Health Risks, Resilience, and the Academic Performance Index[1]

Ensuring that students are safe, drug-free, healthy, and resilient is central to improving academic performance. Many adolescents are coming to school with a variety of health-related problems that make successful learning difficult, if not impossible. Moreover, research is increasingly demonstrating that promoting assets and resilience among students is associated with both improvement in academic achievement and reductions in health risk.

An analysis of data from the *California Healthy Kids Survey* (CHKS) indicates a significant relationship across secondary schools between *Academic Performance Index* (API) scores and three-quarters of the health-related indicators examined. The analysis covered substance use, violence, nutrition, exercise, and environmental assets. This factsheet summarizes the results for four key variables: eating breakfast on the day of the survey; using alcohol, tobacco, or marijuana at school; school safety; and external assets (resilience). Despite limitations in the data, the results across this range of indicators suggest that schools where students are low in health risk factors and high in protective factors have higher levels of academic achievement than other schools.

In the attached figures, results are illustrated graphically by dividing the schools into quintiles according to API scores (each bar represents 20% of the schools, ordered from lowest performing to highest). All of the results presented were statistically significant after controlling for school demographic differences.

- **Breakfast**. High performing schools had larger percentages of students who ate breakfast on the day of the survey than low performing schools. (Figure 1)
- **Alcohol, Tobacco, and Marijuana Use at School**. The percentages of students reporting using alcohol, tobacco, and marijuana on school premises in the past 30 days were lower in high performing schools. (Figure 2)
- **School Safety**. Perceived safety at school exhibited a very strong, positive, step-wise relationship with API scores. (Figure 3)
- **Resilience/Assets**. API scores were positively related to the percentage of students who perceived high levels of assets at school. Assets were measured by the perception of having three protective factors in the school environment: caring relationships, high expectations, and opportunities for meaningful participation. The presence of these three environmental assets have consistently been related to low levels of involvement in risk behaviors, high levels of academic achievement, and positive youth development. (Figure 4)

These relationships did not hold for all of the health-risk indicators that we examined. For example, schools with higher percentages of students who reported fighting at school did not have lower API scores than other schools. Overall, however, three quarters of the health risks that we examined were related to API scores in expected ways, and the results hold after taking socioeconomic differences across schools into account.

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How the Analyses Were Performed

The analysis drew on the aggregated database of all CHKS surveys for grades 7, 9 and 11 completed by public schools from Spring 1998 through Fall of 2001. The CHKS is a voluntary, confidential, modular health risk and resilience data collection system supported by the California Department of Education and available to all California schools. Data for 22 health risk behaviors were available from the required general Core Module from 1,694 schools in 548 districts (506,496 students). Data were also available for 12 resilience assets from the supplementary Resilience and Youth Development Module from 636 schools in 67 districts (104,554 students).[1]

The 1999-2001 Academic Performance Index is a school-level, summary measure for California schools based on the national percentile ranking of student scores on the *Stanford 9 Achievement Test*.

To examine the relationship between the school API and health risk and resilience, WestEd used regression models to control for the racial/ethnic, socioeconomic, and grade composition of the school, using data from the API research files.[2] These controls allow us to examine the relationship between health measures and API scores in schools, independent of any effects that sociodemographic variables may have on academic performance.

Data Limitations

- The results are correlational – they do not tell us *why* school test scores and health risk/resilience are related. For example, academic performance and health risk may not be distinct – each may represent just one aspect of a more generalized concept of well-being.
- The analysis is based on school-level information, describing how school characteristics are related to each other. Further research is needed to determine how the characteristics of individual students are related to individual academic test scores.
- This was an analysis of data from the secondary schools that chose to conduct the CHKS. The data are not necessarily representative of all California students. This is especially a limitation of the resilience data, which was derived from only 636 schools. These results need to be confirmed analyzing a wider range of measures and a larger number of schools.
- CHKS schools were often not successful in obtaining high response rates from students, reducing the representativeness of the CHKS data at the school level and perhaps reducing the accuracy of the school-level health risk measures.

Conclusion

Despite these limitations, the results suggest that API scores are related to many aspects of student health risk and resiliency in expected ways, that they are complimentary, and that health risks and low assets can be significant barriers to achievement. It is likely that academic improvement efforts will be more successful when schools strive to promote the health and wellbeing of their students.

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[1] Starting in the 2003-04 school year, CDE is requiring that all districts with Title IV funding administer the general core and the resilience module every two years; other modules will be optional.

[2] Socioeconomic status was measured by parental education and the percentage of students receiving free/reduced meals. We also controlled for the percentage of students who were classified as English Language Learners.

Figure 1. *Daily Breakfast by API Quintile*
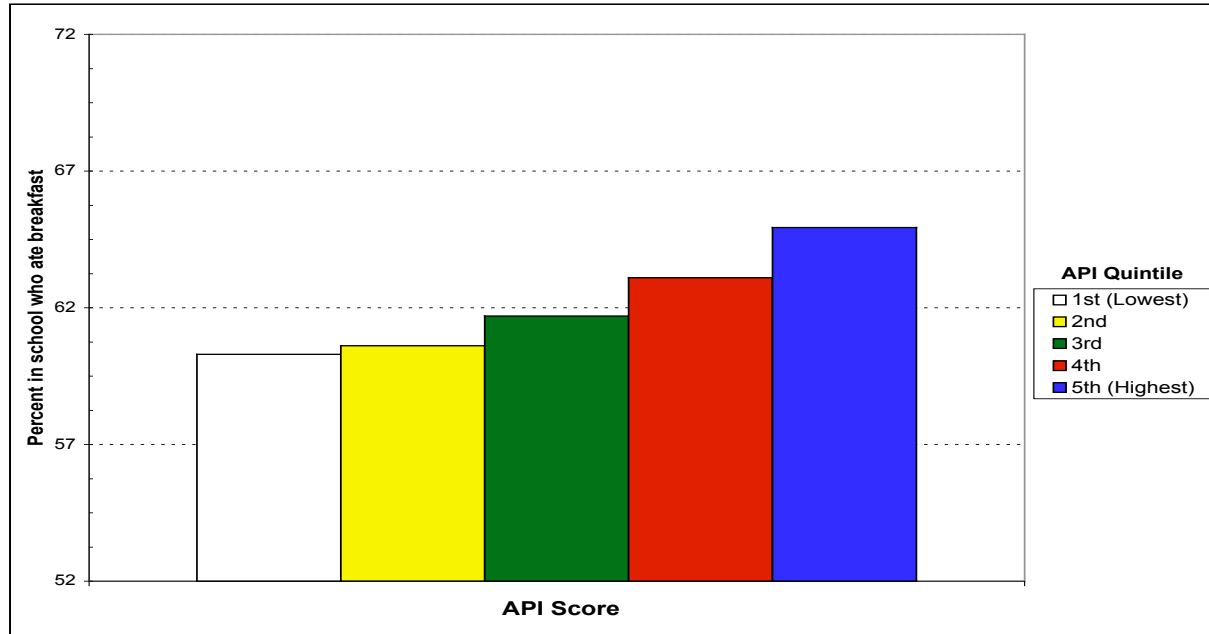
Source: Calculations based on the California Department of Education's Healthy Kids Survey and API database (1999-2001). Breakfast is measured by the percentage of students who reported eating breakfast on the day of the survey. Analytic sample consists of 1,395 schools.
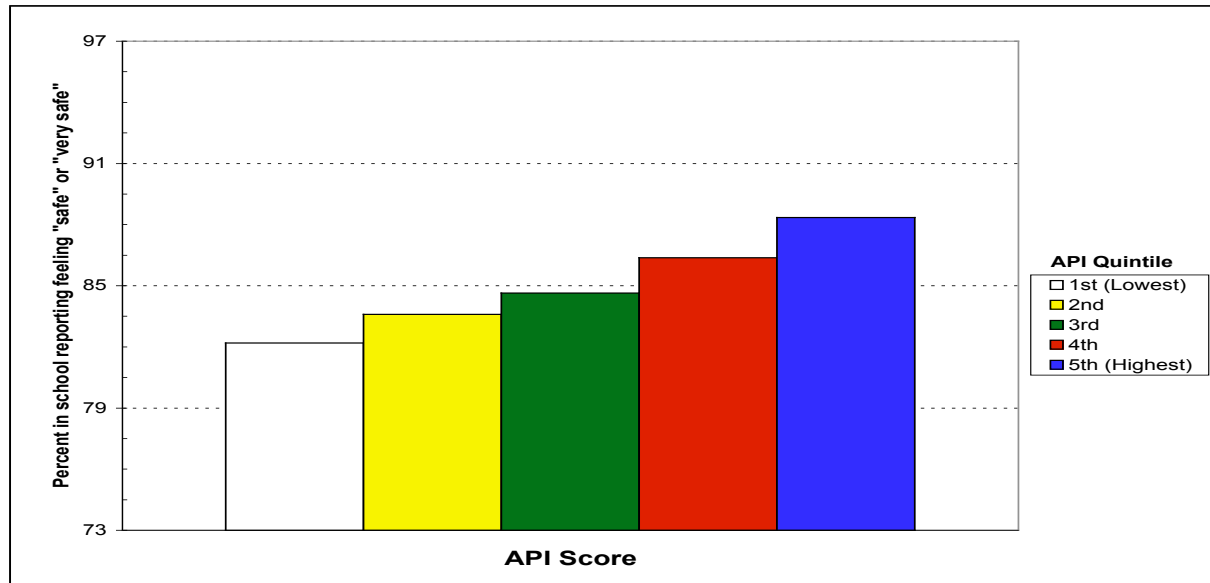
Figure 2. *30-day Substance Use at School by API Quintile*
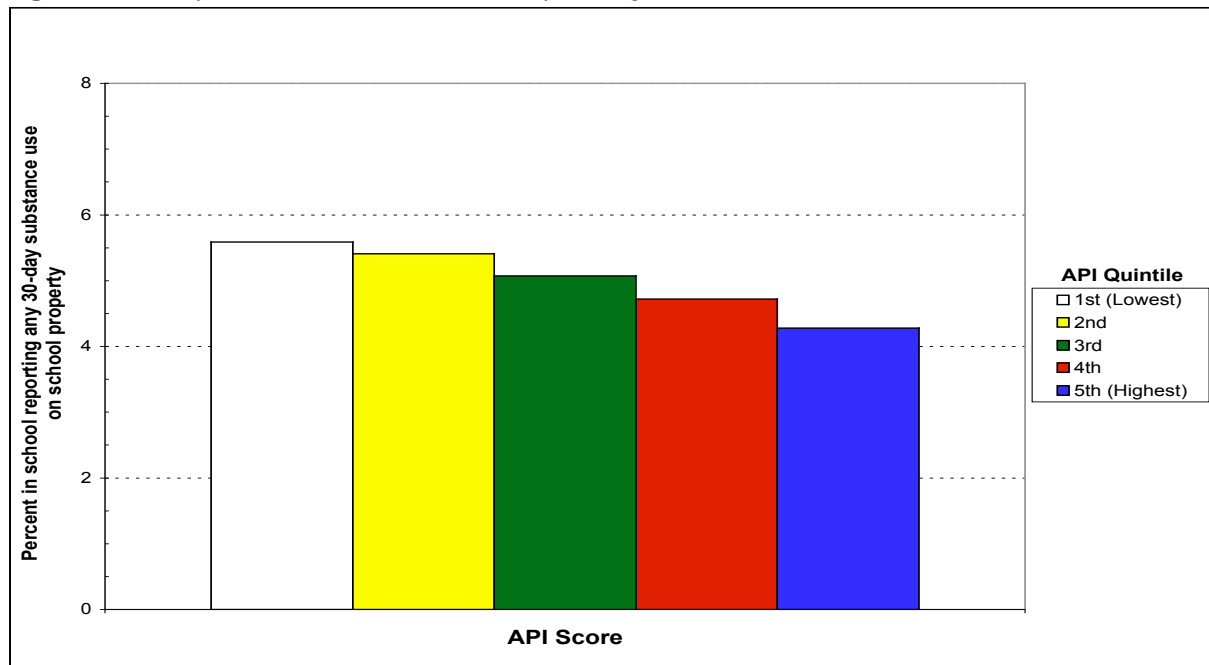
Source: Calculations based on the California Department of Education's Healthy Kids Survey and API database (1999-2001). Thirty-day substance use at school is measured by the average percentage of students who reported that they smoked cigarettes, drank alcohol, and smoked marijuana on school property during the 30 days prior to the survey. Analytic sample consists of 1,691 schools.

Note on Figures: Figures are of school level data and are based on a model that controls for the race/ethnic composition of the school, average parental education, percent of students receiving subsidized meals, percent of ELL students, and school grade configuration. They are scaled to illustrate how strongly health risk behavior is related to school API scores and to facilitate comparison across different measures. The vertical area between each gridline in the figure (each horizontal dotted line) represents one standard deviation. A difference in bar heights of a standard deviation is a "large" difference in terms of effect size.

Figure 3. *Perceived Safety at School by API Quintile*

Source: Calculations based on the California Department of Education's Healthy Kids Survey and API database (1999-2001). School safety is measured by the percentage of students who report feeling "safe" or "very safe" at school. Analytic sample consists of 1,690 schools.

Figure 4. *Total School External Assets by API Quintile*
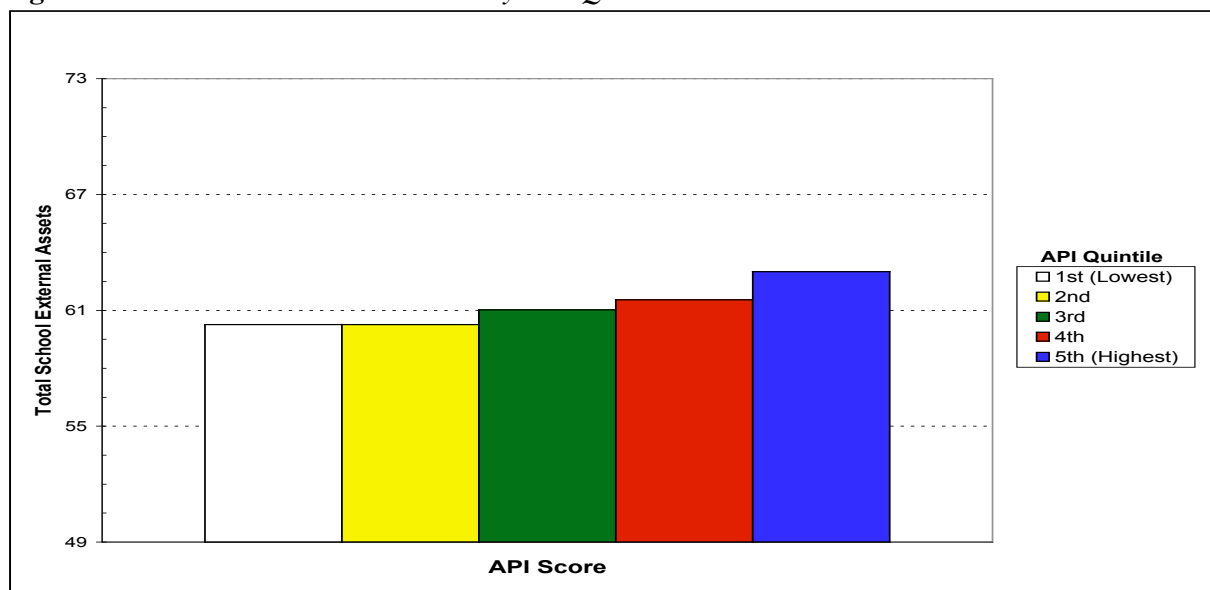
Source: Calculations based on the California Department of Education's Healthy Kids Survey and API database (1999-2001). The school external assets measure is a scale based on 12 items that assess caring relationships, high expectations, and meaningful participation in the school environment. The percentage of students with "high" scores on this scale is used to measure total external assets among students at the school. Students were classified as exhibiting "high" levels of assets if, on average, they indicated that it was "pretty much true" or "very much true" that an asset applied to them. Analytic sample consists of 586 schools.

Note on Figures: Figures are of school level data and are based on a model that controls for the race/ethnic composition of the school, average parental education, percent of students receiving subsidized meals, percent of ELL students, and school grade configuration. They are scaled to illustrate how strongly health risk behavior is related to school API scores and to facilitate comparison across different measures. The vertical area between each gridline in the figure (each horizontal dotted line) represents one standard deviation. A difference in bar heights of a standard deviation is a "large" difference in terms of effect size.