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School Disciplinary Style and Adolescent Health

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Abstract

Purpose—Parenting style is strongly associated with adolescent health. However, little is known about how school disciplinary style relates to health. We categorized adolescents' perceptions of their schools as authoritative, authoritarian, permissive, or neglectful; and test whether perceived school disciplinary style is associated with health.

Methods—We analyze data from the RISE UP study (Reducing Health Inequities Through Social and Educational Change Follow-up), comprised of baseline (8th grade) and 2-year follow-up surveys (10th grade) from 1159 low-income minority adolescents in Los Angeles attending 157 schools. At 10th grade, students' ratings of school support and structure were used to categorize perceived school disciplinary style as Authoritative (highest tertile for support and structure), Authoritarian (low support, high structure), Permissive (high support, low structure), Neglectful (low on both dimensions), and Average (middle tertile on either dimension). Mixed-effects logistic regressions controlling for sociodemographic factors, parenting style, grades, and baseline health tested whether school disciplinary style was associated with substance use, violence, bullying, and depression symptoms.

Results—Risky behaviors varied by school disciplinary style. After adjusting for covariates, compared to an average school disciplinary style, a neglectful school was associated with higher odds of substance use (AOR 2.3, $p<0.001$) and bullying (AOR 1.5, $p=0.02$), a permissive school was associated with higher odds of depression symptoms (AOR 2.1, $p=0.04$), and an authoritative school was associated with lower odds of substance use (AOR 0.6, $p=0.049$), violence (AOR 0.6, $p=0.03$), and bullying (AOR 0.5, $p=0.001$).

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Conclusion—Structured and supportive school environments may impact the health of vulnerable adolescents.

Keywords

School climate; school health; adolescent health; parenting style; disciplinary style; authoritative; substance use; violent delinquency; bullying; depression

Parenting style is thought to have a strong influence on adolescent health.[1,2] Baumrind's landmark theory of parenting contends that the most successful style of discipline involves a healthy balance of two central dimensions: responsiveness and demandingness.[3] Responsiveness (or "support") refers to how well the adult supports the child's individual needs. Demandingness (or "structure") is the consistent enforcement of fair expectations, as well as close supervision of the child's behavior. Baumrind used these two constructs to describe and categorize parenting into four styles of discipline: authoritative (high on both dimensions), authoritarian (demanding but lacking in responsiveness), permissive (responsive but lacking in demandingness), and neglectful (lacking in both dimensions).

Studies suggest that both dimensions of support and structure are protective, and hence the combination of both dimensions in authoritative parenting compared to other parenting styles (lacking in one or both dimensions) is generally associated with the most positive health outcomes.[2,4–10] For example, authoritarian parenting is associated with increased delinquency, relative to authoritarian, permissive, or neglectful parenting styles.[11] Additionally, compared to authoritative parenting, neglectful parenting is associated with more tobacco, alcohol, and illicit drug use,[9,10] but associations with permissive or authoritarian parenting vary depending on timing and type of substance.[9] Such associations with delinquency [12] and substance use [13] hold true for low-income minority adolescents, who are already at increased risk for poor health outcomes. Further, interventions to enhance authoritative parenting and reduce neglectful parenting have shown promise as a strategy for preventing risky health behaviors among low-income Latino and African American youth.[14,15]

School climate and interactions with teachers, coaches, counselors and school administrators are also thought to impact both the opportunity for and social norms around engaging in risky health behaviors. Further, school climate has the potential to impact adolescent mental health.[16] More recently, some school climate measures have incorporated elements of structure and support,[17–19] and suggest that both constructs support positive health outcomes. In particular, previous work has demonstrated that an authoritative school climate is associated with lower odds of risky health behaviors among adolescents.[20] However, few studies explore Baumrind's remaining three discipline styles: authoritarian, permissive, and neglectful. To our knowledge, only two studies have attempted to categorize teachers [21] and schools [22] into Baumrind's four discipline styles, neither of which address risky health behaviors.

Understanding associations of health behaviors across these school disciplinary style categories can elucidate the relative importance of structure versus support. This understanding could inform the development of school policies and interventions that

support adolescent health. Such understanding might be especially important for schools comprised of predominantly low-income minority adolescents, who experience inequities in education and health outcomes, and also for the role that controversial Zero Tolerance school disciplinary policies might play in perpetuating disadvantage.[23,24] In the current study, we apply Baumrind's parenting theory to categorize schools as authoritative, authoritarian, permissive, or neglectful and test whether school disciplinary style is associated with substance use, violent delinquency, bullying involvement, and depression symptoms among low-income minority adolescents.

METHODS

We performed a secondary analysis of the RISE Up study (Reducing Health Inequities Through Social and Educational Change Follow-up study), which is a longitudinal natural experiment designed to assess the impact of high-performing school environments on adolescent health behaviors.[25] For the RISE Up study, baseline and 2-year follow-up surveys were administered to students who participated in admissions lotteries to attend high-performing public charter schools in low-income Los Angeles communities for fall 2013 or fall 2014. Both students who were admitted to charter schools and those who were not admitted were included in the study. As a result, participants were distributed across a variety of charter and public schools. After written informed consent and assent, research assistants conducted 90-minute face-to-face baseline interviews with students between March of eighth grade through November of ninth grade. For sensitive questions such as substance use and other risky behaviors, students responded using an audio-enhanced, computer- assisted self-interview (audio CASI). A follow-up survey was completed when students reached 10th grade, between January 2015 and March 2016. Response rate for the initial baseline survey was 84%. Retention rate from baseline survey to 10th grade survey was 91%, and the final sample for this analysis included 1,159 students from 157 high schools in Los Angeles, who completed both study waves.

Measures

Outcome measures—Our primary outcome measures were selected because of previous associations with school climate,[17,19,26–28] and include substance use, violent delinquency, bullying involvement, and depression symptoms. Measures were asked at both baseline and follow-up survey time points. Depression symptoms were assessed with the 10-item Center for Epidemiologic Studies Depression (CES-D) scale, which is a depression screening tool validated for use in adolescents.[29] Participants scoring 10 or above, which is considered the clinical cutoff for a positive screen, were considered to have symptoms of depression. We also asked participants whether they used alcohol, marijuana, tobacco, and any illegal prescription pills in the last 30 days based on questions from the Youth Risk Behavior Surveillance Survey created by the Centers for Disease Control and Prevention, [30,31] and created a dichotomous measure of any substance use. Additionally, we asked students whether they used alcohol or marijuana just before school or while on school property in the last 30 days and dichotomized their responses as none versus any at-school substance use. To assess bullying, participants were asked whether they were bullied and whether they had bullied someone else in the last 12 months, based on questions from the

Youth Risk Behavior Surveillance 2009 Survey.[30] We dichotomized the measure as any bullying involvement (either as a bully, a victim, or both) versus none. Finally, participants were asked whether they engaged in any fighting, involvement in gangs, and weapon carrying in the last 12 months, based on validated questions from the Youth Risk Behavior Surveillance 2009 Survey.[30,31] A report of any of these behaviors was considered a positive dichotomous measure of 'violent delinquency'. Outcomes were dichotomized based on the distribution of responses, to allow for easier interpretation of our models, and to facilitate comparisons with other studies. Sensitivity analyses were conducted with the original, continuous items, when available, and produced similar results.

School discipline style—Consistent with the two dimensions of Baumrind's theory on parenting style, we used measures of support and structure to construct school disciplinary style categories. We chose to measure students' perceptions rather than objective ratings of disciplinary style because, according to the Social Cognitive Theory, students' individual experiences of their social environment and interactions (i.e. school discipline style) may be more influential on their own reactions and behaviors than objective measures.[32] As such, we also performed additional analyses aggregated at the school level to test whether our results reflect individual variations in subjectively perceived disciplinary style versus an overarching disciplinary style for each school (see Statistical Analysis section for analytic details.) School disciplinary style measures were assessed on the follow-up (10^{th} grade) survey, after participants had substantial exposure to their school environment.

To measure teacher support, we modified the 7 support items from the validated Index of Parenting Style, [33] by replacing 'parents' with 'teachers' for each item. For example, the statement, "When I get a good grade in school, my *parents* praise me" was replaced with, "When I get a good grade in school, my *teachers* praise me". Four response options ranged from "all of the time" to "none of the time". Following examination of scale psychometrics, using exploratory and confirmatory factor analysis, one item was eliminated and the remaining 6 items (Cronbach's alpha of 0.88 in our sample) were averaged such that higher scores corresponded to greater perceived teacher support.

To measure structure, we assessed both clarity of rules and enforcement of rules. Clarity of rules was measured by the clarity of rules subscale from the Delaware School Climate Survey.[34] This is a 4-item scale that includes statements such as "Students know what the rules are". Students were asked to select from 4 response categories how much they agreed or disagreed with each item. Scores were then averaged with higher scores representing greater clarity of rules. Enforcement of rules was measured by asking students how often adults at their school make sure students are following the rules across seven settings: classrooms, hallways or stairwells, during nutrition, lunch, and passing periods, in the bathroom or lockers room, before and after school on school campus, at school-related events (dances, football games, etc.), and when students are around school but not on campus. Four response options ranged from "all of the time" to "none of the time". Scores were averaged such that higher scores correspond to more frequent enforcement of rules. The clarity of rules and enforcement of rules scores were then averaged together to create and overall measure of school structure. The Cronbach's alpha for the combined clarity and enforcement scales, including all 11 items, was 0.85.

In addition to estimating the internal consistency reliability of the structure and support measures, we examined correlations with other measures of the school environment as well as item information and test information curves derived from an item response theory (IRT) graded response model and conducted a cultural consensus analysis (unpublished work by Wong MD et al, under revision for peer-reviewed publication). These measures were validated using exploratory and confirmatory factor analysis and demonstrated adequate goodness-of-fit using 3 metrics: root mean square error of approximation≤0.06, comparative fit index≥0.95, and standardized root mean residual≤0.08. From the teacher support and structure scales, we constructed a measure of school disciplinary style similar to the method previously described for parenting.[33] Specifically, each scale was divided into tertiles. Then 5 mutually exclusive categories of disciplinary style were created as follows: 1) *neglectful* discipline style scored in the lowest tertiles on both support and structure; 2) *permissive* style scored in the highest tertile on support but lowest on structure; 3) *authoritarian* style scored in the lowest tertile on support but highest on structure; and 4) *authoritative* style scored in the highest tertiles on both dimensions; 5) *average* style (the reference group) scored in the middle tertile on either support or structure.

Covariates—We selected covariates for their potential to impact school discipline style and risky health behaviors. Covariates were measured at the time of the baseline (8^{th} grade) survey. These included baseline measures of age, gender, race/ethnicity (Latino vs. non-Latino), parental employment status (having 1 or more parent working full-time), parental level of education (having 1 or more parent who graduated high school), and the student's grade point average (GPA) from eighth grade, which we obtained from the student's official middle school transcripts. We also controlled for parenting style, as measured by the traditional Index of Parenting Style [33] (Cronbach's alpha of 0.88 in our sample).

Statistical Analysis

Chi square tests were performed to test differences in the proportion of students reporting health outcomes and behaviors by school disciplinary style. To test for associations between school discipline style and health, adjusting for covariates, we performed mixed-effects logistic regression analyses on each outcome to account for non-independence of students clustered within high schools. The adjusted model controlled for potential confounders, including age, gender, race/ethnicity, parental education, and parental employment status, parental disciplinary style and grade point average. To account for the for the possibility that families might select for different school environments based on their child's current health and behaviors, we also controlled for participants' baseline health when studying the corresponding outcome (e.g. adjusted for baseline substance use in substance use models, adjusted for baseline bullying involvement in bullying models, etc.). A sensitivity analysis without these variables was also performed to test for model over-specification. Although school type (charter vs. non-charter) was associated with school disciplinary style, a sensitivity analysis including school type in the model did not change the results. Finally, to test whether our results reflect individual variations in perceived disciplinary style rather than an overarching school environment, we tested whether school disciplinary style categories based on aggregating the structure and support measures at the school level were associated with each outcome. For this analysis, we restricted the sample to the 21 schools

with at least 10 students represented, which amounts to 974 participants or 84% of the original sample. Alternative cut-points were also explored yielding similar results.

Missing data was multiply imputed and represented less than 5% for all variables. A sensitivity analysis was conducted, comparing our results against the non-imputed data, and yielded similar results. Data was analyzed using STATA (version 14, StataCorp, College Station, TX). All activities of this study were approved by the RAND and UCLA human subjects Institutional Review Board.

RESULTS

Demographic characteristics are presented in (Table 1), and are representative of low-income neighborhoods in Los Angeles with majority of students identifying as Hispanic (90.2%). While most reported having at least 1 parent who was working full-time (88.0%), just over half the sample had at least 1 parent with a high school degree (54.8%). Most participants perceived that their parents had an average home discipline style (50.0%), but one in five parents were perceived as neglectful, followed by authoritative (11.4%), permissive (9.4%), and authoritarian (8.9%) discipline styles. With respect to school disciplinary style, 22.7% of students perceived their school as authoritative, followed by neglectful (20.0%), permissive (5.0%), and authoritarian (3.3%). By definition, the largest number of adolescents perceived their school as having an Average discipline style (49.0%).

In our study sample based on their 10th grade survey, 15.5% of students reported using substances (alcohol, tobacco, marijuana, or prescription pills to get high) in the last 30 days. Use of alcohol was most common (11.0%), followed closely by marijuana (9.4%). Nearly 17% of students engaged in violent delinquency in the last 12 months, with fighting being most common (12.6%). A substantial portion of students were involved in bullying in the last 12 months (34.5%). Over 20% of students were involved as bullies, 14.5% were involved as victims, and 12.7% were involved both as bullies and as victims (i.e. bully-victims). Finally, over 18% of students reported depression symptoms.

Table 2 shows prevalence of outcomes by school discipline style. Rates for *authoritative* school discipline were consistently lowest. For example, 6.5% of students reporting authoritative school discipline used substances, 8.6% were involved in violent delinquency, 19.4% were involved in bullying, and 10.7% had depression symptoms. Rates for substance use (27.8%) and violent delinquency (23%) were highest among those reporting a neglectful school disciplinary style, while bullying (46.3%) and depression symptoms (31.0%) were most common among those reporting a permissive school disciplinary style.

Table 3 shows results from multilevel mixed-effects logistic regressions modeling outcomes and school discipline style, both unadjusted and adjusted. Unadjusted odds were significantly lower with *authoritative* school discipline across all outcomes, significantly higher with *neglectful* school discipline styles for substance use and bullying, and significantly higher for depression symptoms with *permissive* school disciplinary style. After adjusting for all covariates, including demographic characteristics, parental discipline style, GPA, and baseline health behaviors, *neglectful* school disciplinary style remained

significantly associated with higher odds of substance use (AOR 2.3, P<0.001) and bullying involvement (AOR 1.5, p=0.02), *permissive* school disciplinary style remained significantly associated with increased odds of depression symptoms (AOR 2.1, P=0.04), and *authoritative* school discipline remained significantly associated with lower odds of substance use (AOR 0.6, p=0.049), violent delinquency (AOR 0.5, p=0.03) and bullying involvement (AOR 0.5, P=0.001). Results from analyses of school disciplinary style aggregated by school revealed similar results (Table 4).

DISCUSSION

Our findings suggest that both domains of structure and support are important aspects of a school climate and may have implications across a wide range of health behaviors. This study applies a parenting framework to explicitly categorize school disciplinary style, and is the first to investigate its associations with adolescent health. Previous studies have used continuous scales of structure [26–28] and support [28], either in isolation or to compare authoritative schools to all others.[19,21,35–39] Our findings are consistent with this body of literature which, when taken together, suggest that both structure and support may promote adolescent health and that it is the combination of these two factors that appears most protective.

Unfortunately, we also note that, among this low-income, minority population, one in five adolescents perceived their school as neglectful, lacking in both structure and support. This level of perceived exposure to a neglectful school disciplinary style is troubling, given that this population is already at increased risk for poor academic and health outcomes. Such risks might be compounded by exposure to a harmful school environment, as is suggested by the finding that a neglectful school disciplinary style was associated with higher rates of negative health outcomes. Our findings echo longstanding associations in the parenting literature regarding neglectful parenting; neglectful parenting has been associated with higher rates of substance use [9,10] as well as violent delinquency among adolescents.[5] Additional studies are needed to determine whether low-income minority students experience disparities in school disciplinary style but we propose that there is sufficient evidence to actively discourage neglectful school discipline styles in educational policies and during teacher professional development, particularly in schools with predominantly low-income minority students.

Our study suggests school disciplinary style is associated with health even after accounting for important individual and family factors. Hence considering school environments through a parenting lens might reveal opportunities for public health interventions. Historically, many schools adopted the philosophy that structure and support are mutually exclusive (dichotomizing between extreme authoritarian and permissive disciplinary styles). As a result, some schools chose an authoritarian approach, adopting a zero tolerance philosophy. These zero tolerance philosophies emphasize strict obedience, with harsh and inflexible punishments for those who do not obey. Such an approach has recently come into question, given concerns that it might perpetuate disadvantage, creating a “school-to-prison pipeline.” [23] Our findings further support the move away from authoritarian practices. Instead, interventions that produce a more authoritative school culture, such as the adoption of

restorative justice techniques, might make meaningful contributions to adolescent health. [24] Studying the health impact of such school disciplinary interventions can yield important information for adolescent health advocates and policy-makers, identifying pathways to reduce disparities in both education and health.

Associations with health were similar for individually perceived school disciplinary style and a measure of school disciplinary style aggregated at the school level. This suggests that individual perceptions of disciplinary style may, indeed, represent a characteristic of the larger school environment. However, given the potential for student experiences of discipline at school to vary based on individual behaviors, characteristics (such as race and gender), academic performance, and home disciplinary style, further studies are needed to determine whether objective measures of school disciplinary style are consistent with student perceptions and also associated with adolescent health. Additionally, future studies might test whether associations between school disciplinary style and health vary by home parenting style.

For this study we adapted a validated measure of parenting style to evaluate *school* disciplinary style. While additional studies are needed to validate this measure in schools, we believe the use of a parenting lens to examine school disciplinary culture can yield new insights into how schools might promote adolescent health. We are aware of one alternative survey instrument that evaluates school discipline style through the lens of parenting: The Authoritative School Climate Survey.[20,21,35,36,38,39] However, this survey instrument almost exclusively studies the Authoritative category using continuous scales of support and structure. Explicitly comparing authoritative, authoritarian, permissive, and neglectful discipline styles might add more nuanced information regarding how different combinations of structure and support impact health. Such information may be critical to understanding the potential public health implications of school disciplinary policies.

This study is limited by that fact that school disciplinary style measures are self-reported and from a single point in time. Specifically, measures of perceived school disciplinary style may not accurately reflect objective school culture or may vary by outcomes. However, previous studies on parenting suggest that adolescent perceptions of disciplinary style may be most relevant to their behaviors [4] and we found that individual and school-level perceptions of school disciplinary style were similarly associated with adolescent health. Our study design makes it impossible to determine whether school disciplinary style is causally related to health. While we control for baseline health behaviors in our analyses, we cannot eliminate the possibility of reverse causality. We also cannot eliminate the possibility that our findings may be due to individual school interventions rather than school discipline style; while receiving sexual education and substance use prevention education was not associated with school disciplinary style, it is possible that schools exhibiting authoritative school discipline styles also implemented other intervention programs to prevent risky health behaviors among their students. Further, although the multiple primary outcomes in our analysis raise the possibility that significant findings may be due to chance, the strength and consistency of our findings along with the fact that these outcomes are likely to be highly correlated [40] make it unlikely that these results reflect a type 1 error. However, the relatively small sample of students reporting authoritarian (n=38) and permissive styles in school (n=58) limited our

power to detect potentially meaningful associations with these less extreme disciplinary styles. Finally, given that all participants applied to a high-performing charter school serving low-income, minority communities from a single urban center, our findings may not generalize to other populations. However, understanding associations between school disciplinary style and health among this group is critical to identifying potential targets to reduce education and health disparities.

Despite these limitations, our findings have important implications for parents, adolescent health providers, and policy advocates. Teachers, school administrators and policy makers might consider what practices and structures support an authoritative disciplinary style; while discouraging practices and policies that support the less desirable neglectful disciplinary style, particularly in schools comprised predominantly of disadvantaged urban minority youth. Practical applications of these implications might involve adapting well-established authoritative parenting interventions, previously validated among low-income minority households, to the public school setting. Such well-established parenting interventions might, for example, inform the professional development of teachers and creation of school policies that promote positive learning environments. Additionally, parents and adolescents might consider disciplinary style when selecting a school. Further, adolescent health providers might explore their patients' perceptions of their school disciplinary environment and encourage connections to structured and supportive programs on campus. Finally, adolescent health advocates might strengthen their relationships with education policy makers and actively support policies that improve access to authoritative school environments.

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Abbreviations

RISE UP study	Reducing Health Inequities Through Social and Educational Change Follow-up
AOR	adjusted odds ratio
OR	odds ratio
CES-D	Center for Epidemiologic Studies Depression
GPA	grade point average

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IMPLICATIONS AND CONTRIBUTION

This study applies a parenting framework to explicitly categorize school disciplinary style as authoritative, authoritarian, permissive, or neglectful and to investigate its associations with adolescent health. These findings suggest schools that are both structured and supportive may positively impact adolescent health.

Table 1

Demographics of Study Sample (n=1159).

	Frequency, % (n)
Age, mean years (SD)	15.8 (0.5)
Gender, male	46.9 (544)
Race/ethnicity	
White, non-Hispanic	2.0 (23)
African American, non-Hispanic	4.8 (55)
Hispanic	90.2 (1045)
Other/mixed race	3.1 (36)
GPA, mean (SD)	2.9 (0.7)
Parental variables	
Education, ≥1 high school graduate	54.8 (603)
Employment: ≥1 working full time	88.0 (1017)
Parental discipline style	
Neglectful	20.4 (236)
Permissive	9.4 (109)
Authoritarian	8.9 (103)
Authoritative	11.4 (132)
Average	50.0 (579)
School discipline style	
Neglectful	20.0 (232)
Permissive	5.0 (58)
Authoritarian	3.3 (38)
Authoritative	22.7 (263)
Average	49.0 (568)
Substance use in last 30 days	15.5 (176)
At school use	5.6 (64)
Alcohol	11.0 (125)
Marijuana	9.4 (108)
Tobacco	1.9 (22)
Illegal prescription pills	1.8 (21)
Violent delinquency in last 12 months	16.9 (188)
Fighting	12.6 (143)
Gang involvement	4.0 (45)
Weapon carrying	3.9 (44)
Bullying involvement in last 12 months	34.5 (401)
Bully	20.6 (236)
Victim	14.5 (165)
Bully-victim	12.7 (147)
Depression symptoms	18.2 (210)

Table 2

Prevalence of risky health behaviors stratified by school discipline style.

Outcome	Frequency					*P*
	Neglectful (n=232)	Permissive (n=58)	Authoritarian (n=38)	Authoritative (n=263)	Average (n=568)	
Any substance use	**27.8**	**8.6**	**22.2**	**6.5**	**15.0**	**<.001**
Alcohol use	**19.0**	**8.6**	**15.8**	**5.4**	**10.2**	**<.001**
Marijuana use	**19.7**	**5.2**	**7.9**	**3.4**	**8.5**	**<.001**
Tobacco use	**5.2**	**0.0**	**2.8**	**1.2**	**1.1**	**.002**
Prescription pill use	**4.8**	**1.7**	**2.6**	**0.0**	**1.4**	**.002**
At school use	**11.3**	**5.2**	**5.3**	**3.4**	**4.3**	**.001**
Any violent delinquency	**23.0**	**16.7**	**21.6**	**8.6**	**18.0**	**.001**
Fighting	**17.3**	**14.0**	**16.2**	**6.9**	**13.0**	**.012**
Gang involvement	**7.8**	**5.6**	**2.7**	**1.5**	**3.6**	**.012**
Weapon carrying	**5.4**	**5.3**	**2.6**	**0.8**	**4.6**	**.049**
Any bullying involvement	**45.5**	**46.3**	**43.2**	**19.4**	**34.9**	**<.001**
Bully	**26.5**	**28.1**	**31.6**	**8.8**	**22.2**	**<.001**
Victim	19.7	19.3	13.2	10.8	13.7	.054
Bully-victim	**15.0**	**14.3**	**23.7**	**6.6**	**14.3**	**.005**
Depression symptoms	**23.3**	**31.0**	**23.7**	**10.7**	**17.8**	**<.001**

Bolded values indicate P<.05, as determined from Chi Square Analyses

Table 3

Unadjusted and Adjusted[a] odds of Academic and Health Outcomes by school discipline style.

Outcomes	Neglectful		Permissive		Authoritarian		Authoritative	
	OR	AOR	OR	AOR	OR	AOR	OR	AOR
Substance Use	**2.2 (1.5–3.2)**	**2.3 (1.5–3.5)**	0.5 (0.2–1.4)	0.6 (0.2–1.8)	1.5 (0.7–3.5)	1.4 (0.6–3.6)	**0.4 (0.2–0.7)**	**0.6 (0.3–1.0)**
Violence	1.3 (0.9–2.0)	1.5 (0.9–2.2)	0.8 (0.4–1.8)	1.2 (0.5–2.8)	1.2 (0.5–2.8)	1.2 (0.5–3.1)	**0.4 (0.3–0.7)**	**0.5 (0.3–0.9)**
Bullying	**1.6 (1.1–2.1)**	**1.5 (1.1–2.1)**	1.7 (1.0–3.0)	1.7 (0.9–3.1)	1.4 (0.7–2.7)	1.1 (0.5–2.3)	**0.4 (0.3–0.6)**	**0.5 (0.3–0.7)**
Depression symptoms	1.4 (1.0–2.1)	1.3 (0.9–1.9)	**2.0 (1.1–3.6)**	**2.1 (1.0–4.0)**	1.4 (0.7–3.2)	1.3 (0.6–3.0)	**0.6 (0.4–0.9)**	0.6 (0.4–1.0)

Bolded values indicate P<.05.

[a]Adjusted models control for age, gender, ethnicity, parental education, parental employment status, parental discipline style, GPA, and baseline outcomes (e.g. adjusted for baseline substance use in model of substance use, adjusted for baseline bullying involvement in model of bullying involvement, etc.).

Table 4

Unadjusted and Adjusted[a] odds of Academic and Health Outcomes by school discipline style, aggregated at the school level[b].

	Neglectful		Permissive		Authoritarian		Authoritative	
Outcomes	**OR**	**AOR**	**OR**	**AOR**	**OR**	**AOR**	**OR**	**AOR**
Substance Use	**2.5 (1.6–3.8)**	**2.4 (1.5–3.9)**	0.8 (0.3–2.1)	0.9 (0.3–2.6)	1.6 (0.7–4.0)	1.6 (0.6–4.2)	**0.4 (0.2–0.8)**	0.6 (0.3–1.1)
Violence	1.0 (0.6–1.7)	1.1 (0.6–1.9)	0.8 (0.3–2.0)	1.2 (0.4–3.2)	1.1 (0.4–2.7)	1.1 (0.4–3.1)	**0.5 (0.3–0.8)**	0.6 (0.3–1.0)
Bullying	**1.6 (1.1–2.4)**	**1.5 (1.0–2.3)**	1.5 (0.8–2.9)	1.3 (0.6–2.8)	1.9 (0.9–3.8)	1.4 (0.6–3.2)	**0.4 (0.3–0.7)**	**0.5 (0.3–0.8)**
Depression symptoms	1.4 (0.9–2.2)	1.2 (0.8–2.0)	1.4 (0.6–3.1)	1.1 (0.5–2.6)	1.4 (0.6–3.3)	1.0 (0.4–2.7)	**0.5 (0.3–0.8)**	**0.5 (0.3–0.9)**

Bolded values indicate P<.05.

[a]Adjusted models control for age, gender, ethnicity, parental education, parental employment status, parental discipline style, GPA, and baseline outcomes (e.g. adjusted for baseline substance use in model of substance use, adjusted for baseline bullying involvement in model of bullying involvement, etc.).

[b]Only participants from schools with at least 10 students in the sample are included (N=862 across 21 schools).