



An Investigating the Connection between Health and Academic Success in Elementary School Students

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Abstract

Background: Supporting children's long-term health and well-being necessitates establishing healthy eating and physical activity habits early. The purpose of this paper was to investigate the connection between elementary school students' academic performance and health-related behaviours in a school board in Nova Scotia, Canada.

Methods: In our population-based study, students in grades 4–6 from 18 rural schools were included. Diet and active work were surveyed through approved instruments. Measures of students' academic performance in English Language Arts (ELA) and Mathematics were obtained from the school board. Multilevel logistic regression was used to look at how health behavior and academic performance were related to one another.

Results: Compared to students with healthy lifestyle behavior, students with unhealthy lifestyle behavior were more likely to have poor academic performance in both ELA and Mathematics. LA consumption, physical activity, and associations with diet quality were all statistically significant; and skipping breakfast, not exercising during morning recess, and not exercising after school for mathematics. Diet and physical activity had no effect on one another, and the two exposures had no effect on each other.

Conclusions: According to our findings, encouraging students to engage in healthy behaviours may contribute to better academic performance.

Keywords: Child, Academic performance, Diet, Physical activity

INTRODUCTION

Supporting children's long-term health and well-being requires early adoption of healthy eating (HE) and physical activity (PA) habits. Schools are widely acknowledged as an essential setting for the development and implementation of policies that encourage children to adopt healthier lifestyle habits. Although the mechanisms behind the connections between education and health are well-established, they are still poorly understood. It is essential to have a better understanding of how an emphasis on HE and PA can assist in supporting these academic priorities of student achievement in light of the growing demands

placed on schools to support students' health while also improving their academic performance. In order to justify continued and future investment, further research on the associations between health behavior and academic performance will also help to clarify how current population health interventions in schools (such as HE and PA policies and programs) influence learning outcomes. A healthy diet has been shown to have a number of positive effects on children's and young people's health, particularly in terms of brain structure and functional development. A diet deficient in important micronutrients that support brain and body function (nutrient deficiency) or in total food (nutrient insufficiency) may have an impact on a child's

nutritional status, thereby affecting academic performance. For instance, students who did not have enough food to eat have been shown to have significantly lower standardized mathematics scores.

DISCUSSION

A population-based survey of students in grades 4–6 (roughly 9–12 years old) and their parents in a rural Nova Scotia, Canada, and school board served as the basis for the current analysis. In the spring of 2014, surveys with students, parents, school leaders, and teachers, as well as an audit of the school environment, were used to collect data on the diet, PA, well-being, and culture of the school (Alireza Sarkaki et al., 2007). This school board invited all schools with students in grades 4 through 6. In order to obtain parental consent, consent forms and a survey were sent home with each student. 670 students were given parental consent and all 18 eligible schools agreed to participate, resulting in an average response rate of 46% (Nachmansohan and Neumann, 1975).

Theoretically, universal healthy breakfast programs and the implementation of nutrition policies can support children's nutritional status by reducing nutritional deficiency or food insufficiency, which may improve academic performance. Additionally, there is evidence to support a connection between improved cognitive health and function and increased energy expenditure through participation in PA (Nachmansohan 1975). Acute physical activity generally has a positive impact on cognition, which has been linked to academic performance (Roman et al., 1993). It also affects attitudes and academic behavior, including improved concentration, attention, and classroom behavior. Studies have demonstrated that moderate-to-vigorous PA has a positive long-term effect and that the ideal amount of PA may not require too much time, which could lead to lower academic achievement. Aerobic exercise appears to have the greatest impact on children's cognitive outcomes, according to research measuring physical fitness. Other studies have also demonstrated a link between physical fitness and school performance. Physical education, extracurricular activities, interscholastic sports, and recess are examples of school-based PA strategies that have been shown to improve cognitive outcomes. The synergistic nature of the relationships between, PA, and academic performance necessitates better description, despite the abundance of literature describing these connections. Different studies' effects have been found in reviews of the literature, which could be due to different measures or behavioural measurements. For instance, there is ample evidence to support the importance of eating breakfast, whereas there is insufficient data to support the influence of eating fruit and vegetables or other HE indices on overall diet quality. For PA, there is evidence to suggest that the amount or intensity of activity may be a significant factor, which should be taken into consideration independently of the potential effects of aerobic fitness (Neumann, 1975).

The combined effect of health behavior on academic performance has been the subject of very little research. Martinez-Gómez and others (2012) found that girls with 3–4 healthy behaviors had significantly higher odds of passing grades in literature/language and mathematics than girls with 0–1 health behaviors (Alireza Sarkaki et al., 2007). This study looked at the independent and combined influence of meeting recommendations for four health behaviors among Spanish adolescents: PA, TV viewing, sleep, and fruit intake. The relationships between health behaviors, body mass index (BMI), self-esteem, and academic performance were examined in a population-level study of Icelandic adolescents. BMI, diet, and PA were found to account for up to 24% of the variation in academic achievement in this study, which also found positive associations between academic performance and lower BMI, PA, and healthy eating habits (Wright et al., 1993). One more concentrate in the US revealed positive yet various relationship between higher normalized scholarly scores in arithmetic and perusing with different sustenance ways of behaving, Dad and wellness. Additionally, certain HE and PA behaviors, fitness, and gender could account for 11.1% and 6.7% of the variation in the mean mathematics and reading scores, respectively, according to regression analysis (Wright et al., 1993). The purpose of this study was to investigate the individual and combined associations of health behaviors with academic performance among elementary school students in a school board in Nova Scotia, Canada, in light of the mixed results that have been reported previously and the limited studies that have investigated the relationship between PA behaviors (Alireza Sarkaki et al., 2007).

The current study has a number of strengths, including the use of academic performance scores obtained directly from the school board at three distinct points throughout the academic year and the use of a population-based sample of students in grades 4 through 6. Unfortunately, our study's power to identify significant associations was reduced by the small sample size. Due to non-response, the 46% response rate may have resulted in selection bias. Non-response bias may have been reduced, but not completely eliminated, by using non-response weights. It also appeared that teachers' failure to remind students to return their consent forms was caused by competing school priorities. Additionally, the absence of the anticipated non-response from lower SES groups despite the high obesity prevalence suggests that this group may have less selection bias. The majority of the measures used to evaluate and PA were validated, but the self-reported response is inherently subjective and may be prone to error or bias (Alireza Sarkaki et al., 2007). The cross-sectional nature of our data is another limitation. Self-reported responses are inherently subjective and may be subject to error or bias, despite the fact that the majority of the measures were based on validated instruments. Additionally, despite our use of the PAQ-C, a previously validated measure of PA, the scores cannot be compared to PA guidelines (e.g., 30–60 minutes of moderate to vigorous PA).

CONCLUSIONS

There is growing evidence that describes their association with academic performance, and there is growing global advocacy for schools to place an emphasis on HE and PA. However, health-promoting initiatives frequently necessitate school staff time outside of their designated responsibilities. Maintaining these activities becomes challenging for school staff as workload increases. This is especially true in situations in which there is a lack of comprehension regarding the significance of healthy lifestyle habits for student learning, which may limit the integration of health into the educational system's priorities. Concerning, there has been an increasing trend to "cut back" on school activities that promote health and to view these activities as "add-ons" rather than activities that are central to the academic mission of schools, which is inconsistent with this substantial evidence base. The findings of this study provide additional support for the significance of health promotion interventions in supporting health and learning goals at schools and contribute to our growing understanding of the connections between health behaviors and academic performance. The findings are especially relevant to education policymakers in Nova Scotia, where provincial academic scores consistently fall below those of the nation as a whole. In order to shed light on strategies to support improvements in both health and academic outcomes, further research should investigate differences at the school level. Overall, our research supports the connection between diet and academic performance better than PA did, and it suggests that breakfast should be emphasized, and after-school programs may support students' health and learning.

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None

Conflict of Interest

None

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