

The Role of Social-Emotional and Social Network Factors in the Relationship Between Academic Achievement and Risky Behaviors



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Received for publication August 26, 2016; accepted April 2, 2017.

ABSTRACT

BACKGROUND: We examined whether standardized test scores and grades are related to risky behaviors among low-income minority adolescents and whether social networks and social-emotional factors explained those relationships.

METHODS: We analyzed data from 929 high school students exposed by natural experiment to high- or low-performing academic environments in Los Angeles. We collected information on grade point average (GPA), substance use, sexual behaviors, participation in fights, and carrying a weapon from face-to-face interviews and obtained California math and English standardized test results. Logistic regression and mediation analyses were used to examine the relationship between achievement and risky behaviors.

RESULTS: Better GPA and California standardized test scores were strongly associated with lower rates of substance use, high-risk sexual behaviors, and fighting. The unadjusted relative odds of monthly binge drinking was 0.72 (95% confidence interval, 0.56–0.93) for 1 SD increase in standardized test scores and 0.46 (95% confidence interval, 0.29–0.74) for GPA

of B– or higher compared with C+ or lower. Most associations disappeared after controlling for social-emotional and social network factors. Averaged across the risky behaviors, mediation analysis revealed social-emotional factors accounted for 33% of the relationship between test scores and risky behaviors and 43% of the relationship between GPA with risky behaviors. Social network characteristics accounted for 31% and 38% of the relationship between behaviors with test scores and GPA, respectively. Demographic factors, parenting, and school characteristics were less important explanatory factors.

CONCLUSIONS: Social-emotional factors and social network characteristics were the strongest explanatory factors of the achievement-risky behavior relationship and might be important to understanding the relationship between academic achievement and risky behaviors.

KEYWORDS: adolescent health; educational status; sexual activity; substance abuse; violence

ACADEMIC PEDIATRICS 2017;17:633–641

WHAT'S NEW

Social-emotional skills and social networks are the most important explanatory factors of the association between academic achievement and risky behaviors.

THE STRONG LINK between education and health suggests that improving educational outcomes might be an effective way to address the social determinants of health and reduce health disparities.^{1,2} More recent federal legislation to improve public education, including No Child Left Behind (NCLB) and Every Student Succeeds Act (ESSA), have primarily focused on standardized tests and other accountability metrics, such as school-level rates of graduation, suspension, and drop-out, to foster improvements in academic achievement. However, critics of NCLB and ESSA have suggested that the focus on “teaching to the test” has sacrificed a more holistic approach to child education and

development. In particular, previous research indicates social-emotional skills (also known as noncognitive factors), are important predictors of longer-term academic success and success in other facets of life.^{1,3–6} For example, Heckman and colleagues reported cognitive as well as noncognitive measures predicted college graduation, future wages, substance use, and incarceration.³ A number of studies link risky behaviors with a variety of specific social-emotional factors including hopelessness,⁷ poor school engagement,^{8,9} low self-efficacy,¹⁰ and depression.^{11,12} Schools might also influence adolescent behaviors by exposing students to less or more “risky” networks. Extensive research on social networks indicate that peers and others in the network have a potent effect on risky behaviors.^{13–16}

The underlying mechanisms linking achievement and risky behaviors is not well understood. One possibility is that this association is because of confounding. Previous studies that linked higher academic achievement with lower

rates of risky behaviors did not control for a comprehensive set of factors such as parenting, social network characteristics, and social-emotional traits, all of which are known predictors of academic achievement as well as health behaviors.¹⁷ Specifically, parenting, social networks, and social-emotional skills influence academic achievement and health behaviors,^{4,11,12,15,16,18–23} and might therefore link education and health behaviors not by cause and effect but by circumstance. Alternatively, these factors might be mediators that causally link academic achievement with health behaviors. For example, poor achievement might lead a student to connect with other lower-achieving peers who are more likely to engage in and promote delinquent behaviors. Poor achievement could also lead to depression and hopelessness, which might then lead to higher rates of alcohol use and binge drinking. Finally, the reverse causal pathway might exist such that risky behavior leads to poor academic performance. For example, substance use and other risky behaviors could lead to more depression and hopelessness, and disengagement from school, which could lead to lower achievement.

In the present study, we sought to examine whether adolescent health and risky behaviors are linked to academic achievement, measured using the California standardized test (CST) in math and English and grade point average (GPA). We also estimated the extent to which parenting, social network characteristics, and social-emotional factors such as depression, self-efficacy, and hopelessness might be cofounders or potential explanatory factors in the relationship between achievement and risky behaviors. We analyzed survey and standardized test data from a sample of adolescents from low-income neighborhoods in Los Angeles to examine the relationship of academic performance, social networks, social-emotional health, and other contextual factors with a variety of risky behaviors, including substance use, risky sexual activity, and violence-related behaviors.

METHODS

STUDY DESIGN AND SAMPLE

We analyzed data from the Reducing Health Inequities through Social and Educational Change (RISE) study, a natural experimental study of students who had applied to 1 or more high-performing public charter high schools in low-income neighborhoods in Los Angeles.²⁴ We first identified 7 potential charter schools for the study that were in the top tertile of all California public high schools on the basis of the California 2009 Growth Academic Performance Index (API).^{25,26} Of these schools, 3 had enough applicants to hold a random admissions lottery, and were selected for the study. Potential subjects for the RISE study was comprised of those who applied for ninth grade admission to 1 or more of these schools between 2007 and 2010. We randomly selected potential subjects from the applicant lists, stratified according to whether they were offered admission to the school. We excluded siblings who were automatically admitted outside the random lottery, those who moved out of area, and those

who attended ninth grade in a private school or another high-performing charter school that was not in our study. We asked subjects to participate in a survey to understand how school environments might influence adolescent attitudes and health behaviors. Of the 1234 eligible subjects, 75% ($n = 929$) agreed to participate, completed the survey, and were included in this analysis. This sample attended 62 different high schools throughout Los Angeles.

After obtaining consent from parents as well as students, a research assistant conducted a 60- to 90-minute face-to-face interview with each student between fall 2010 and spring 2011. We collected information on demographic characteristics, self-reported GPA, and school engagement, substance use, sexual behaviors, engagement in fighting, and carrying a weapon. The more sensitive questions about substance use and sexual behaviors were asked using an audio-enhanced computer-assisted self-interview, which allows the subject to answer the questions without an interviewer. Subjects received a \$40 gift card for participating.

MEASURES

From the surveys, we collected demographic information including student's age, race/ethnicity, sex, and native language, and students also reported about their parental demographic characteristics including employment status and education level. We asked students about their parents' level of involvement (Cronbach $\alpha = .68$) and strictness ($\alpha = .62$). These 2 scales are used to categorize parenting style as neglectful (low involvement and strictness), indulgent (high involvement and low strictness), authoritarian (low involvement and high strictness), and authoritative (high involvement and strictness).²⁷ We measured several social-emotional factors including school engagement using the High School Survey of School Engagement ($\alpha = .87$),²⁸ depression using the Center for Epidemiologic Studies Depression Scale (CES-D 20) scale ($\alpha = .86$),^{29,30} general self-efficacy ($\alpha = .89$),³¹ and hopelessness ($\alpha = .88$).³²

To assess academic performance, we asked participants, "What was your GPA during the past school year?" Subjects were given 6 response options (≥ 3.5 , 3.0–3.4, 2.5–2.9, 2.0–2.4, < 2.0 , or no grade). With parental consent, we obtained from the California Department of Education student-level math and English CST scores for each study participant from grade 8 through their most recent available scores.³³ CST is taken annually in the spring from grade 2 to 11 and assesses student proficiency in content standards in areas of math and English as well as other areas including sciences and history.³³

We conducted a personal social network assessment in which subjects were asked to name 20 persons who are "most important" to them. For each person, we asked about their relationship with the person (eg, relative, friend, romantic partner, neighbor, coworker, teacher, coach), their relative age (much older, around the same age, much younger), and whether the person used alcohol or illicit drugs. For peers in the network (those who were identified as a friend around the same age), we assessed their school engagement by asking subjects to report whether the peer "tries hard in school," "thinks that it is important

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