



Developing a Policy for Healthy Schools Food: A Plan of Action

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<p>Abstract: Background and Objectives: Childhood obesity is a pressing global health concern, particularly in low- and middle-income countries like Palestine. This study aims to address the prevalence of childhood obesity in Palestine and its association with the school food environment. The objective is to propose and advocate for the implementation of a "healthy schools' food policy" to promote the consumption of nutritious food while prohibiting the sale of unhealthy items. Methods: A comprehensive analysis of the sociocultural, economic, political, ethical, and legal contexts surrounding childhood obesity in Palestine was conducted. This included a review of existing studies, stakeholder analyses, and an evaluation of policy alternatives. A legislative strategy was developed to guide the implementation of the proposed policy. Results: The study identified the widespread prevalence of childhood obesity in Palestine, with contributing factors rooted in sociocultural, economic, and political contexts. The analysis of policy alternatives revealed that establishing and enforcing a written protocol for "Food and Beverage Services" in schools emerged as the most effective option. This policy approach received the highest score in terms of effectiveness, access and fairness, cost-effectiveness, and administrative and political feasibility. Conclusion: The findings highlight the urgent need for policy interventions to address childhood obesity in Palestine. The proposed "healthy schools' food policy" offers a promising avenue to promote nutritious food consumption while curbing the availability of unhealthy options. Collaborative efforts involving stakeholders, including schools, the Ministry of Education, healthcare professionals, parents, and the community, are crucial for successful policy implementation. Regular evaluations and community feedback will be essential to monitor the policy's impact and make necessary adjustments. This study underscores the significance of prioritizing children's health within the broader context of societal well-being.</p>	<p style="text-align: center;">Research Paper</p>
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INTRODUCTION

Childhood obesity is a critical medical condition that affects children and adolescents. It occurs when a child's weight is well above the normal range for their age and height. The weight status of individuals aged 2 years and older is determined by their body mass index (BMI), calculated by dividing weight in kilograms by height in meters squared and rounded to one decimal place. In children and adolescents aged 2 to 19 years, obesity is defined as a BMI at or above the 95th percentile of the CDC sex-specific BMI-for-age growth charts from 2000 [1]. Overweight is defined as a BMI between the 85th and 95th percentiles. The estimates are

presented as equal to or greater than both the 85th and 95th percentiles.

The World Health Organization (WHO) launched the Global School Health Initiative in 1995, with the goal of using schools as a platform to strengthen health promotion and education activities at local, national, regional, and global levels. The initiative aims to improve the health of students, families, and all members of the community [2]. The concept of the right to food as a human right introduced legal responsibilities for states and communities to ensure food security for all. Nutritional status was recognized as a fundamental aspect of human development in the United Nations Millennium Development Goals [3].

A study conducted by Abdeen *et al.*, [4] on obesity in Palestine revealed that the prevalence of overweight was 35.5% in women and 40.3% in men, while obesity rates were 31.5% in women and 17.5% in men. Adults aged 45–54 years old had significantly higher rates of obesity (29.2% in men and 50.2% in women) and overweight (48.1% in men and 37.2% in women). Additionally, a cross-sectional study by Sabbah [5] showed that among students at An-Najah National University in Palestine, the prevalence of overweight and obesity was 20.1% and 4.6%, respectively. Another recent cross-sectional study by Nubani-Husseini *et al.*, [6] on grade 4 and 5 pupils in 14 all-girl schools in East Jerusalem found that the prevalence of overweight and obesity was 22.2% and 7.6%, respectively. Massad *et al.*, [7] conducted a survey sample of 22 schools operated by the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) and the Palestinian Government. Data were collected from 1484 (99%) of 1500 students, revealing that the prevalence of overweight was 12% (180 of 1444 students), while obesity was found in 6% (86 students).

A systematic review study conducted between 1990 and 2011 highlighted the alarming levels of obesity in all age groups in the Eastern Mediterranean Region. The prevalence of overweight among preschool children (<5 years) ranged from 1.9% to 21.9%, while the prevalence of overweight and obesity among school children ranged from 7% to 45% [8]. More recent systematic reviews of the literature have confirmed the link between increased intake of free sugars, particularly in the form of sugar-sweetened beverages, and unhealthy weight gain in both children and adults [9, 10].

Around 42 million children under the age of 5 were overweight or obese in 2013. Overweight and obesity rates are increasing in low- and middle-income countries, particularly in urban areas. In developing countries with emerging economies, the rate of childhood overweight and obesity has been more than 30% higher than that of developed countries [11].

The school food environment has a significant impact on children's and adolescents' diets, as they consume a substantial portion (between 19 and 50 percent) of their daily calories at school [12]. The primary role of the school system is to educate students in academic subjects and instill civic values and social responsibilities that prepare them for their full potential [13]. The rise in obesity over the past few decades has coincided with an increase in the availability of food options throughout the school day [14].

Palestine has reported increasing levels of non-communicable diseases (NCDs) such as diabetes, hypertension, stroke, and heart disease, directly linked to overweight and obesity. Death rates due to NCDs have also risen in Palestine over the years [15]. Schools cannot fulfill their primary mission of education if students are

not healthy and fit. They have a unique opportunity to promote children's health by creating an environment where healthy eating, regular physical activity, and lifelong skills for healthy living are encouraged. Therefore, significant attention should be directed towards schools to identify policy levers that can help address the obesity epidemic.

Sociocultural Context:

Eating is considered a social behavior, and children at school age often imitate each other and eat together in groups. Despite the awareness of the negative effects of unhealthy food, the consumption of unhealthy and junk food remains high in schools. Like many other societies, the Palestinian population has a high rate of working women, which contributes to increased consumption of fast food by children in schools. Less time is dedicated to food preparation for children, and fast food has become the norm in Palestinian society.

Culturally, obesity is stigmatized, leading to emotional distress for children. An obese child is often viewed as unattractive, which can impact their emotional and mental health development. This cultural perspective further exacerbates the negative self-image experienced by obese children [16].

Economic Context:

Palestine is considered a low-income country, and the prices of fast food and unhealthy options provided in schools are relatively high compared to healthier alternatives such as vegetables, fruits, and properly prepared food. School canteens are often operated by individuals who prioritize cost over health, and social workers in schools are unable to prevent the sale of processed foods. Despite efforts by the Ministry of Education to promote healthy food integration, there is currently no policy in place regarding this matter [17].

Political Context:

The health of children serves as a novel indicator for the overall health of a community. Obesity, in particular, reflects the health status and awareness within a community [18]. Addressing obesity is a global health priority that should be recognized by any government; however, there is a lack of coordination between the Ministry of Health and the Ministry of Education regarding the significance of providing healthy school food for children during this critical developmental period.

Ethical and Legal Context:

The well-being of children in schools is a moral and ethical responsibility of the school staff. Schools are expected to foster healthy habits and eating practices. Teachers play a complementary role to parents in promoting and ensuring the health of students.

There is no ethical or moral justification for marketing food to children through enticing

advertisements in schools, television, or any other means. A mere 30-second commercial can influence a child's food preferences [19], alter their existing preferences for food [20], and potentially impact their lifelong eating habits. The government, health organizations, and the public all bear a legal and ethical responsibility to safeguard children's health, ensuring that healthy food options are available and shielding them from the influence of advertisements in schools that promote junk food and unhealthy choices.

All stakeholders share the responsibility of creating a healthy and supportive environment for children and youth to thrive and overcome challenges [21]. Therefore, the prevalence of malnutrition and illness among children indicates the collective failure of the government, parents, schools, and society in protecting children's rights against the influence of the food industry and advertising, as well as in shaping lifelong healthy eating patterns.

The "Stewardship Model," as defined by Davis *et al.*, [22], emphasizes that a steward maximizes shareholders' wealth through firm performance because doing so maximizes the steward's utility functions. This model establishes ethical obligations for the government regarding food by minimizing risks of malnutrition that populations may impose on one another. It emphasizes the importance of prioritizing the health of children and other vulnerable populations, promoting health through not only providing information but also implementing programs that support exercise and healthy diets, making a healthy lifestyle easily attainable, ensuring access to services, and striving for justice in health [23].

METHODOLOGY AND RESULTS

Stakeholder Analysis:

Addressing the provision and assurance of healthy food for all children in schools requires a multidisciplinary effort that involves collaboration among school administrators, the Ministry of Education, child health protection organizations, school health departments, school nurses, school canteens, students, and parents. These stakeholders play crucial roles in understanding the importance of implementing policies that prioritize the availability of healthy food options for students in schools. Additionally, school health and related organizations should monitor and assess the implementation of such policies.

We collaborated with the Ministry of Education's school health team to address the issue of food availability and regulations in schools. During the interview, it was revealed that there is currently no policy in place for promoting healthy food options in schools. Although several awareness programs have been initiated, their implementation has been ineffective due to a lack of authorization.

Recognizing the influential role teachers play as role models, we engaged with selected teachers from specific schools to discuss the importance of developing a health policy. We explored ways in which they can raise awareness among students about the significance of consuming healthy food. Additionally, we acknowledged the involvement of food and beverage industries as stakeholders in this policy, considering their contribution to marketing, promotion, distribution, and sales within school canteens. Meetings were held with school canteen managers to discuss how they can assist in providing healthy food options for students while also benefiting economically.

Issue Statement:

How can the implementation of a "healthy schools' food policy" contribute to creating a safe school environment by promoting students' consumption of nutritious food and prohibiting the sale of unhealthy items?

Policy Goal and Objectives:

The primary goal of the healthy food in schools' policy is to ensure the availability of nutritious food and promote the overall health of students. To achieve this goal, it is essential to develop policies that encourage students to adopt healthy habits and behaviors related to food. These policies should foster the development of positive habits such as cleanliness, orderliness, active engagement, interaction, and active involvement of parents and the community. The policy objectives to attain this goal are as follows:

1. Establish and implement specific strategies and policies that promote healthy habits and behaviors related to food among students.
2. Provide financial support to improve the nutritional status of schools.
3. Ensure the availability of high-quality and healthy food options while maintaining standards of food safety.
4. Enhance the social perception of healthy food within schools, promoting its desirability and acceptance among students.

Policy Alternatives:

Alternative (1): Establishing and enforcing a written protocol for "Food and Beverage Services" in the school environment.

It is highly recommended that the school food and beverage environment, including school canteens, vending machines, food shops, and food brought to schools by students [24], as well as neighborhood food environments such as stores and restaurants [19], deliver foods and beverages that are rich in vitamins, minerals, and other healthy micronutrients while being low in fats, free sugars, and salt [24].

Although schools in Palestine have a list of some types of prohibited foods, it is not consistently implemented and does not amount to a firm policy. To

make significant advancements in the food and beverage environment in schools, it is necessary to implement lawful and consistent actions for nutritional environments and provide illustrative policies.

Alternative (2): Implement an educational program about healthy food in schools for children and parents.

All groups (students, parents, teachers, school administrators) meeting in the school setting should be invited to actively participate in policy development. Khatoon, *et al.*, [25] conducted a study to analyze the influence of a school children's nutrition education program on the knowledge and nutritional behavior of students and their parents. The program consisted of 10 sessions. Interviews with parents were conducted before and after the sessions to examine their knowledge and nutritional behavior. The results showed that students and parents who received the educational program demonstrated increased consumption of vegetables, fruits, and milk. Students' knowledge, especially regarding sources of selected nutrients like calcium and dietary fiber, improved. School-based nutrition education should take into account the needs and interests of students, teachers, and school administrators.

Alternative (3): Implement a policy banning the marketing of unhealthy food targeting children.

Advertising and promotion of unhealthy food reach children through various methods such as television, radio, magazines, and the internet. Most food advertised on television is junk food high in fat and sugar, including fast food restaurants. Children are unable to comprehend the intent behind advertisements and often perceive advertising statements as facts. They may request the products they see in the media. A study conducted by Strasburger *et al.*, [26] showed that the media contributes to the development of obesity in children and adolescents. It is evident that the media, particularly television, plays a significant role in the etiology of obesity. Fast food is one of the most heavily advertised product categories targeting children, and this type of advertising effectively influences food choices [27].

In Palestine, there is currently no policy regarding the control or regulation of advertising and marketing of unhealthy food and sweetened beverages.

Alternative (4): "Do nothing."

The Palestinian Ministry of Education has released instructions for school canteens in educational institutions, which include a list of prohibited foods, guidelines for canteen cleanliness, canteen location, student queueing areas, food storage, and disease-free certificates for canteen staff. The forbidden foods include all types of chips, carbonated drinks, drinks containing only sugar and colorings, as well as juices with less than 13% natural fruit juice content. Low-nutritional value

sweets, chewing gum, lollipops, and ice cream are also prohibited.

Permitted foods include flavored liquid milk, refrigerated yogurt containers, natural juices, pre-packaged sandwiches, automatically wrapped biscuits and cakes, naturally coated nuts and corn without dyes or pigments, hot drinks, as well as fresh fruits and vegetables.

Evaluation of Policy Alternatives:

Policy options proposed by regional experts and key political actors were evaluated based on a number of criteria: effectiveness, access and fairness, cost-effectiveness, and administrative and political acceptance.

Alternative (1): Establishing and enforcing a written protocol for "Food and Beverage Services" in the school environment should be established and enforced.

Effectiveness: It is highly effective in controlling food and beverages in schools and preventing children's illnesses.

Cost-effectiveness: It is cost-effective as it does not require extra money and reduces illness costs, although it can be more costly for parents.

Fairness and accessibility: The presence of this policy is highly accessible and ensures fairness.

Administrative and political feasibility: Such a policy is feasible and accepted at the administrative and political level. However, it requires collaborative effort and self-regulation from all stakeholders.

Alternative (2): Implementing an educational program about healthy food in schools for children and parents.

Effectiveness: Schools provide the most effective and efficient way to reach a large segment of the population.

Access and fairness: Different teaching methods can be used according to learning objectives, such as classroom discussions, worksheets, and videos, ensuring access and fairness.

Cost-effectiveness: Although the cost of implementing food educational programs in schools is relatively low, the effectiveness of these programs is high.

Administrative and political feasibility: Implementing this alternative is complex and time-consuming. It requires support from leaders.

Alternative (3): Implementing a policy banning unhealthy food marketing targeting children.

Effectiveness: This alternative is effective as foods marketed to children are largely high in sugar and fat.

Access and fairness: It are difficult to control all marketing channels used by the advertising industry to target the largest audience group, making access and fairness challenging. However, it is fair to ban the advertisement and marketing of unhealthy food.

Cost-effectiveness: Enforcing a ban on junk food advertising can be costly.

Administrative and political feasibility: Public programs may lack the support or power to address many of the marketing practices that affect diets and health.

Alternative (4): "Do nothing."

Effectiveness: The available instructions are effective in determining the types of healthy foods in school

canteens, but they do not address the daily requirements of nutrients.

Access and fairness: The available instructions are reachable and accessible to all schools in Palestine.

Cost-effectiveness: Over time, implementing standards can enhance students' nutritional intake and decrease obesity.

Administrative and political feasibility: This alternative is feasible and supported as it comes from the Ministry of Education.

Comparison of Alternatives: An analysis and comparison of the four alternatives are summarized in Table (1).

Table 1: Criteria/alternative matrix for selected policy options for healthy school food

Criteria	Alternatives			
	1. Written protocol for "Food and beverages services"	2. Educational program	3. Unhealthy food marketing targeting children banning policy	4. Do nothing
Effectiveness	++	++	+	=
Fair and access	++	+	0	+
Cost-effectiveness	+	+	--	+
Administrative & political feasibility	+	+	-	++
score	6+/0 -	5+/0 -	1+/3 -	4+/1 -

As seen in table 1, Alternative (1) scores the highest (6+/0-). The second-highest score is for Alternative (2) with a score of (5+/0-). The "Do nothing" alternative scores (4+/1-). Lastly, Alternative (3) gains the lowest score (1+/3-) with a positive score only regarding its effectiveness.

Based on this analysis, Alternative (1): Written protocol for "Food and Beverages Services" is the best option for the development of a "healthy schools' food policy". Considering that this protocol should focus on:

1. All foods and beverages available to students at school, whether from the canteen or brought from home, must adhere to the standards and guidelines presented by the Ministry of Education.
2. All areas where food is served should be clean, pleasant, and welcoming to students, adhering to the standards and guidelines set by the Ministry of Education.
3. All food and beverages in stores around the schools should be healthy and in accordance with the guidelines of the Ministry of Education.
4. All parents and the community should collaborate with schools to provide healthy food and beverages for students at all times, to enhance health and overcome malnutrition.

DISCUSSION AND IMPLEMENTATION

Introduction to Policy Advocacy Strategy:

The Ministry of Health (MOH) and the Ministry of Higher Education (MOHE) should be involved in changing the current system of school healthy food. The experience and knowledge of MOH and MOHE make them more capable of changing the policies that govern the school healthy food system [17]. While advocating the policy, we should be aware that there are obstacles related to existing legislation or societal disagreement. Therefore, it is important to understand these obstacles and factors influencing decision-makers and use them positively to achieve our goals [17]. Implementing a healthy school food policy is very complex and requires healthcare professionals to have knowledge and make efforts to form organized groups with the help of healthcare professional organizations and MOHE, with the support of students, parents, teachers, school administrators. Long-term efforts are needed to achieve the intended goal [17]. Healthcare professionals should support each other, join official organizations to have a source of power to change existing policies for the benefit of the students.

Involvement of all healthcare professionals in MOH and MOHE, with the support of students, parents, teachers, social counselors, school health nurses, and school administrators, can become a strong force for change. Moreover, linking with people who have legitimate power is an important way to change the

current policy [28]. The media can also be utilized to support the viewpoints of healthcare professionals. As voters, teachers and healthcare professionals can reward their elected officials by voting them back into office and working for their reelection. This can be an important source of coercive power through a representative in the government. Understanding and using the various sources of power available to healthcare professionals are critical to achieving success in the legislative arena. Healthcare professionals can also be involved in accreditation programs of healthcare organizations [29].

It is important to understand the scope of the problem and its dimensions, as well as the phase in which we are working. For example, are we in the formulation phase, the implementation phase, or the evaluation phase? Healthcare professionals should know their roles

during each of these phases and be involved in policy-making.

Legislative Strategy:

We will build a comprehensive strategy in which we mobilize all available resources with the help of major policy players and stakeholders. Our framework for policy implementation will utilize a legislative strategy. Table (2) summarizes this framework and describes our resources, including the major stakeholders and their characteristics and capabilities that make policy implementation feasible. For each resource, a strategy of action, including the major applied activities, is documented to design our work in a plausible way, with a major goal related to adopting a healthy school food policy.

Table 2: Policy Implementation for Providing Healthy School Food:

Policy feasibility (implementation)	Policy plausibility (Design)
Our Recourses	Strategy and activities
School health nurses and teachers who have passion and knowledge of the consequences of the current situation but lack the political skills and know-how.	Preferably get them to work through the professional association.
Healthcare providers (e.g., social counselors) who have an interest and are willing to allocate resources and support.	Need to work together on the issue.
Data including information about the issue.	Need to provide evidence from research studies to all stakeholders related to the issue.
Management/other systems that have an interest and are willing to allocate resources and support.	Need evidence about applicability drawn from known research and evaluation studies, expert and stakeholder opinions.
Local members of parliament who have shown interest and, although they have other priorities, can become political supporters if provided with the right information.	Need to provide the parliament with relevant evidence-based consequences of current actions.
Local media outlets that have expressed their willingness to publish an article if provided with the details.	Provide material for an article at the appropriate time.
Professional associations like MOH and MOHE, with the support of students, parents, teachers, social counselors, school health nurses, and school administrators, who have an interest and have indicated their willingness to work with the media and parliament to address the issue.	Develop a plan of action with the association to gain more orientation about the issue.

There are many factors that need to be considered during the implementation of the legislative strategy to adopt healthy school food.

Politics:

Through politics, we will influence decision-makers to achieve what we want. We need to attract and engage the audience in adopting the healthy school food policy issue. The audience consists of two groups: government policymakers and the community [30]. Once the audience is on our side, the political process will be supported. We can use booklets and collaborate with the media to gain public support for our issue.

Areas of Advocacy:

We need to be aware of the areas of advocacy, which include schools, government, professional

organizations, and the community. Our role at this point is to engage and influence all of these areas to advocate for our issue.

Analysis of the Political System:

The political system should be analyzed to understand where, who, and how to lobby in order to achieve objectives in policy development. The political system in Palestine includes five major elements that characterize it, namely consensus and agreement regarding policy content and application, legal structures for public and private activities and interactions, basic human rights, competition through elections, in the media, and in the marketplace of ideas, inclusion of people who differ in their religion, ethnicity, gender, geography, or income status, and adequate governance [30].

The Political Arena

The analysis of the political arena focuses on its structure and the presence of subgroups or committees that communicate formally and report to the parliament [30].

Rule Makers and Timeframe

It is necessary to identify the key players in the political process and their positions toward the issue to leverage the support of proponents. Additionally, creating a timetable of planned events can be useful [30]. We will engage with a parliament member and discuss the large number of MOH and MOHE professionals who always participate in elections. If we gain their support, we will vote for them in the next parliament elections.

Decision Making Process

Understanding the decision-making processes assists in accessing them in an effective and efficient way. It is important to consider economic, political, social, and environmental factors that impact the decision-making process. We are in a position to decide how and where to influence policy through the policy-making process [30]. As described in the interviews with stakeholders, we have contacted a parliament member who assured us that the issue will be adopted by utilizing the formal decision-making steps in Palestine.

The Role of Media

The media plays an essential role in achieving our goal to raise awareness about the issue and garner support from various parties, including the community and stakeholders. The role of media includes conducting a public media campaign to increase community awareness about healthy school food in schools, utilizing social media platforms such as Facebook, Twitter, and other sources to raise awareness about the issue within the community, especially among teachers, families, schools, and healthcare providers. We can also participate in local conferences and present the issue through scientific papers. Additionally, we can collaborate with professional associations and conduct interviews with them in the local media to discuss the issue. Moreover, we can interview officials who have implemented similar policies, such as the healthy school food policy in the regional countries. Finally, the parliament member who supports our proposed policy may raise the issue during their meetings in the parliament and in formal and informal meetings with lobbying stakeholders.

RECOMMENDATIONS

Annual reviews should be conducted to determine the positive and negative aspects of the current policy.

Evaluation and Conclusion

After implementing the policy, we will assess its effectiveness by visiting schools to ensure that the policy has been implemented as intended. The policy

implementation should be evaluated through regular meetings and follow-ups with stakeholders every one to two months to ensure that implementation strategies are being followed. Community satisfaction with the policy should be assessed through questionnaires and interviews to ensure that the policy is suitable and fair to the relevant community.

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Contributorship Statement

All authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript. The authors confirm that all people designated as authors qualify for authorship and have checked the article for plagiarism. If plagiarism is detected, all authors will be held equally responsible and will bear the resulting sanctions imposed by the journal thereafter. All authors met all of the following criteria: I.A., A.A., K.Z., L.H., and F.E. contributed to the conception of the article. I.A., A.A., K.Z., L.H., and F.E. were involved in the data collection. I.A., A.A., K.Z., L.H., and F.E. were involved in the data analysis and interpretation. I.A., A.A drafted the article.

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