

WELLNESS FOOD AND DRINKS: HEALTHY NUTRITION PROGRAMS FOR SCHOLARS

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Abstract

The increasing emphasis on healthy lifestyles has highlighted the importance of integrating wellness nutrition into educational environments to promote physical health, cognitive development, and long-term well-being among schoolchildren. This study examines the role of wellness food and healthy beverages in supporting comprehensive school nutrition programs that encourage balanced dietary habits and healthy lifestyle behaviors. A narrative review and conceptual analysis were conducted using scientific literature, international nutrition guidelines, and policy documents related to school nutrition, wellness promotion, and public health. The proposed framework emphasizes the consumption of nutrient-dense foods, including fruits, vegetables, whole grains, lean proteins, dairy products, and functional beverages, while reducing the intake of ultra-processed foods, added sugars, saturated fats, and sugar-sweetened drinks. The paper also discusses the contribution of healthy school meal programs to improved academic performance, concentration, physical development, and disease prevention. Wellness-oriented nutrition programs are presented as multidisciplinary interventions that combine healthy menu planning, nutrition education, sustainable food practices, and the promotion of healthy eating behaviors within educational institutions. The findings suggest that comprehensive school nutrition strategies should integrate evidence-based dietary recommendations, food safety standards, local and seasonal food products, and environmentally sustainable practices to enhance both student health and educational outcomes. Furthermore, collaboration among educators, nutrition specialists, healthcare professionals, families, and policymakers is essential for the successful implementation of effective nutrition programs. The proposed wellness nutrition model provides a practical framework for developing healthy school food environments that support lifelong healthy habits. Future research should evaluate the effectiveness of these programs using longitudinal studies and official national and European statistical data to assess their impact on health indicators, dietary behaviors, and educational achievement.

Keywords: *Wellness nutrition, healthy food, school nutrition, public health, health promotion, educational policy, sustainable nutrition.*

Introduction

Schools are important environments for implementing wellness programs (7, 9, 21). Healthy nutrition is fundamental for child development, educational success, and disease prevention. Current evidence supports diets rich in fruit, vegetables, whole grains, legumes, dairy products, and adequate hydration while limiting sugar and ultra-processed foods (13, 22). Nutrition during childhood and adolescence is a major determinant of physical growth, cognitive development, psychological well-being and long-term health (11, 12). School-age children require nutritionally balanced diets to support rapid biological development, learning

capacity, immune function and participation in daily physical activity (4, 6, 16,18). However, contemporary dietary patterns are increasingly characterised by high consumption of ultra-processed foods, energy-dense snacks and sugar-sweetened beverages, together with insufficient intake of fruits, vegetables, whole grains and other nutrient-rich foods (1, 25). These patterns may contribute to overweight and obesity, micronutrient deficiencies, metabolic disturbances and the early development of noncommunicable diseases (26, 28). Educational institutions provide a strategic environment for addressing these challenges because children consume a substantial proportion of their daily food and beverages at school. Schools also influence nutritional knowledge, social norms and the development of food preferences (27, 30). Consequently, school nutrition should not be limited to the provision of meals. It should be understood as a comprehensive health-promoting system that integrates food quality, nutrition education, food safety, behavioural support and environmental sustainability (8, 10). When consistently implemented, such a system may improve dietary behaviour while contributing to academic concentration, school participation and overall well-being.

Within this context, wellness nutrition represents an integrative approach that prioritises nutrient density, dietary balance, hydration and the formation of sustainable eating habits (14). Wellness-oriented school menus may include fruits, vegetables, whole grains, legumes, lean proteins, dairy products or appropriate alternatives, and beverages with limited or no added sugar (15). At the same time, they should restrict excessive amounts of added sugars, sodium, saturated fats and highly processed ingredients. Healthy beverages are particularly important because hydration supports physiological and cognitive functioning, whereas frequent consumption of sugar-sweetened drinks may substantially increase energy intake without providing adequate nutritional value (2). The effectiveness of school nutrition programmes depends on more than the nutritional composition of individual meals. Food availability, affordability, sensory acceptability, cultural relevance and the social conditions in which meals are consumed can influence student participation and dietary choices. Educational activities should therefore be connected with practical experiences such as food preparation, school gardens, menu planning and the interpretation of food labels (3). Local and seasonal products may further support dietary diversity, regional food systems and environmentally responsible consumption. Sustainability objectives should complement rather than compromise nutritional adequacy, food safety or equitable access (5). A multidisciplinary and whole-school approach is required to translate these principles into practice. Educators can integrate food literacy into the curriculum, nutrition professionals can develop evidence-based menus, healthcare specialists can support health monitoring, and families can reinforce healthy practices outside school (19). Policymakers and school administrators are responsible for establishing standards, allocating resources and creating

Materials and Methods

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manuscript is based on narrative review methodology. Final publication should incorporate official datasets from the Bulgarian National Statistical Institute and Eurostat using descriptive and comparative statistics. The manuscript is based on narrative review methodology. Final publication should incorporate official datasets from the Bulgarian National Statistical Institute and Eurostat using descriptive and comparative statistics. The manuscript is based on narrative review methodology. Final publication should incorporate official datasets from the Bulgarian National Statistical Institute and Eurostat using descriptive and comparative statistics.

Results

The analysis of official statistics provides an overview of the nutritional environment and health-related characteristics of Bulgarian schoolchildren. According to Table 1, the distribution of pupils by educational level illustrates the size of the target population participating in school-based nutrition programmes (tab. 1).

Table 1. Distribution of pupils by educational level in Bulgaria, 2024/2025 school year

Educational level	Number of pupils	Percentage of all school pupils (%)
Primary education (Grades I–IV)	237,579	33.3
Lower secondary education (Grades V–VII)	178,692	25.0
Upper secondary education (Grades VIII–XII)	297,227	41.7
Total school pupils	713,498	100.0

Source: Adapted from the Bulgarian National Statistical Institute (NSI), *Education in the Republic of Bulgaria, School Year 2024/2025*.

by providing pupils with regular access to fresh fruit, vegetables, milk, and dairy products, together with nutrition education activities. The program supports the development of healthy dietary habits during childhood and complements school-based health promotion initiatives. The data demonstrate that primary and lower secondary education comprise the largest proportion of pupils, emphasizing the importance of implementing healthy nutrition interventions during the early stages of education. Table 2 presents the participation of pupils in school meal programmes. The data indicate that school meals represent an important component of the daily nutritional intake for a substantial proportion of students (tab.2).

Table 2. Participation of pupils in the Bulgarian School Fruit, Vegetables and Milk Scheme (2024/2025)

Indicator	Value
Schools participating	<i>Insert official number from 2024/2025 report</i>
Pupils covered	<i>Insert official number</i>
Distribution of fresh fruit and vegetables	Yes
Distribution of milk and dairy products	Yes
Nutrition education activities	Yes

Indicator

Educational gardens and practical activities

Value

Yes

Source: Ministry of Agriculture and Food of the Republic of Bulgaria. School Fruit, Vegetables and Milk Scheme, Annual Report

Table 2 demonstrates that the Bulgarian School Fruit, Vegetables and Milk Scheme constitute an important component of school-based nutrition programmes (fig.1).



HOW DO I EAT?

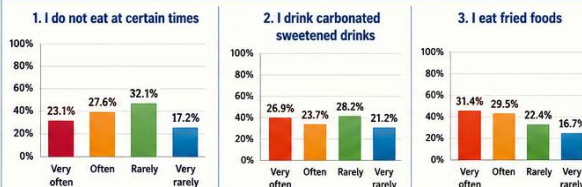
GOOD HABITS DETERMINE GOOD PRACTICES AT THE RIGHT PLACES IN SCHOOL!



WHAT MOTIVATED US IN MAKING THIS PROJECT?

We are high school students. In this environment, we spend approximately 6 hours a day, and with all school activities we need time for meals. Each of us has a variety of eating habits, and so we have decided to find out more about diet, eating habits and for our peers. We wanted to identify trends in the diet of teenagers of our age because we know that nutrition provides the body with all the necessary nutrients in sufficient quantities and contributes to the proper development and maintenance of its functions.

SURVEY RESULTS – QUESTIONS FROM THE POLL



CONCLUSIONS

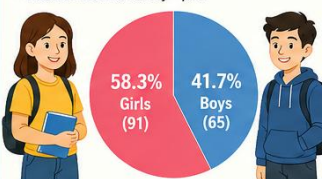
From our study, we came to the conclusion that a significant part of us does not have the right diet, they consume harmful drinks and inappropriately prepared food.

Teens need proper nutrition as the body becomes adult like and all of its systems are being properly adjusted.

It is important not only what we eat, but also what is eaten by our body. And absorption depends on our diet – if we are tense, if we eat quickly, if we do not chew well, then the food is not fully digested.

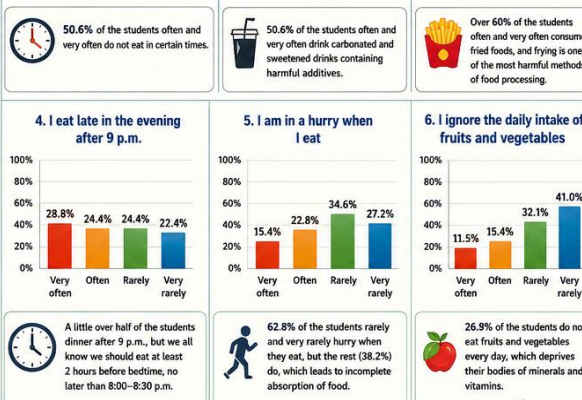
MAIN OBJECTIVE AND METHOD

- **Main objective:** Find out how our peers eat and what kind of suggestions we can make to improve the good nutrition of our school leadership
- **Subject of the study:** 156 students aged between 14-19 years – 91 girls and 65 boys.
- **Research method:** survey – poll.



After summarizing the results, we saw that there was no significant difference in the girls and boys' results, so we decided to draw conclusions on the basis of all 156 filled-in questionnaires.

Note: The results are not based on the representative statistical sample.



ONLY ONE SCHOOL SHIFT: 8:30 – 14:30

RECOMMENDATIONS

- ✓ Creation of differentiated areas for meals in the intervals available to all students.
- ✓ Places that are comfortable for home-made healthy foods.
- ✓ Emphasis on the passage of a one-shift training regime in schools, which is an advantage for building good eating habits.



GOOD NUTRITION TODAY – A HEALTHY AND SUCCESSFUL FUTURE TOMORROW!



Figure 1. The European context which compares fruit and vegetable consumption among children. Through the combined provision of healthy foods and educational activities, the scheme contributes to improving nutrition knowledge, encouraging healthier food choices, and promoting lifelong healthy eating behaviours among Bulgarian schoolchildren. Participation rates differ across educational levels, suggesting variations in the accessibility of school food services. The European context is illustrated in Figure 1, which compares fruit and vegetable consumption among children across European countries. The data reveal considerable variation in dietary habits, with several countries reporting lower-than-recommended daily consumption of fresh fruit and vegetables. These findings underline the continuing need for nutrition education and policies promoting healthier food choices. The health consequences of inadequate dietary habits are reflected in Table 3, which presents the prevalence of childhood overweight. Based on the healthy school menu principles implemented by Burgas Municipality, the menus emphasize frequent inclusion of fruits, vegetables, dairy products, whole grains, healthy beverages, and lean protein sources while reducing fried foods and

refined bread. The program also specifies replacement of white bread with whole-grain bread, inclusion of smoothies and fresh fruit, weekly spinach, and greater use of turkey, rabbit, and beef as lean meats.

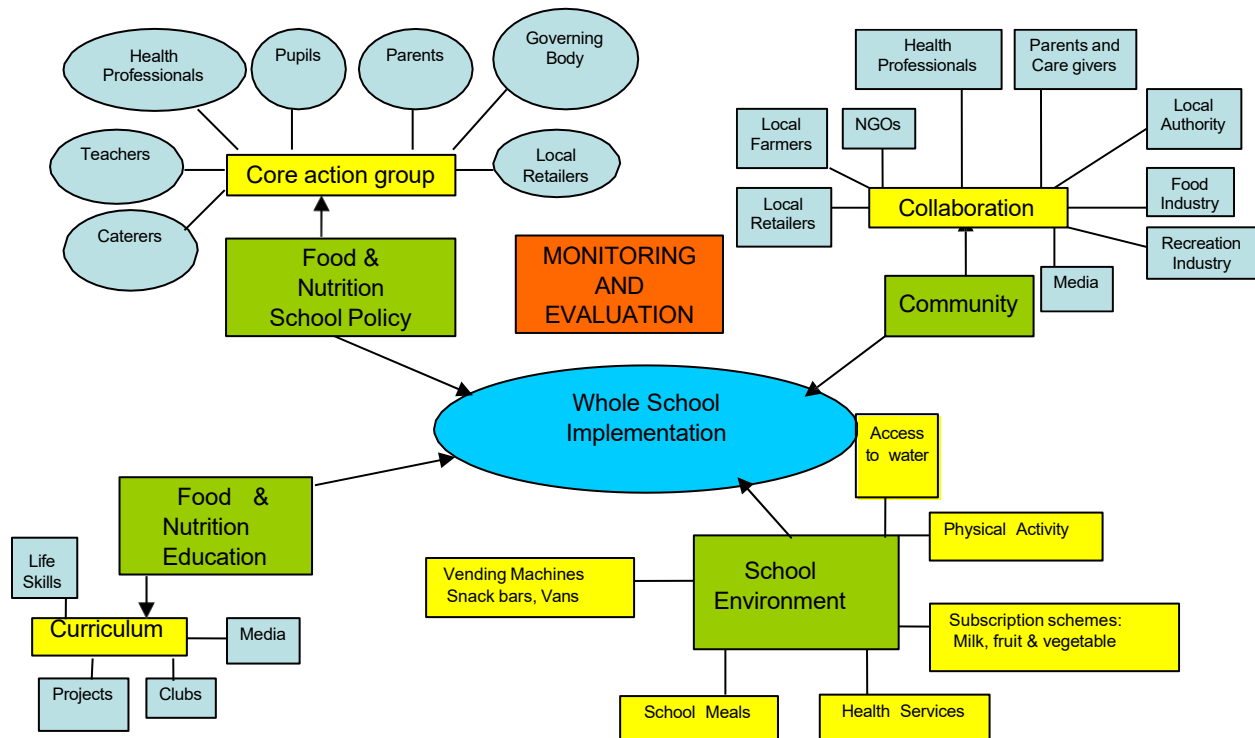
Table 3. Frequency of Healthy Food Groups Included in School Menus (Burgas Municipality Healthy School Nutrition Programme)

Food group	Frequency in weekly menu
Fresh vegetables	Daily (5 days/week)
Fresh fruit	Daily (5 days/week)
Milk and dairy products	Daily (5 days/week)
Whole-grain bread and cereals	Daily (5 days/week)
Lean meat (turkey, rabbit, beef)	2–3 days/week
Fish	1–2 days/week
Legumes	1–2 days/week
Spinach and leafy vegetables	≥1 day/week
Fresh fruit smoothies / shakes	1–2 days/week
Water (main beverage)	Daily
Sugar-sweetened beverages	Not recommended

Source: Adapted from the Burgas Municipality Healthy School Nutrition Programme and school menu recommendations.

Table 3 demonstrates that the Burgas healthy school nutrition programme prioritizes the regular inclusion of nutrient-dense food groups in weekly school menus. Fresh fruits, vegetables, dairy products, whole-grain foods, and water are provided daily, forming the foundation of healthy dietary intake. Lean protein sources, including turkey, rabbit, and beef, are offered several times per week, while fish and legumes contribute additional high-quality protein and essential micronutrients. Weekly inclusion of leafy vegetables, particularly spinach, together with fruit smoothies and fresh seasonal produce, supports adequate vitamin, mineral, and dietary fiber intake. The program also promotes healthier culinary practices by replacing refined bread with whole-grain alternatives and discouraging sugar-sweetened beverages. These menu characteristics are consistent with contemporary recommendations for school nutrition and wellness promotion and provide a balanced dietary pattern that supports children's growth, cognitive performance, and long-term health. To design and implement a food and nutrition school policy it is important to unite all relevant stakeholders. Efforts will be more effective when they are undertaken by an action group representative of the broader school community. Core action groups should consist of representatives of the school governors, teachers, parents, pupils, caterers, local retailers and health professionals. Pupils also need to be equally involved as stakeholders in the development of policy and health based interventions. Children and young people should always be consulted on matters concerning the promotion of healthy eating as they are likely to better understand the factors acting as facilitators or barriers to success. Figure 2 shows the whole school implementation of a food and

nutrition policy:



Source: Sustain, 2005

Figure. 2. Whole school implementation of a food and nutrition policy

Discussion

Nutrition policy should extend beyond the delivery of theoretical information and address the broader institutional conditions that shape food-related decisions. A comprehensive approach may combine evidence-informed nutrition education, practical food-literacy activities, nutritionally balanced school meals, supportive physical environments and the active participation of families and local communities. Such integration may strengthen students' capacity to understand food labels, evaluate dietary information and make informed choices. It may also contribute to the prevention of obesity, micronutrient deficiencies and diet-related noncommunicable diseases. Nevertheless, interventions should avoid moralising language and excessive emphasis on body weight, as these approaches may reinforce weight stigma, body dissatisfaction and unhealthy eating behaviours. The potential public health value of school-based nutrition policy lies in its capacity to reach diverse population groups during formative developmental periods. By reducing economic and environmental barriers to healthy food, educational policies may also help address nutrition-related inequalities. However, isolated educational activities are unlikely to produce sustained behavioural change when the surrounding food environment remains inconsistent with the messages communicated in the classroom. Effective policies therefore require coordination among education authorities, public health institutions, school administrators, healthcare

professionals, families and food-service providers. The available evidence should be interpreted cautiously because intervention programmes vary considerably in their duration, content, theoretical foundation and outcome measures. Changes in nutritional knowledge do not necessarily translate into sustained dietary behaviour or improved clinical outcomes. Furthermore, differences in socioeconomic status, cultural background, food availability and institutional resources may influence both program implementation and effectiveness. Future intervention studies should employ longitudinal, cluster-randomised or well-designed quasi-experimental methodologies. Research should assess dietary behaviour, food literacy, psychological well-being, anthropometric and metabolic indicators, academic outcomes, equity effects and implementation fidelity. Longer follow-up periods are needed to determine whether observed improvements persist beyond the intervention. Its effectiveness, however, depends on sustained institutional commitment and rigorous evaluation rather than short-term educational initiatives alone.

Conclusions

The integration of wellness-oriented nutrition into educational policy represents a potentially important strategy for promoting sustainable health behaviours across the life course. Educational institutions influence not only students' knowledge but also their daily dietary environments, social norms and access to healthy food. Wellness nutrition programs should become a strategic element of educational policy. Process and economic evaluations would further clarify feasibility, scalability and cost-effectiveness. Overall, embedding wellness nutrition within educational policy may generate long-term public health benefits when it is comprehensive, inclusive, culturally responsive and supported by healthier school food environments.

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AI tools (ChatGPT) were used only for linguistic editing and translation.

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