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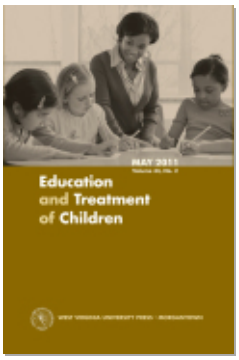

Talisha Lee, Dewey Cornell, Anne Gregory, Xitao Fan

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High Suspension Schools and Dropout Rates for Black and White Students

Talisha Lee
Dewey Cornell
University of Virginia
Anne Gregory
Rutgers University
Xitao Fan
University of Virginia

Abstract

This study examined the association between school suspension rates and dropout rates in a statewide sample of 289 Virginia public high schools. The contribution of suspension rates on dropout rates was examined for both Black and White students, after controlling for school demographics (school racial composition, percentage of students eligible for Free and Reduced Price Meals, urbanicity), and school resources (per pupil expenditure). Because student attitudes also might influence suspension rates, the prevalence of aggressive attitudes and rejection of school rules among students were used as additional predictors. Hierarchical regression analyses using schools as the unit of analysis found that, after entering both school demographics and student attitude measures, schools with high suspension rates tended to have high dropout rates. There were comparable findings for both White and Black students, although school suspension rates were more strongly associated with White dropout rates than Black dropout rates. These findings contribute new evidence that suspension policies may have an adverse effect on student completion of high school.

Keywords: dropout rates, suspension rates

Out-of-school suspension is one of the most widely used disciplinary practices in American schools, with more than 3.3 million students suspended each year (U.S. Department of Education, 2008). It is well-established that Black students are more likely to be suspended than White students (Wallace, Goodkind, Wallace, & Bachman, 2008), and that school suspensions are consistently associated with negative

Correspondence to Talisha Lee, P.O. Box 980489, Richmond, VA 23298; e-mail talisha@virginia.edu.
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academic outcomes for individual students, including greater risk of dropping out of school (Brooks, Schiraldi, & Ziedenberg, 2000; Civil Rights Project, 2000; Skiba, Peterson & Williams, 1997; Suh, Suh, & Houston, 2007). These observations have triggered a series of studies investigating the link between suspension and dropout rates on an individual student level of analysis (Bowditch, 1993; Suh & Suh, 2007). These studies have examined how the suspension of a student might lead that student to become disengaged from school and to feel *pushed out* of school (Bowditch, 1993; Skiba, 2000).

Although studies have examined the impact of suspension on individual students, less attention, has been given to *schoolwide* differences in the use of suspension practices. How much variation is there among schools in their use of suspension? The *Indicators of School Crime and Safety: 2008* (Dinkes, Kemp, Baum, & Snyder, 2009) documented an approximately even split between schools in the use of serious disciplinary consequences in 2005-06, when approximately 39,600 public schools (48%) took serious disciplinary action against a student, including long-term suspensions and expulsions. Closer examination of school suspension practices yields more evidence of diverse practices. The Virginia High School Safety Study found that Virginia high schools suspended an average of 15% of their students at least once during the school year, but that rates varied from 2.9% to 58% of the student body (Gregory, Cornell, & Fan, in press). The considerable variability in suspension rates in Virginia high schools raises questions about the correlates of high suspending versus low suspending schools.

Frequent use of school suspension may have an impact that extends beyond the individual student to affect the school climate and student body as a whole. As suggested by the studies reviewed below, schools that engage in frequent use of suspension as a disciplinary option may perpetuate a school climate that is perceived as harsh, punitive, and rejecting of students (Bowditch, 1993; Christle, Jolivette, & Nelson, 2007; Ekstrom, Goertz, Pollack, & Rock, 1986). The purpose of the present study was to investigate the link between schoolwide suspension practices and dropout rates. Of special interest is whether schools with low suspension rates would have lower dropout rates, especially among Black students, than schools with high suspension rates.

Suspension and Dropout

Suh and Suh (2007) analyzed data from the National Longitudinal Survey of Youth (NLSY97) to determine the most significant risk factors leading to school dropout. The final sample of 6,192 students

(range: 12 to 16 years old) included 5,244 students who completed high school with a diploma or GED, and 948 who dropped out of school prematurely. The authors used multiple logistic regressions to reduce 180 possible contributing factors down to 16 statistically significant predictors of dropout. Of the 16 predictors, a previous history of suspension stood out as a predictor. More specifically, they found that if a student had a prior history of suspension, it increased the likelihood of the student dropping out by 78%.

An earlier ethnographic study closely examined the process through which suspension may be experienced as a gateway for dropping out. Bowditch (1993) investigated how disciplinary practices in a low-income, majority Black, urban high school affected the likelihood that a student would complete high school. Using qualitative data that included classroom and administrative office observations, interviews with students and school personnel, and review of public disciplinary records, Bowditch found that once a student was sent to the office for a discipline problem, rather than gathering information about the circumstances in which that student violated a school rule, administrators questioned students about their grades, attendance, and previous suspensions. Bowditch contended that this line of questioning created a profile of the student that ultimately led to a label of "troublemaker" if the student had poor grades, low attendance, or multiple suspensions. Although Bowditch acknowledged that one cannot generalize findings based on a case study, her work provides support for examining how the use of suspensions could ultimately create a school climate experienced as "pushing" students out of school, both involuntarily and voluntarily.

At the school level several studies have documented the link between school-wide suspension rates and dropout. Christle and colleagues (2007) investigated school characteristics and disciplinary practices in relation to dropout rates in Kentucky high schools. The authors obtained dropout data from the Kentucky Department of Education's annual reports for two consecutive years in order to provide more reliable estimates of dropout rates. Kentucky high schools averaged a 3.9% dropout rate, but the range was from 0 to 13% over the 2-year period of the study. Christle et al. (2007) used both quantitative and qualitative analyses to determine school characteristics that were related to the dropout rate and to identify qualities of high schools with low dropout rates. They found that schools with high dropout rates had significantly higher suspension rates, a higher percentage of students from low socioeconomic backgrounds, and higher retention rates (percentage of students held back in a prior grade) than schools with low dropout rates. Findings from the Christle et al. (2007) study

are consistent with previous studies that also concluded that schools exercising harsh disciplinary practices, such as excessive suspension and expulsions, tend to have relatively high dropout rates (Bowditch, 1993; Fine, 1991; Suh & Suh, 2007).

Although suspension practices may be correlated with dropout rates, it is possible that school suspension practices are driven by characteristics of school demography that can explain the apparent influence on dropout rates. For example, studies have found that lower income, ethnic minority students are more likely to be suspended (The Civil Rights Project, 2000; Wallace et al., 2008) and dropout (Balfanz & Legters, 2004; Ekstrom et al., 1986). In addition, studies have found that students with aggressive attitudes or attitudes that are defiant of school rules are also more likely to commit disciplinary infractions resulting in school suspension (McConville & Cornell, 2003; Slaby & Guerra, 1988) and are at-risk for dropping out (Suh et al., 2007). Therefore, the present study examined the unique predictive value of suspension rates on dropout rates at the school level after statistically controlling for school-level socio-demographic risk factors.

Risk status of enrolled students

A range of socio-demographic characteristics of schools have been linked to negative outcomes for students. To better understand why dropout rates vary across schools, one must consider the literature documenting that schools with higher percentages of low income students tend to have higher drop out rates (Christle et al., 2007; Orfield, Losen, Wald, & Swanson, 2004). In their sample of 161 middle schools, Christle and colleagues (2004) found that schools with higher rates of students from low socioeconomic backgrounds and schools with a greater percentage of minority students were associated with higher rates of student suspension. Furthermore, schools with high minority populations are also more likely to have less financial resources than majority White schools (Balfanz & Legters, 2004; Kozol, 2005; Orfield et al., 2004). In 31 states, districts with the highest percentage of minority children also received less funding per pupil than districts with the fewest minority children (Kozol, 2005). The author also found that poverty appears to be the key correlate of high schools with weak promoting power. Schools that had a majority population of minority students and more resources (e.g., higher per pupil expenditures and suburban location), successfully promoted their students to senior status at rates comparable to majority White schools. In these cases, the resources available to the school were more indicative of weak promoting power, rather than the ethnic composition of the school.

A school's geographic location also has a significant relationship with high school dropout rates. Some studies have shown that dropout rates for rural students tend to be lower than those for urban students (Khattri, Riley, & Kane, 1997; Sherman, 1992; Stern, 1994). Together these studies suggest that an examination of school dropout rates should consider the school's racial and ethnic composition, school urbanicity, and indices of school level poverty (percentage of students eligible for free and reduced priced meals and per pupil expenditure).

Some schools may have higher suspension and dropout rates because their students have attitudes that lead to more aggressive and defiant behavior (Ekstrom et al., 1986; Farmer & Payne, 1992). For example, several studies have found that students who endorse aggressive attitudes (e.g., beliefs that fighting is an effective way to solve problems or that it will make one popular with peers) are more likely to engage in aggressive and disruptive behavior in school and to receive disciplinary consequences such as school suspension (McConville & Cornell, 2003; Slaby & Guerra, 1988). Aggressive attitudes are especially relevant because aggressive behaviors such as fighting and assault are common reasons for school suspension.

Other studies have examined student endorsement of delinquent behaviors and rebelliousness as predictors of later delinquency and conduct problems (Rutter, Giller, & Hagell, 1998; Yoshikawa, 1994; Williams, Ayers, & Arthur, 1997). Morrison et al. (2001) found that suspended students reported that their friends shared their negative attitudes toward school. When students feel that their peers are disinterested in school and disdainful of school rules, they may be more inclined to break rules themselves (Espelage, Green, & Wasserman, 2007). The substantial body of literature on student attitudes that are associated with school misbehavior and rule-breaking suggests that student attitudes are important to consider when conceptualizing the risk status of the student body. The present study measured student attitudes toward aggression and commitment to school rules, using two school climate scales administered to a sample of students in each school (Cornell & Gregory, 2008; Gregory, Cornell, Fan, Sheras, Shih, & Huang, 2010).

Measurement of Dropout Rates

States exercise considerable latitude in the definitions and formulas they use to calculate dropout rates (Greene & Winters, 2006; Klemick, 2007), and this may contribute to the substantial differences in dropout rates reported across states (Klemick, 2007; NGA, 2005). Some studies calculate dropout rates based on enrollment

and diploma data reported by school districts (Greene & Winters, 2005; Swanson & Chaplin, 2003), while others use U.S. Census data or longitudinal survey data (Mishel & Roy, 2006). The variability in dropout definitions and inconsistencies in reporting enrollment data (U.S. GAO, 2005) make it difficult to compare rates across schools and school districts even within the same state. The present study used a new, standardized statewide measure that addresses many of the data limitations in the current dropout literature.

Prior to 2002, Virginia relied on local school divisions to count the number of students who graduated and dropped out of school each year. These school counts provided estimates of dropout and graduation rates that tended to be unreliable because they failed to reflect factors such as student mobility, declining school populations, and ninth-grade retention (Klemick, 2007; Mishel & Roy, 2006; VBOE, 2006). Students who transferred to a different school or were retained a grade might not be included in dropout estimates for the student's expected graduation year. At the start of the 2002-2003 year, the Virginia Board of Education (VBOE) began collecting student records using a new Education Information Management System (EIMS) that required all school divisions to report the status of enrolled students three times a year. Starting in 2004, VBOE began to use a unique code that tracks individual students and identifies those who leave Virginia public schools for any reason. In 2006, additional steps were taken to ensure that all schools in Virginia understood and used the same standardized definition to classify students as dropouts. Dropout rates for this study were calculated using data from the 2006-07 and 2007-08 school years. In order to obtain a more reliable indicator of the school's dropout rate, the rates were averaged for these two years (Christle et al., 2007).

Although many studies have investigated the role that individual student characteristics play in individual decisions to drop out of school (Battin-Pearson, Newcomb, Abbott, Hill, Catalano, & Hawkins, 2000; Bowditch, 1993), relatively less attention has been given to school level characteristics that have a broad impact on students. Undoubtedly, both individual and school factors are important, but school level influences deserve attention because they offer opportunities for large-scale prevention efforts (Skiba & Sprague, 2008). The present study measured the association between suspension practices and dropout rates at the school level for a statewide sample of 289 Virginia public high schools. It was hypothesized that higher school-wide suspension rates would be predictive of higher school-wide dropout rates in a hierarchical regression analysis, after controlling for school demographic characteristics, including school enrollment

size, racial composition of the student body, and the percentage of students eligible for a free or reduced price meal. The study also considered the role of school location in a rural versus urban community and the financial resources available to the school as indexed by per pupil expenditures. Finally, it was recognized that school suspension practices could be a function of student attitudes that would lead to greater misbehavior and disciplinary violations, so that the effect of school suspension rates on dropout rates was assessed after considering the contribution of student attitudes toward aggression and commitment to school rules.

Method

School Sample

The sample of schools was obtained from the Virginia High School Safety Study (VHSSS; Cornell & Gregory, 2008; Gregory et al., 2010). Schools were eligible for participation if they included grades 9-12, offered a high school diploma, and served students primarily under age 18. Educational programs were not eligible if they were on the grounds of a juvenile detention facility, students attended for less than ½ the school day, or the majority of the student population had a disability that would prevent them from taking the survey. Of Virginia's 314 eligible public high schools, 296 schools (94%) participated in the VHSSS. Both dropout and suspension data were available for 289 (92%) of Virginia's public high schools, which made up the final sample for this study. The high school participation rate was achieved with the cooperation of the Virginia Department of Education and the Virginia Department of Criminal Justice Services, who endorsed the study and encouraged participation.

Student enrollment (grades 9-12) in these schools ranged from 33 to 2,881, with an average total enrollment of 1,207 students. The proportion of White students in these schools ranged from 1% to 100%. The proportion of Black students also varied widely—from 0% to 99%. The proportion of students who were neither White nor Black ranged from 0% to 63%. Approximately 60% of the high school students in this study's sample were White, and 26% were Black. The proportion of students qualifying for free and reduced price meals (FRPM; VDOE, 2007), varied from 1% to 83% (M = 30%, SD = 16%). Per pupil expenditure for operations ranged from $8,103 to $20, 269 per student ($M$ = $10, 226, SD = $1,814). Population density (persons per square mile) was used as a measure of urbanicity and ranged from 6 to 7,287 persons per square mile (U.S. Bureau of the Census, 2000).

Student Survey Sample

Although measures of school suspension and dropout rates were based on the entire school enrollment in grades 9-12, the measures of school climate were derived from a sample of ninth grade students in each school who completed a school climate survey as part of the Virginia High School Safety Study (VHSSS). This survey was used to assess a series of student attitudes and perceptions related to school climate, including measures of attitudes toward aggressive behavior and acceptance of school rules. Previous reports from the VHSSS have found that ninth grade perceptions of school climate are consistently associated with measures of schoolwide conditions from independent sources, including teachers and administrators (Bandyopadhyay, Cornell, & Konold, 2009). Ninth grade was selected for study in the VHSSS primarily because it is the first year of high school (permitting future longitudinal study as the cohort proceeds through high school) and is a pivotal year for student adjustment and achievement (Donegan, 2008). Ninth grade students were not included in the study if (1) they did not read English well enough to complete the survey; (2) they had cognitive or physical limitations that prevented them from completing the survey. The survey was administered anonymously online in classrooms under teacher supervision.

Principals were asked to identify enough ninth grade students in order to gain a sample of 25 student surveys from each school. A target sample of 25 represented the size of a typical classroom of students that could be tested on one occasion and is consistent with several national studies of student performance, including the National Educational Longitudinal Study, NELS:88 (Ingels, 1990) and the National Assessment of Educational Progress (NAEP) program (Chromy, 1998). Schools with fewer than 25 ninth grade students were encouraged to have all available ninth graders complete the survey. In order to obtain a reasonably representative sample, the principals were instructed to choose students from an alphabetized student roster using random numbers. In the event that students were absent or for some other reason unavailable to complete the survey, principals selected an alternate using the next random number available.

Principals reported that approximately 73% of the students initially identified by the sampling procedure participated in the study. The reasons for nonparticipation among the other 27% (1,983 students) included: student absence due to illness (32% of those who did not participate); student declined to participate (16%), student moved or transferred (7%), parent declined (6%), student suspended from school (5%), student language barrier (3%), or some other reason (this ranged from a severe disability to attending a field trip; 30%). The

final sample consisted of 7,431 9th grade students with an average of 25.1 students from each school. Approximately 49% of the students were girls. The self-reported racial/ethnic distribution of the sample was 63% White/Caucasian, 22% Black/African American, 5% Latino/Hispanic, 3% Asian American, 1% American Indian, and 5% Other. The mean age was 14.8, with a range of 13 to 17 years.

Measures

Dropout rates. Dropout rates for each entire school were determined based on single-year enrollment counts obtained from the VDOE's Education Information Management System. In order to obtain a more reliable indicator of the school's annual dropout rate, the rates for 2006-07 and 2007-08 were averaged.

School suspension. Virginia schools are required to report student suspensions and expulsions to a state database. The suspension rate for each school was based on the total number of students that received at least one removal from school during the 2006-07 school year, including short-term suspensions, long-term suspensions, and expulsions. Students who received two or more suspensions were only counted once, consistent with other studies of school suspension (Suh et al., 2007). Of the 49,511 counts of students receiving at least one form of suspension, 94% of the suspensions were designated by Virginia schools as short-term (1 to 10 days), 5% were classified as long-term (11 to 364 days), and 1% were termed expulsions (365 or more days). There were small, but statistically significant, correlations between the short term suspension rate and both the long term suspension rate ($r = .25$, $p < .01$) and the expulsion rate ($r = .21$, $p < .01$). The long term suspension rate was also significantly correlated with the expulsion rate ($r = .16$, $p < .01$).

Student aggressive attitudes. Student attitudes toward peer aggression were measured using the Aggressive Attitudes scale (Cornell & Sheras, 2003), which asks students how much they agree or disagree about statements such as, "It feels good when I hit someone," and "Students who are bullied or teased mostly deserve it." Students responses ranged from 1 (s*trongly disagree*) to 4 (*strongly agree).* In the present study, Aggressive Attitudes scores for the sample of ninth grade students in each school were averaged into a school level index. McConville and Cornell (2003) reported good test-retest reliability (.66) over a seven-month period for Aggressive Attitudes, and found that the scale predicted self-reported aggression, peer- and teacher-nominated bullying, and school discipline referrals over the course of the school year. The internal validity of the scale was supported by confirmatory factor analysis of school climate measures reported by

Bandyopadhyay et al. (2009). This recent study also used Aggressive Attitudes as a school level index and found that scores were associated with school suspension rates as well as teacher reports of gang-related violence and student bullying and teasing. In the present study, the internal consistency (Cronbach's alpha) of the Aggressive Attitudes scale was .88.

Student belief in school rules. To assess the prevalence of student commitment to following schools rules, ninth grade students completed a 16-item scale, Belief in School Rules, asking whether their friends would support engaging in various forms of rule-breaking behavior. Sample items included, "Cut a couple classes," "Destroy or damage school property," and "Disobey school rules." The response choices ranged from 1 (*strongly disagree*) to 4 (*strongly agree*). This scale was adapted from a scale used by Stewart (2003) in a study of individual and school-level factors that explained variation in school behavior among a large, representative sample of high school students. Stewart found that belief in school rules was the strongest predictor of misbehavior. The school climate scale for the VHSSS was designed to avoid asking students to make any self-incriminating statements about their behavior. Therefore, the Stewart scale was reworded to ask students to report generally on the attitudes of their "friends" rather than themselves. The standardized alpha coefficient in the present study was .94.

Results

Preliminary Analyses

Dropout rates. The average whole-school dropout rate for the 2006-07 and 2007-08 school years ranged from 0% to 30.7% (M = 2.7%, SD = 2.8%). For 281 (99%) schools, the average whole-school dropout rate was between 0 and 10%; however, there were 2 schools with dropout rates of 29% and 31%, respectively. The average Black dropout rate ranged from 0 to 50% (M = 4.3%, SD = 6.6%). The average White dropout rate ranged from 0% to 36.6% (M = 2.3%, SD = 3.0%). About 40% of the dropouts in this study were White students and 39% of the dropouts were Black students.

Correlations among study variables. Table 1 presents the descriptive statistics for all study variables and Table 2 presents their intercorrelations. Whole-school dropout rates were positively correlated with the school's proportion of minority students (r = .34, p < .01) and the school's proportion of students eligible for free or reduced price meals (FRPM proportion; r = .29, p < .01). The dropout rates for White students in each school were significantly correlated with the school's proportion of White students (r = -.34, p < .01) and FRPM proportion (r

Table 1
Descriptive Statistics for Study Variables

Variable	Mean	SD	Min	Max
Whole-school Dropout Rate	2.7%	2.8%	0%	30.7%
Black Dropout Rate	4.3%	6.6%	0%	50.0%
White Dropout Rate	2.3%	3.0%	0%	36.6%
Suspension Rate	14.8%	9.5%	<1%	60.0%
School Population				
School Enrollment	1,200	689	33	2,881
% White	66%	26%	1%	100%
% Black	25%	24%	0%	99%
% Minority (including Black)	34%	26%	0%	99%
School Characteristics				
% Free/Reduced Meal	30%	16%	1%	83%
Per Pupil Expenditure	$10,215	$1,816	$8,103	$20,269
Urbanicity (ppm2)	932	1,273	6	7,287
Student Attitudes				
Aggressive Attitudes	11.28	1.05	8.00	14.00
Belief in School Rules	48.98	2.47	41.00	56.00

Note. The dropout rates represent the mean of the annual dropout rates for all enrolled students during the 2006-07 and 2007-08 school years. The whole-school dropout rate includes White students, Black students, and all other minority groups. Suspension Rate includes non-duplicated counts of short-term suspensions, long-term suspensions, and expulsions during the 2006-07 school year. Ppm2 = persons per square mile.

= .33, $p < .01$). Additionally, higher schoolwide suspension rates, higher reports of student aggressive attitudes and less student acceptance of school rules in each school were correlated with higher dropout rates for the whole school and for White students. The average Black dropout rate was positively correlated with higher schoolwide suspension rates, higher FRPM proportion, and lower per pupil expenditures (see Table 2).

The correlation coefficient between the Black dropout rate and suspension rate (r = .14) was compared to the correlation coefficient between the White dropout rate and suspension rate (r = .53). There was a statistically significant difference between the two correlation coefficients ($p < .01$), with suspension rates having a stronger association with the White dropout rate than with the Black dropout rate.

Ethnic composition and school characteristics. Schools with higher proportions of Black students had higher school-level poverty, higher per pupil expenditures, and more urban locations (Table 2). Schools with higher proportions of White students had lower school

Table 2
Correlations among Study Variables

	2	3	4	5	6	7	8	9	10	11	12
1. Whole-school Dropout Rate	.41**	.91**	.53**	.34**	.40**	-.34**	.29**	-.07	.10	.35**	-.23**
2. Black Dropout Rate	--	.34**	.14**	-.09	-.03	.09	.15*	-.14*	-.06	.10	-.05
3. White Dropout Rate		--	.53**	.34**	.45**	-.34**	.33**	-.06	.05	.39**	-.22**
4. Suspension Rate			--	.48**	.67**	-.48**	.49**	-.10	.05	.42**	-.27**
5. % Minority				--	.89**	-1.00**	.31**	.39**	.56**	.34**	-.21**
6. % Black					--	-.89**	.46**	.14*	.35**	.44**	-.26**
7. % White						--	-.31**	-.39**	-.56**	-.34**	.21**
8. % Free/Reduced Meal							--	.02	.07	.37**	-.19**
9. Per Pupil Expenditure								--	.63**	-.11	.01
10. Urbanicity (ppm2)									--	.01	-.03
11. Student Aggressive Attitudes										--	-.58**
12. Belief in School Rules											--

*p < .05. **p < .01.

level poverty, lower per-pupil expenditures, and less urban locations. Schools with higher per-pupil expenditures were also likely to be more urban.

The positive correlation between percent Black and per pupil expenditure was unexpected, so the correlations were reexamined after controlling for urbanicity. The relationship between proportion Black and per pupil expenditure became negative after controlling for urbanicity, as indicated by the partial correlation (r = -.12, p < .05). In addition, after taking urbanicity into consideration, the relationship between proportion White and per pupil expenditure was no longer significant.

School Suspension and Dropout Rates

To examine how school dropout rate was associated with school suspension, while controlling for school demographic variables, as well as for students' aggressive attitudes and students' belief in school rules, a three-step regression analysis was conducted, with dropout rate as the dependent variable. Furthermore, parallel analyses were conducted for whole school dropout rate as the dependent variable, for Black student dropout rate as the dependent variable, and for White student dropout rate as the dependent variable. Table 3 presents the findings of these three parallel analyses.

Whole-school dropout rate and suspension. Step 1 controlled for four school demographic variables: the proportion of minority students, proportion of students receiving FRPM, per pupil expenditure, and urbanicity. At step one, the variance in whole school dropout rate accounted for by the demographic control variables was R^2 = .19, F (4, 284) = 16.6, p < .01. The variable most strongly related to the whole-school dropout rate was the proportion of minority students (β = .35, p < .01). In addition, schools with a higher proportion of students receiving FRPM also had higher dropout rates (β = .19, p <. 01). Schools with higher per pupil expenditures had lower whole-school dropout rates (β = -.23, p <. 01).

In the second step, Aggressive Attitudes and Belief in School Rules significantly predicted the whole-school dropout rate over and above the demographic variables, R^2 = .22, F (6, 282) = 13.05, p < .01 (ΔR^2 = .03, p < .01). Schools with ninth grade students reporting higher levels of Aggressive Attitudes (β = .15, p < .05) tended to have higher dropout rates.

In the third step, the total variance accounted for by adding suspension rates to the model was R^2 = .31, F (7, 281) = 18.24, p < .01 (ΔR^2 = .10, p < .01). Higher dropout rates were associated with higher suspension rates (β = .42, p < .01), even after controlling for the demographic

Table 3
Multiple Regression Analyses for School Dropout Rates and Suspension

	Whole School Dropout Rate			Black Dropout Rate			White Dropout Rate		
	β	R2	Δ R2	ß	R2	Δ R2	ß	R2	Δ R2
Step 1		.19**	.19**		.06**	.06**		.21**	.21**
% Minority/Black/White a	.35**			-.14			-.37**		
% Free/Reduced Meal	.19**			.22**			.23**		
Per Pupil Expenditure	-.23**			-.18*			-.18*		
Urbanicity (ppm2)	.03			.08			-.06		
Step 2		.22**	.03**		.06	.01		.24**	.03**
% Minority/Black/White	.28**			-.17*			-.29**		
% Free/Reduced Meal	.14*			.20**			.18**		
Per Pupil Expenditure	-.20**			-.17*			-.13		
Urbanicity (ppm2)	.05			.08			-.04		
Aggressive Attitudes	.15*			.08			.20**		
Belief in School Rules	.06			-.00			-.02		
Step 3		.31**	.10**		.08*	.02*		.32**	.08**
% Minority/Black/White	.07			-.30**			-.09		
% Free/Reduced Meal	.01			.16*			.06		
Per Pupil Expenditure	-.11			-.14			-.05		
Urbanicity (ppm2)	.10			.11			.00		
Aggressive Attitudes	.12			.07			.17*		
Belief in School Rules	-.03			.01			.01		
Suspension Rate	.42**			.21*			.39**		

N = 289. *p < .05. **p < .01. a: For whole school dropout analysis, it is %Minority; for Black dropout analysis, it is %Black; for white dropout analysis, it is %White.

variables, students' aggressive attitudes and belief in school rules.

Black dropout rate and suspension. For analyses involving Black dropout rate as the dependent variable, at step one, the variance accounted for by the demographic control variables was $R^2 = .06$, F (4, 284) = 4.31, $p < .01$). Black dropout rate tended to be higher in schools with a larger proportion of students receiving FRPM ($\beta = .22$, $p < .01$) and lower in schools with lower per pupil expenditures ($\beta = -.18$, $p < .05$).

At step two, neither Aggressive Attitudes nor Belief in School Rules was significantly associated with Black dropout rates. At step three, the total variance accounted for by adding suspension rates to the model was $R^2 = .08$, F (7, 281) = 3.63, $p < .05$ ($\Delta R^2 = .02$, $p < .05$). Black dropout rates tended to be higher in schools with higher suspension rates ($\beta = .21$, $p < .05$).

White dropout rate and suspension. At step one, the total variance accounted for by the demographic control variables was $R^2 = .21$, F (4, 284) = 18.68, $p < .01$. The White dropout rate was most strongly related to proportion of White students ($\beta = -.37$, $p < .01$). Also, higher White dropout rate was associated with higher proportions of students receiving FRPM ($\beta = .23$, $p < .01$) or lower per pupil expenditures ($\beta = -.18$, $p < .05$).

At step two, the total variance accounted for by adding the student attitude variables was $R^2 = .24$, F (6, 282) = 14.94, $p < .01$ ($\Delta R^2 = .03$, $p < .01$). White dropout rate tended to be higher in schools with students reporting higher levels of Aggressive Attitudes ($\beta = .20$, $p < .01$).

The total variance accounted for by adding suspension rate to the model was $R^2 = .32$, F (7, 281) = 19.14, $p < .01$ ($\Delta R^2 = .08$, $p < .01$). White dropout rate tended to be higher in schools with higher suspension rates ($\beta = .39$, $p < .01$).

A potential problem with the analysis of dropout rates for racial subgroups was that, in schools with small numbers of a particular racial subgroup, dropout percentages are determined by just a few students. For example, in 12 (4%) schools, there were fewer than five Black students, and so the dropout of just one or two students results in a high dropout rate. This problem was partially addressed by averaging dropout rates across two years. To determine if removing these schools would change the results, parallel regression analyses were run that excluded all schools with less than 10% Black students, or less than 10% White students. There were no changes in the pattern of statistically significant results.

High and Low Suspension Schools

In order to supplement the regression analyses and provide an examination of the data from a categorical perspective, schools were

classified as low suspension schools or high suspension schools based on the upper and lower thirds of suspension rate residuals after controlling for proportion minority, proportion FRPM, per pupil expenditures, and urbanicity. This classification made it possible to identify schools that exercised low versus high rates of suspension that could not be attributed to these demographic variables. It was hypothesized that low suspension schools would have lower dropout rates than high suspension schools, for both Black and White students.

An independent-samples t-test was used to compare the mean dropout rates between low and high suspension schools. Table 4 shows that schools with low suspension rates (M = 2.26) had significantly lower whole-school dropout rates than those of schools with high rates (M = 3.52) $t(122) = -2.79$, $p < .01$. The d (-.40) is considered to be a moderate effect size (Cohen, 1988). Low suspension schools also had significantly lower Black dropout rates (M = 3.19) than those of high suspension schools (M = 5.08), $t(191) = -2.27$, $p < .05$ (d = -.33). For the White dropout rate, low suspension schools had significantly lower White dropout rates (M = 1.87) than those of high suspension schools (M = 3.23) $t(122) = -2.79$, $p < .01$ (d = -.40).

Discussion

As hypothesized, high suspension rates were consistently associated with high school dropout rates. The degree to which the school made use of suspensions as a disciplinary consequence was predictive of dropout rates in separate analyses including all students in the school, all White students, and all Black students.

For the whole-school analyses that included all students in each school, school demographics were predictive of the school's dropout rate and by themselves accounted for a substantial percentage (19%) of the variance. As other studies have reported (Balfanz & Legters, 2004; Christle et al., 2007; Ekstrom et al., 1986; Kozol, 2005; Orfield et al., 2004), schools with larger percentages of minority students and students receiving free or reduced price meals, as well as lower per pupil expenditures, had higher dropout rates. Notably, all three demographics made independent contributions to the dropout rate in a large statewide sample with considerable socioeconomic and racial diversity in the student population. Moreover, urbanicity was also included in the analyses. Because Virginia is a state that has minority and low income students attending schools across the full geographic range from urban to rural settings, it was possible to assess the influence of an urban location. Our analyses suggested that the population density of the community did not contribute unique predictive power to the dropout rates and was not an important factor in understanding student dropout rates.

Table 4
Dropout Rate Comparisons between Low and High Suspension Schools

	M (SD)	*t*	*df*	*d*
Whole-school Dropout Rate [a]		-2.79**	122	-.40
Low Suspension Schools	2.26 (1.54)			
High Suspension Schools	3.52 (4.16)			
Black Dropout Rate		-2.27*	191	-.33
Low Suspension Schools	3.19 (5.67)			
High Suspension Schools	5.08 (5.93)			
White Dropout Rate [a]		-2.79**	122	-.40
Low Suspension Schools	1.87 (1.66)			
High Suspension Schools	3.23 (4.53)			

Note. The classification of schools based on the upper and lower thirds produced a total of 96 low suspension schools and 97 high schools.
*p < .05, one-tailed. **p < .01, one-tailed.
[a] The *t* and *df* were adjusted because variances were not equal.

Studies of school suspension practices have typically not considered the role of student attitudes toward conforming their behavior to school rules. This is an important variable to consider, since differences in suspensions rates might be attributed to differences in student misbehavior across schools. Student attitudes related to aggressive behavior and rule-breaking were assessed using survey data from a sample of ninth grade students in each school. Both variables were correlated with the dropout rate in the expected direction, but only aggressive attitudes made a unique contribution in the regression analyses. Schools that could be characterized as having students who endorsed support for peer aggression also demonstrated higher dropout rates independent of school demographics, although the improvement in predictive power was a more modest 3%. Perhaps the effect would be stronger if the assessment of aggressive attitudes was based on a sample that included all four grades, but in this study such a sample was not available.

In the final stage of analyses, once the school's use of suspension was added to the regression analysis model, the contributions of the demographic and attitudinal variables were no longer statistically significant, and only the suspension rate ($\beta = .42$) was a statistically significant predictor for dropout rates. It is likely that this is a result of statistical multicollinearity between suspension rate and other independent variables in the model, as Table 2 showed that suspension rate was correlated with the major demographic variables and the two

attitudinal variables. As is well known in the regression literature, multicollinearity among independent variables could make the tests for individual regression coefficients less stable (e.g., Pedhazur, 1997). The final model with suspension rates accounted for 31% of the variance in dropout rates, an increase of 10% beyond the contribution of the demographic and attitudinal predictors.

A comparison of schools with a high suspension rate versus schools with a low suspension rate offers a clear contrast between the two disciplinary practices. Schools that typically suspended approximately 22% of their students over the course of the school year had a dropout rate (3.52) that was 56% greater than the dropout rate (2.26) for schools that suspended only 9% of their students. Although one cannot conclude that students who are suspended will later drop out of school, the data from the current study suggests that by suspending a higher proportion of their students, schools increase the likelihood that students will leave school prematurely. It would be useful to track suspension experiences and high school outcomes (graduation or dropout) for each individual student in the school to determine whether the increase in dropout rates is attributable to effects on the students who are suspended or has a more general effect on all students.

Previous research investigating the role of suspension on dropout rates has presented similar findings. In a study comparing 20 high schools with a low dropout rate and 20 with a high dropout rate, Christle et al. (2007) found that the suspension rates were significantly higher in schools with the highest dropout rate, but did not control for potentially confounding variables such as school demographics or other student variables.

Findings for White and Black students

The findings for White dropout rates were most similar to those for the whole school, which is not surprising since 60% of the high school students in this study were White. The most notable difference in findings for White students was that Aggressive Attitudes continued to make an independent contribution to the dropout rate even when suspension rates were included in the analysis. This result is noteworthy because Aggressive Attitudes was measured using a sample of approximately 25 ninth grade students in each school, yet predicted the dropout rate for students throughout the school. A previous study found that Aggressive Attitudes were associated with teacher reports of the prevalence of bullying and teasing, as well as gang-related violence at school, and inversely related to student willingness to seek help from teachers for bullying and threats of violence

(Bandyopadhyay et al., 2009). These new findings suggest that student attitudes toward aggression could be an important factor to consider in efforts to reduce the dropout rate. In schools where students are more likely to endorse aggressive attitudes, such as beliefs that it is acceptable to hit others and that fighting can earn you higher status, there may be a higher rate of student misbehavior that leads to suspension (Bandyopadhyay et al., 2009). However, in the present study, the implications of student aggression go beyond increased suspension rates. One possible explanation is that schools with a climate of bullying and aggression are less conducive to student engagement and may contribute to student decisions to drop out of school. Future studies should give more consideration to the effect of school climate on student dropout rates.

There were similar but not identical findings for the analyses of White and Black dropout rates. Most notably, all of the predictors combined only accounted for 8 percent of the variance in the Black dropout rate, in comparison to 32 percent of the variance for the White dropout rate. Demographic variables made a much stronger contribution to the White dropout rate. The only demographic variable that consistently made a statistically significant independent contribution to the Black dropout rate was the percentage of students eligible for a free or reduced price meal, which suggests that financial limitations and the prevalence of student poverty may play an important role in dropout rates (Balfanz & Legters, 2004; Orfield et al., 2004). In contrast to the finding for White students, student aggressive attitudes and belief in schools rules were not associated with the Black dropout rate. The school suspension rate did predict the Black dropout rate, but contributed only 2% of the variance beyond the demographic variables.

One other notable difference concerns the percentage of racial group representation in the school. For White students, the percentage of White students was negatively associated with the suspension rate in the initial steps of the regression (β = -.37 at step one and -.29 at step two), but was not significant (β = -.09) when suspension rates were added. In contrast, for Black students, the percentage of Black students was not statistically significant at the first step (β = -.14), but increased to a statistically significant level (β = -.30) by the third step when suspension rates were included. Again, it is likely that multicollinearity among the independent variables in the regression model (i.e., the relationship between suspension rate and other independent variables) could have resulted in some instability in the regression coefficients when suspension rate was added to the model. For Black students, there is a higher dropout rate when the proportion of Black

students is low, independently of the suspension rate. It is possible that Black students in schools with small percentages of Black students are likely to feel isolated in their schools, which may develop into less investment in staying in school.

Study Limitations

The study findings are consistent with a causal model in which suspension rates influence dropout rates, but correlational analyses cannot establish causal relations among predictor and outcome measures. A randomized controlled trial that manipulates suspension rates or attempts to influence dropout rates in some other manner is needed. The present study provides support for such efforts and there are school interventions that are intended to reduce suspension rates (Irvin, Tobin, Sprague, Sugai, & Vincent, 2004; Metzler, Biglan, Rusby & Sprague, 2001; Skiba & Sprague, 2008) that could be examined for an additional effect on dropout rates.

This study examined school level variables associated with schoolwide dropout rates, and did not consider individual level variables that influence individual student outcomes. The value of school level analyses is that they can potentially identify school policies or practices that have a general effect on students. However, a more comprehensive study would examine both school level and individual level variables that influence student dropout decisions, perhaps using hierarchical linear modeling to distinguish individual from common school level effects.

This study was limited to public high schools in Virginia. Although it was a strength of the study to use a nearly complete (94%) population of public high schools in Virginia, studies in diverse regions of the country, including private schools and schools functioning under different state standards and requirements are needed. It would be beneficial to replicate these analyses in larger samples of schools with a wider range of dropout rates.

Conclusions

These findings are consistent with the contention that high use of suspension as a disciplinary policy can have a negative effect on school completion. Although a correlational study cannot establish a causal relation, suspensions may increase the dropout rate for both White and Black students. Suspending students from school removes them from the learning environment and makes it harder for them to keep up with their class work. In addition, school removal practices potentially send a message that students are not wanted in the school, thus affecting their perceptions of support from both adults

and peers, and ultimately their investment in school.

Several studies have compared schools with high suspension rates to schools with low suspension rates, and have found that schools with low suspension rates were more likely to use prevention strategies to reduce inappropriate behaviors, include parents in developing a school-wide discipline plan, or place more emphasis on addressing student needs and treating students with respect (Christle et al., 2004; Mukuria, 2002; Raffaele-Mendez, Knoff, & Ferron, 2002).

Prevention efforts and interventions such as social skills training for students, behavior management training for teachers, and functional assessment strategies to determine the reasons behind students' misbehavior have all been shown to reduce the number of office referrals and suspensions in schools from kindergarten through 12th grade (Irvin et al., 2006; Irvin et al., 2004; Safran, 2006). This is especially important because of the high number of suspensions that appear to result from relatively minor infractions (Raffaele-Mendez et al., 2002; Skiba & Sprague, 2008). This study lends support to the idea that high school administrators and teachers can make changes in their policies and practices that improve their school's climate and increase the chances that all students earn their high school diploma.

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