



Mini Review

Volume 7 Issue 3 - May 2024  
DOI: 10.19080/APBJ.2024.07.555714

Anatomy Physiol Biochem Int J

Copyright © All rights are reserved by Delimaris Ioannis

# Nutrition and Exercise in Schools: A Health Education Approach



Delimaris Ioannis\*

Center for Instruction, Research and Technology (C.I.R.T), Metropolitan College, Athens, Greece

Submission: May 05, 2024; Published: May 29, 2024

\*Corresponding author: Ioannis Delimaris, Center for Instruction, Research and Technology (C.I.R.T), Metropolitan College, Athens, Greece

## Abstract

This brief review summarizes current issues of nutrition and exercise in schools using a health education approach. The article emphasizes the interconnectedness of health and education, noting that healthier children are more likely to excel academically and lead more productive lives. Various studies explore the impact of parental attitudes, home environments, and school programs on promoting healthy behaviors among children and adolescents. Factors such as childhood obesity, sugar-sweetened beverage consumption, and food purchasing patterns are addressed in the literature. The article highlights the importance of small changes in diet and physical activity behaviors to achieve positive health outcomes. Although each selected study focuses on different aspects of health education and promotion, they collectively underscore the necessity of comprehensive interventions that involve schools, families, and communities. By addressing environmental factors, cultural beliefs, and socioeconomic status, schools can create a supportive environment for fostering healthy habits among students. Future research should aim to address limitations, such as sample diversity and objective measures of health behaviors, to draw more accurate conclusions and develop effective interventions.

**Keywords:** Nutrition; Exercise; Schools; Health education

## Introduction

Health Education is the interdisciplinary branch of pedagogy, medico-biological sciences, and health sciences that addresses issues of prevention and the adoption of practices and strategies to reduce morbidity and mortality in the general population. At school, students should learn to eat and exercise properly, without overtraining and to sleep adequately, with the aim of maintaining nutrition. It equips students with the knowledge and skills necessary to make informed decisions about their physical and mental well-being. By focusing on prevention and promoting healthy habits, health education can help reduce the prevalence of chronic diseases and improve overall quality of life. Encouraging students to prioritize proper nutrition, exercise, and sleep habits not only benefits their individual health, but also has a positive impact on the health of the larger community [1-5].

This brief review summarizes current issues of nutrition and exercise in schools using a health education approach. As we tested there is -currently- no existing similar published review study in the literature. The methodology followed for this brief review was implemented in five (5) phases.

- a) **Phase 1:** Identification of databases (PubMed and Google Scholar).
- b) **Phase 2:** Search for appropriate sources (English was chosen as language and publications of the type of oral communications and theses were excluded).
- c) **Phase 3:** Gathering -if possible- a large number of articles (focusing exclusively on the triptych: health education-nutrition-exercise).
- d) **Phase 4:** Selection of appropriate sources after critical consideration.
- e) **Phase 5:** Writing the corresponding text.

## Nutrition and Exercise at School from the Perspective of Health Education

In the research of Kolbe et.al. [6] states that schools substantially influence both health and education and substantially determine the future well-being and economic productivity of populations. Recent research shows that healthier children

learn better and that more educated adults are healthier. School health is an interdisciplinary field of study and a fundamental strategy that can be used to improve both health and education outcomes. Contemporary school health programs include ten interactive components: health education, physical education and physical activity, environment and nutrition services, health services, counseling, psychological and social services, physical environment, social and emotional climate, family engagement and involvement community and employee well-being [6].

Research by Birch & Auld [7] states that the interdependent relationship between health and education has long been documented by leading health and education scholars. Children who are not physically, mentally, socially or emotionally healthy will not be ready to learn and thus prevent them from achieving their full potential as productive members of society. Despite this evidence, the United States has yet to bridge the gap between its health and education systems. Although some of the challenges and recommendations are not novel, what is exciting is the opportunity to advance the alignment of public health and school strengths. Health educators are necessary to make school health education a social imperative [7].

In the research of Smith et.al. [8] investigated the prevention and management of childhood obesity and its pathological and psychological comorbidities. Childhood obesity has become a global pandemic in developed countries, leading to a number of pathobiological conditions that contribute to increased morbidity and premature death. The causes of obesity in childhood and adolescence are complex and multifaceted, presenting health education researchers and clinicians with many challenges in preventing and managing the problem. At the level of health education, it is necessary to understand the etiology of childhood obesity, the preventive interventions and therapeutic options for overweight and obesity, as well as the medical complications and the accompanying pathobiological and psychological conditions that arise, such as hypertension, non-alcoholic fatty liver disease and depression. Interventions must address across the developmental spectrum, risk levels, and service settings (eg, community, school, home, health care systems) [8].

In the research of Bogart et.al. [9] examined parental and home environmental factors related to adolescent sugar-sweetened beverage consumption. Sugar-sweetened beverages (SSBs) are major contributors to adolescent obesity. Associations between parenting and household factors (parenting behavior and consumption, home availability) regarding 3 types of SSBs-soda, sports drinks, and fruit-flavored beverages-were investigated with the consumption of each type of SSB in a sample of middle school adolescents. Adolescents' parents completed telephone interviews. Adolescents were asked about consumption of SSBs (soda, sports drinks and fruit-flavored drinks) and parents were asked about attitude, consumption and availability of SSBs in

their home. Parents were divided into two categories: a) low-risk parents: consumed few SSBs, had negative attitudes and did not keep SSBs at home and b) high-risk parents: consumed many SSBs, had positive attitudes and kept SSBs at home. Adolescents of lower-risk parents were estimated to consume significantly less SSBs of each beverage type compared to adolescents of higher-risk parents. The results suggest that health education research should focus on parental and home environmental factors related to the consumption of SSBs in order to reduce their consumption [9].

In the research of Eck et.al. [10] examined the knowledge of school-age children and their parents about SSBs which are the main source of added sugar in the American diet. In addition, the intake of added sugars from SSBs exceeds recommendations. Therefore, interventions that effectively reduce SSB consumption are needed. Focus group discussions with parents and school children between 6 and 11 years of age from Florida, New Jersey and West Virginia are led by trained facilitators using Cognitive Psychology as a guide. The trends and themes that emerged showed that both parents and children felt that limiting SSBs was important for health and weight control. Busy schedules, including more frequent parties and events as children get older, were another barrier to reducing SSBs. This qualitative research provides new insights into parents' and children's knowledge (eg beliefs, attitudes), barriers to, and facilitators of SSB uptake. Consideration of this information during dietary intervention development has the potential to improve intervention effectiveness in reducing SSB intake [10].

In the research of Gustafson et.al. [11] investigated the direct effects of residence, school and consumer food environment on the relationship between food purchasing patterns and dietary intake among adolescents living in rural regions. Obesity rates are higher among teenagers in rural and urban areas. A baseline survey was conducted among adolescents in eight rural high schools (four in Eastern Kentucky and four in Eastern North Carolina). Participants answered questions about food purchasing patterns, dietary intake, home food availability, and demographics. School and consumer food environments were assessed using validated questionnaires. The results showed that 55% of the teenagers were of normal weight, 24% were overweight and 21% were obese. There was a direct relationship between unhealthy food purchasing patterns (frequently shopping for fast food at gas stations) and consuming more added sugars, compared to those patterns following a healthy shopping pattern (shopping less often at gas stations). Those who reported always having fruits and vegetables at home consumed more servings of fruits and vegetables than those who reported never having fruits and vegetables at home. Adolescents attending a school with a low healthy food availability score consumed fewer servings of fruit and vegetables compared to those attending a school with a high healthy food availability score [11].

In the research of Hopper et.al. [12] investigated the effects of a family fitness program on the physical activity and eating behaviors of third grade elementary school children. Third-grade children (N=238) from six elementary schools participated in the study, with three schools randomly assigned to a program group (a) and the other three schools to a control group (b). Program group (a) received a health-related exercise program and a home program that required parents and children to complete activities and earn points for nutrition and exercise activities. The control group (b) received the traditional physical education and nutrition program. The parameters examined before and after the test were: height, weight, body mass index, skinfold, blood cholesterol, mileage run, exercise and nutrition knowledge, calories, protein, carbohydrates, total fat, saturated fat, dietary cholesterol, vegetable fiber, sodium, percentage of calories from carbohydrates and percentage of calories from fat. At baseline, the program group (a) and control group (b) did not differ significantly on measures using schools as the unit of analysis. The program group (a) scored: i) significantly higher than the control group (b) on exercise and nutrition knowledge and ii) significantly lower than the control group (b) on total fat intake, using the schools as the unit of analysis. The study showed that schools can adapt the curriculum to meet some students' health needs and achieve modest changes in exercise and nutrition knowledge. The family component of the program provided a hands-on approach to improving physical activity and eating behaviors [12].

In the research of Hills et.al. [13] argued that "small changes" in diet and physical activity behaviors are important for weight management. A small positive energy balance over time is enough to cause weight gain in many people (children, teenagers, adults). Conversely, small changes in diet and physical activity behavior can prevent weight gain. In the context of weight management, it may be more feasible for most people to make small short-term changes in diet and activity. In other words, using small and gradual changes in diet and physical activity can lead to improved weight management [13].

In the research of Heimendinger et.al. [14] reported process outcomes of a coaching methodology used in a study designed to increase fruit and vegetable consumption and physical activity in families. Eighty-eight families with a high school education were recruited from a rural, biracial community in Colorado and randomized to intervention and delayed intervention conditions. This article reports on the 27 families in the delayed intervention group. Families received up to 10 home visits over 10 months from a family counselor and completed activities to improve their eating and physical activity behaviors. Coaching conversations took place during each home visit. The results of the mentoring process were assessed by analysis of visit documentation, participatory research and qualitative interviews. Results showed that coaching, combined with family activities, engaged families

in the change process and facilitated movement toward meeting weekly diet or physical activity goals [14].

### Discussion

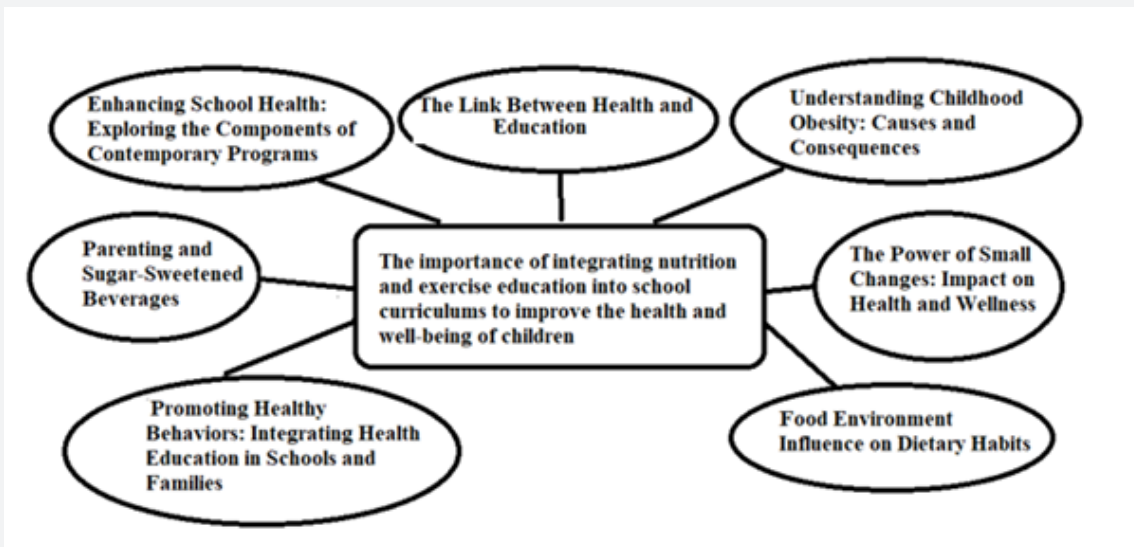
The studies in the field present some similarities and differences. Both Kolbe et al. [6] and Birch & Auld [7] emphasize the importance of the interdependent relationship between health and education, stating that healthier children learn better and more educated adults are healthier. Both research studies highlight the role of schools in promoting health and education outcomes through various strategies such as health education and physical activity [6,7]. Smith et al. [8] and Bogart et al. [9] both focus on the importance of addressing parental and home environmental factors in promoting healthy behaviors among children, whether it is related to childhood obesity or sugar-sweetened beverage consumption [8,9]. The research studies by Hills et al. [13] and Heimendinger et al. [14] both emphasize the significance of making small changes in diet and physical activity behaviors to improve health outcomes [13,14].

However, each research study focuses on a different aspect of health education and promotion, such as childhood obesity, sugar-sweetened beverage consumption, food purchasing patterns, family fitness programs, and weight management. The methodologies used in each research study vary, with some focusing on qualitative data through interviews and focus groups, while others use quantitative data collection methods. The target populations also differ in each research study, ranging from school-age children, adolescents, and families in different geographic locations. The specific recommendations and interventions proposed in each research study differ based on the key findings and objectives of the study. The studies present factors emphasizing the significance of including nutrition and exercise education in school curriculums to enhance the health and wellness of children (Figure 1).

Some limitations of the studies presented include the lack of generalizability due to the specific populations studied, such as children and adolescents in certain regions or school settings. The findings may not be applicable to a broader population or different geographic locations. Additionally, the reliance on self-report measures for dietary intake, physical activity, and other factors may introduce bias and inaccuracies in the data collected, leading to potential misinterpretation of the results. It is possible that participants may underreport or overreport their behaviors, impacting the validity of the findings. Another limitation is the potential for confounding variables that were not accounted for in the studies. Factors such as socioeconomic status, access to resources, cultural beliefs, and other environmental influences may have influenced the outcomes observed but were not adequately addressed or controlled for in the research designs. These uncontrolled variables could introduce bias and affect the

internal validity of the studies, limiting the ability to draw firm conclusions about the relationship between the variables under investigation. Future research should strive to address these limitations by incorporating more diverse and representative

samples, utilizing objective measures of health behaviors, and considering a wider range of potential confounding factors in the study designs [6-14].



**Figure 1:** Parameters which are related with the importance of integrating nutrition and exercise education into school curriculums to improve the health and well-being of children according to the studies are presented.

Overall, the strengths of the studies mentioned above include a focus on addressing important public health issues such as childhood obesity, unhealthy dietary habits, and lack of physical activity among children and adolescents. These studies also highlight the importance of interdisciplinary approaches, involving education, public health, and community stakeholders to address these complex issues. By examining factors such as parental influences, school environments, and food purchasing patterns, these studies provide valuable insights into the behavior and lifestyle choices that impact the health and well-being of young individuals. Furthermore, these studies provide evidence-based recommendations for developing effective interventions and programs aimed at promoting healthier behaviors and improving overall health outcomes among children and adolescents. By emphasizing the importance of school health programs, family-based interventions, and community support networks, these studies offer practical strategies for addressing the root causes of health disparities and promoting positive health behaviors from an early age. Generally, the strengths of these studies lie in their comprehensive approach to understanding the complex relationship between health, education, and environmental factors that shape the health outcomes of young individuals [6-14].

The present review study highlights the importance of integrating health education into school curriculums and involving

parents and families in promoting healthy behaviors among children and adolescents. Future directions in this field should focus on developing effective interventions that target both school and home environments to improve dietary intake, physical activity levels, and overall health outcomes. Strategies may include implementing comprehensive school health programs, enhancing parental education and involvement, and creating environments that support healthy choices. Additionally, research should continue to explore the impact of the food environment, consumer behaviors, and family dynamics on health outcomes, with a focus on developing tailored interventions that address the specific needs of different populations. Overall, collaboration between schools, communities, and families is essential to create a supportive environment for promoting healthy behaviors and preventing chronic diseases in children and adolescents [15].

### Conclusion

In conclusion, the research studies discussed in this review emphasize the importance of integrating nutrition and exercise education into school curriculums to improve the health and well-being of children. It is evident that healthier children are more likely to perform better academically and lead more productive lives. Parents and home environments also play a crucial role in shaping the dietary habits of adolescents. By focusing on parental attitudes and home availability of sugar-sweetened beverages, as well as implementing family fitness programs and

coaching methodologies, schools can work in conjunction with families to promote healthier lifestyles. Additionally, the research highlights the need for interventions that target both individual behaviors and broader environmental factors, such as access to healthy foods in schools and communities. By addressing these multifaceted issues through a comprehensive approach, schools can create a supportive environment that fosters positive dietary and physical activity behaviors among students.

## References

1. Delimaris I (2021) Curricula and Teaching Methodology in the Field of Health Education: What Do We Know So Far? *Journal of Interdisciplinary Medicine* 6 (2): 126-129.
2. Delimaris I (2014) Biomedical and socio behavioral factors associated with anorexia nervosa in adolescents. *Scientific Chronicles* 19(2): 118-131.
3. Delimaris I (2021) Current state of knowledge on the value of information and communication technology in health education. *The Journal of School and University Medicine* 8: 14-18.
4. Delimaris I (2021) The value of health education in adolescents and adults: an educational approach. *e-Journal of Science & Technology* 16(2): 1-6.
5. Delimaris I (2014) Epidemiological and biological characteristics of the relationship between sleep duration and body weight in primary and secondary school students. *Neos Paidagogos* 2: 75-82.
6. Kolbe LJ (2019) School health as a strategy to improve both public health and education. *Annual review of public health* 40: 443-463.
7. Birch DA, Auld ME (2019) Public health and school health education: aligning forces for change. *Health promotion practice* 20(6): 818-823.
8. Smith JD, Fu E, Kobayashi MA (2020) Prevention and management of childhood obesity and its psychological and health comorbidities. *Annual review of clinical psychology* 16: 351-378.
9. Bogart LM, Elliott MN, Ober AJ, Klein DJ, Dawson JH, et al. (2017) Home sweet home: parent and home environmental factors in adolescent consumption of sugar-sweetened beverages. *Academic pediatrics* 17(5): 529-536.
10. Eck KM, Dinesen A, Garcia E, Delaney CL, Famodu OA, et al. (2018) "Your body feels better when you drink water": parent and school-age children's sugar-sweetened beverage cognitions. *Nutrients* 10(9): 1232.
11. Gustafson A, Pitts SJ, McDonald J, Ford H, Connelly P, et al. (2017) Direct effects of the home, school, and consumer food environments on the association between food purchasing patterns and dietary intake among rural adolescents in Kentucky and North Carolina, 2017. *International journal of environmental research and public health* 14(10): 1255.
12. Hopper CA, Munoz KD, Gruber MB, Nguyen KP (2005) The effects of a family fitness program on the physical activity and nutrition behaviors of third-grade children. *Research quarterly for exercise and sport* 76(2): 130-139.
13. Hills AP, Byrne NM, Lindstrom R, Hill JO (2013) 'Small Changes' to Diet and Physical Activity Behaviors for Weight Management. *Obesity facts* 6(3): 228-238.
14. Heimendinger J, Uyeki T, Andhara A, Marshall JA, Scarbro S, et al. (2007) Coaching process outcomes of a family visit nutrition and physical activity intervention. *Health education & behavior* 34(1): 71-89.
15. Chatterjee P, Nirgude A (2024) A Systematic Review of School-Based Nutrition Interventions for Promoting Healthy Dietary Practices and Lifestyle Among School Children and Adolescents. *Cureus* 16(1): e5312.



This work is licensed under Creative Commons Attribution 4.0 License  
DOI: [10.19080/APBIJ.2024.07.555714](https://doi.org/10.19080/APBIJ.2024.07.555714)

### Your next submission with Juniper Publishers will reach you the below assets

- Quality Editorial service
- Swift Peer Review
- Reprints availability
- E-prints Service
- Manuscript Podcast for convenient understanding
- Global attainment for your research
- Manuscript accessibility in different formats ( Pdf, E-pub, Full TPxt, Audio)
- Unceasing customer service

### Track the below URL for one-step submission

<https://juniperpublishers.com/online-submission.php>