td>−.51 (.17) .25 (.13)</td>
<td>.51 (.06) .01</td>
</tr>
<tr>
<td>Perceptions of climate</td>
<td>.23 (.03) .35***</td>
<td>.17 (.04) .26***</td>
<td></td>
<td>.17 (.04) .26***</td>
</tr>
<tr>
<td>Climate × poverty</td>
<td>−.01 (.03) .25 (.13)</td>
<td>−.02 (.03) .25 (.13)</td>
<td>−.51 (.17) .25 (.13)</td>
<td>.51 (.06) .01</td>
</tr>
</tbody>
</table>

Note: the reference groups for all models were female, not eligible for lunch program, middle school, and white students.

* $p < .05$.
** $p < .01$.
*** $p < .001$. 

Thus, perceptions of school climate may have a more direct effect on behavior than grades.

Models of risk and resiliency offer an explanation for the disproportionately strong association between perceptions of climate and behavior for students from poor families. Academic failure and dropout result from an accumulation of risk factors across ecological domains over time (Richman et al., 2004). Students from poor families tend to have more risk factors across ecological domains. As these risk factors accumulate, these students are more likely to experience negative behavioral and academic outcomes (Garmezy, 1993). A negative school climate adds an additional risk factor that, for poor students, may compound the effect of other risk factors in their neighborhood, families, and peer groups. Because students from poor families have fewer resources and social supports across ecological domains, they tend to benefit more from any one resource or support than students who generally have access to more support overall (Cooper & Crosnoe, 2007).

4.1. Implications for policy and practice

If school climate indicators are to be given serious consideration in school and district improvement planning, these indicators will need to be part of a measurement strategy to assess school quality. The current high stakes accountability that focuses solely on test scores distracts school personnel and administrators from the very processes and contexts that influence academic achievement (Lawson, 2010). Instead of implementing strategies to improve the conditions for learning, many schools have focused their efforts on improving test scores. Better test preparation may result in higher test scores that have little or no connection to student learning. This is borne out in recent data from New York State where test scores were inflated due to poor testing procedures and an emphasis on test preparation. As a result, about half of the students who scored as proficient on state exams were not able to graduate within 4 years (New York State Board of Regents, 2010).

Understanding the importance of school climate raises the question of which professionals will take on the responsibility of assessing school climate and affecting positive change when needed. Improving the fit between the school environment and students' needs requires that schools collect and use data on student risk and protective factors along with data on school climate. Applying these multiple sources of data to school improvement planning may point to strategies that can improve the fit between the school environment and student needs (Hopson & Lawson, 2011). In order to accomplish this, administrators at the state, district, and school levels will need to provide leadership in prioritizing school climate. School support personnel, such as school social workers, counselors, and school psychologists, can play an important role in assessing the school climate.

Research in the area of positive youth development points to promising strategies for building a positive climate. Healthy relationships within the school community promote connectedness to school and positive youth development, which encompasses healthy behavior and academic success (Blum et al., 2002). Thus, interventions that foster healthy relationships in the school community are key to school improvement plans. These include strategies to promote cooperation among students, strong student–teacher relationships, and collaboration among teachers and school personnel (Blum et al., 2002; Cuthrell, Stapleton, & Ledford, 2010; Reeves, 2003). Students can also be involved in planning what they will learn and how their learning will be assessed. Creating an environment that is welcoming for families and involving parents in decision-making at the school can also promote school connectedness (Blum et al., 2002).

4.2. Limitations and future directions

Due to the use of cross sectional data, the findings for this study cannot be used to make causal inferences regarding the relationships among family poverty, school climate, grades, and behavior. In addition, because the study examined relationships among these variables within one school district, the results may not be generalizable to other districts. Another possible limitation is the relatively low response rate among high school students, which compromises our ability to draw conclusions about these participants.

However, the findings from this study, alongside other research on school climate, behavior, and academic achievement, have important implications. Specifically, they point to a need for measuring school climate and using the data to inform climate improvement strategies that promote resilience for all students, especially those living in poverty.

In order to better understand the influence of school climate on academic outcomes, future research needs to examine multiple dimensions of climate within the same study. These include peer relationships within the school and relationships among school personnel, in addition to relationships between students and school personnel. Examining the impact of multiple dimensions of climate could provide a richer understanding of the climate’s influence on academic performance and behavior. Longitudinal designs across multiple schools would be useful in understanding which school climate characteristics are important for success in school over time. School climate is likely to be important in explaining why policies, such as No Child Left Behind, have not succeeded in narrowing the achievement gap between students from poor families and those who have more resources and supports. This understanding will be critical in designing policies that better achieve the aim of providing equal access to a quality education for all students.

Most importantly, research needs to more thoroughly examine neighborhood and family effects, in addition to school effects. Research demonstrates the importance of a positive school climate. However, teachers and schools cannot be blamed for inadequate access to healthcare and good nutrition, or safety problems in poor neighborhoods, or stress and disorganization in poor households. Policies that place the responsibility for academic success of students living in poverty solely in the hands of schools and teachers prevent meaningful progress. On the contrary, they may drive good teachers and administrators away from high-poverty schools because they are being asked to take responsibility for problems beyond their control (Rothenstein, 2008; Sunderman, Orfield, & Kim, 2006). In order for school improvement plans to be successful, they must be implemented in concert with interventions that reduce family poverty and its impact on children (Berliner, 2006; Rothenstein, 2008).


