

An-Najah National University
Faculty of Graduate Studies

Evaluation of Governmental Schools Canteens in
Nablus District - West Bank /2015

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This Thesis is Submitted in Partial Fulfillment of the Requirements for
the Degree of Master in Public Health, Faculty of Graduate Studies,
An-Najah National University, Nablus, Palestine.

2016

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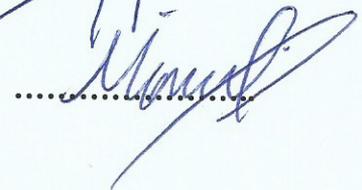
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Acknowledgment

Firstly, I thank Allah for helping me complete this study.

I would like to thank my instructors in the Public Health Program at An-Najah University, with a special mention for my supervisor Dr. Zaher Nazzal for his support and guidance to improve my performance and knowledge, and for his critiques and patience which helped me continue with this study.

I am grateful to those who helped me in the Ministry of Education: school directors for their cooperation, and canteen workers who participated in the study who willingly accepted me for the purpose of the study.

My appreciation is to my parents who encouraged me to face this challenge and would not allow me to give up on my dream. To my beloved husband, Hani, thank you for your continuous support and deep belief in me and my abilities.

الإقرار

أنا الموقع أدناه مقدم الرسالة التي تحمل العنوان:

**Evaluation of Governmental School Canteens in Nablus
District - West Bank /2015**

أقر بأن ما اشتملت عليه هذه الرسالة إنما هي نتاج جهدي الخاص، باستثناء ما تمت الإشارة إليه
حيثما ورد، وأن هذه الرسالة ككل، أو أي جزء منها لم يقدم من قبل لنيل أية درجة علمية أو بحث
علمي أو بحثي لدى أية مؤسسة تعليمية أو بحثية أخرى.

Declaration

The work provided in this thesis, unless otherwise referenced, is the
researcher's own work, and has not been submitted elsewhere for any other
degree or qualification.

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List of Abbreviations

NCD	Non Communicable Disease
MOH	Ministry of Health
MOE	Ministry of Education
RDI	Recommended Dietary Intake
CBC	Complete Blood Count
UNRWA	United Nations Relief and Works Agency
HPS	Health Promoting School
SPSS	Statistical Package of Social Science
IRB	Institutional Review Board
NGO	Non Governmental Organization

**Evaluation of Governmental School Canteens in
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Abstract

Introduction: School-aged children are the suitable period to modify unhealthy behaviors and strengthen healthy eating and lifestyle behaviors. Therefore, the Ministry of Education cooperates with the Ministry of Health to adapt the school nutrition policy.

As Palestinian children in the age group 0-17 years constitute 49% of the population, and there were almost 1.450.000 students in Palestinian schools in 2011, it's important to implement the policy and monitor and evaluate it.

The main objective on this study was to evaluate the implementation process of the “nutrition school policy” at public schools in the north West Bank.

Methodology: A mix of triangulation method of both quantitative and qualitative study design was used to achieve the study objectives. The study was conducted in 16 governmental schools in Nablus governorate. For the quantitative data, a cross-sectional design was used to evaluate food items served in school canteens and assess the canteen environment compared with the Ministry of Education guidelines (MoE). For the qualitative data, a structured interview was used to explore canteen

workers' experience in implementing the policy and assess canteen workers' practices in preparing and serving food items.

Results: The results showed that almost all schools got excellent scores regarding the served food items in their canteens when compared to MoE guidelines. Almost all participating schools got a good score regarding the school canteen environment, and excellent scores regarding canteen workers' practices in preparing and serving food items. Almost half of participants who were interviewed showed satisfaction regarding the quality of the building dedicated for the canteen, and equipment quality garnered higher satisfaction.

Regarding canteen workers' ability to understand the school nutrition policy, the trained workers can understand and apply the policy perfectly; others, which are the majority, do not understand or even know about it. The vast majority of canteen workers agreed that the nutrition policy is for the benefit of everyone, especially the students.

Conclusion: School nutrition policy is an important part in improving students' health perspectives, though training for canteen workers is needed as well as routine monitoring and evaluation.

Chapter I

Introduction

1.1 Background

Worldwide chronic diseases have become the major causes of death and disability, and non-communicable diseases (NCD) are responsible for the majority of the global health burden (1). These diseases might not be curable, but they are preventable since many are related to health-risking behaviors that are often established during youth and extend to adulthood.

While risk varies with age, ethnicity, family history and gender, most chronic disease are related to lifestyle, and can be prevented by behavioral changes like quitting smoking, adopting a healthy diet, and increasing physical activity to minimize the risk of hypertension, obesity, diabetes mellitus, and abnormal lipid metabolism (2).

School-aged children are in the most suitable period to modify unhealthy behaviors and strengthen healthy eating and lifestyle behaviors. Many adolescents focus on their weight and shape, and thus may prevent or postpone the onset of chronic diseases in adulthood through having a balanced diet by eating a variety of foods attached with physical activity to gain the greatest health benefits (3). Adding up, healthy eating behaviors prevents instant health problems, such as iron deficiency anemia, obesity, eating disorders, and dental caries, and may prevent long-term health problems such as coronary heart disease, cancer, and stroke (4).

Weight-related problems include being overweight, negative body image, unhealthy weight control behaviors, eating disorders, and body weight dissatisfaction, all of which are major issues among this age group (5). Being overweight and weight dissatisfaction issues among school-aged children are growing in prevalence worldwide, and have been identified as a major public health problem (6).

School-aged children grow physically at a steady rate parallel to tremendous development in their cognition, emotions and social standpoints (7). Thereby, healthy role models from their family members, teachers and peers is needed for making good choices in this period and later in life.

As school-aged children spend more and more time **at** schools and away from home, teachers and coaches have an increasing influence on their eating behaviors. The school environment itself also plays an important role in health issues, where they can use their knowledge and skills according to the policy implemented in their schools and community (8).

The school age is the perfect time for learning healthy lifestyle behaviors; schools can provide an appropriate environment for nutrition education and learning healthy lifestyle behaviors (9). School health programs usually focus on providing nutritional education for the students through the program itself or a special curriculum designed to help promote health for students. Schools often adopt a school nutrition policy to support the curriculum and provide a supportive school environment. Additionally,

training for school staff to involve them is conducted as well as supporting community involvement. Program evaluation is done through the process itself by assessing the outcome and the impact (10).

1.2 Health Promoting Schools

The Ottawa Charter for Health Promotion is recognized internationally and used as a key framework and reference for health promotion programs (11). It has five main action areas, and all 5 general health promotion action areas can be found within the school system (11). It focuses on workplaces, schools and others. Schools can have a great impact on health promotion and can influence students at an important stage of their lives; also, students can be a mean to influence the whole community.

Health Promoting Schools (HPS) is an initiative guided by the Ottawa Charter for Health Promotion, through which schools constantly strengthen their capacity as a healthy setting for living, learning and working (12).. There are two key purposes of health promoting schools: to enhance educational outcomes, and to facilitate action for health by building health knowledge and skills in the cognitive, social and behavioral domains (13). To become HPS schools have to fulfill the criteria by engaging health and education officials, teachers, students, parents, and community leaders in efforts to promote health. Also providing a safe healthy environment, and effective skills-based health education, beside providing access to health services and implementing school policies that support health (7).

HPS is not health education only, but it also includes healthy school policies, physical and social school environment, curriculum, and community links (13).

1.3 Palestine

1.3.1 Education system in Palestine

Since the late 1800s a formal education system has been existed in the occupied Palestinian territories under Ottoman rule (The Jerusalem Media and Communications Center, 2016). Before 1967 the British mandate period show a rise of a more formalized education system. After the British withdrawal from the region and the 1948 war, Jordan and Egypt became responsible for the education systems in West Bank and Gaza respectively, as a result unique Palestinian national identity and culture was largely absent in the curriculum (14).

After the war of 1967, Israel occupied Palestine and once again the responsibility of providing education was transferred to them until the Ministry of Education and Higher Education in the occupied territories was established in August 1994. Since that enrolment in all schools has risen from 650,000 children to over a million (15).

In 2000, after six years of struggle to establish an education system, and creating a new curriculum the second intifada began, as a result West Bank and Gaza were physically separated, and then the internal Palestinian political divisions, corruption and incompetence have played significance part in holding back educational progress (15).

The ministry of education and higher education manages governmental educational institutions and supervise private educational institutions and others who are run by UNRWA. Numbers of students in governmental schools were 772929 students in 2014-2015, while in private schools 110152 students, and in UNRWA school's 288515 students (16).

The pre-school education (before 5 years age) is not compulsory, while after the admission at age 6 years, compulsory basic education covers 10 years, then the secondary education continued for two years and success the national exam (17)

Palestinian Central Bureau of Statistics (PCBS) reported that there is 2856 school in Palestine; basic or secondary with an average of 29.4 students Per class in governmental schools, 36.6 students Per class in UNRWA schools , and 22.3 students Per class in private schools (16). For the basic stage there is almost 28 week period in each grade and 35 week period in each grade for higher stages, each teaching period lasts 45 minutes (17).

From the researcher observation many school start almost at 7:45 am till 1:30 pm , in basic schools the break starts almost at 10 am for 30 minutes , and for the higher education at 10:40 am. Students usually eat during this break, whether home-made items or choose from the school canteen itself, or from outside school canteens and supermarkets. Governmental schools are monitored by MoE, while private schools follow the same system without being monitored, UNRWA school have different system.

1.3.2 School Health Program

In the past, school canteens provided food items without guidelines, school meals were not routinely provided in schools. Many schools have school canteens, however, those canteens largely run by private businesses who allocate part of their profit to the Ministry of Education (MoE) (18). In Palestine, in 2006 the MoE cooperates with the Ministry of Health (MoH) to target the most fragile group in the most cost-effective way by prevention and promotion of school children's health, so they initiated the construction of a nutrition policy, which includes setting clear standards for school nutrition programs in general and school canteens in particular. In 2010 the policy was implemented on governmental schools on the basis of recognition of the important role these programs play in the delivery of concepts of proper nutrition, and promoting healthy behaviors in Palestinian society (19).

Health promotion is not just the responsibility of the medical sector, so in Palestine the MoE & MoH cooperate to take this responsibility, and contribute to a comprehensive global program where school health consists of eight major themes: (20).

- Medical services
- Health education and promotion
- School environment
- School nutrition
- Psychological and social health

- Strengthening the role of the local community
- Promote the health of workers at the school
- Physical Education and Sports

This program was established to improve the quality of food sold in school canteens, to improve the academic performance of students and indicators related to education through proper nutrition, to reduce the proportion of the emergence of nutrition-related diseases in the community, which will increase the level of community responsibility to community members, as well as to improve the surrounding environment and canteens and activate the role of school health committees in supporting nutritional trends and following up on the programs (19).

All of the programs and interventions above aim to fulfill the right to health despite the political and economic challenges in the Palestinian territories, one of which is the huge number of Palestinians living below the poverty line (57.2% of families, 45.7% in the West Bank and 79.4% in Gaza; rated by income) which decreases food security and thereby overall health (19).

The school program describes the following in detail: (19)

- Recommended Dietary Intake (RDI) for students of different ages.
- A list of food products preferred not to be included in canteens, like chips and puffed corn products.
- A natural healthy list of food to be available, like dates, fruit, vegetables, and popcorn in school canteens.

- The breakfast meal.
- Health standards for school canteens (building, floors, ceiling, workers, transportation and distribution, etc.)
- Nutritional standards in school canteens (accepted food list, conditionally accepted food list and a forbidden food list)
- Those who are responsible for implementing and evaluating the nutrition policy
- Appendices include: canteen follow up questionnaire, and cooperation documents between the MoH & MoE)

This program has been implemented in public and private schools **since 2012**. The United Nations Relief and Works Agency for Palestine Refugees (UNRWA) schools have their own policies; donation for the healthy breakfast meal and other initiatives are usually for the public schools.

Regular school visits are usually done by the school program staff to assess the nutritional status of students, especially the anthropometric measurements for the first grade to indicate malnutrition and stunting issues, besides Complete Blood Count (CBC) tests and lectures to educate the students and staff.

1.4 Significance of the Study

Childhood and adolescence are a critical period as the physiological need for nutrients is high relative to energy needs **compared to other age groups**

(6). Diet and exercise patterns during childhood and adolescence may predict the difference between health and risk of disease in later years.

This sets an unhealthy pattern of behavior and attitude toward the consumption of food on the school premises and may lead to nutritional problems such as obesity, anemia, and micronutrient deficiency (18).

In 2011, there were around 1.450.000 children enrolled in schools in Palestine. Therefore, the MoE cooperates with the MoH to adapt nutrition school policy (21).

A study was conducted by the School Health Unit of the MoH in the West Bank on foods sold at school canteens show that more than 70 % of the products sold in the canteens were foods with poor nutritional value such as 'bamba' (cheese puffs), sweets and chips (18)

Problem statement:

Evaluation is considered an important part of health program. It is a planned assessment of the implementation and effects of policies, programs, and projects. The aim of evaluation is to provide judgment about the process and results (22). Evaluation is used to improve the practice, and provide evidence and justification for the work. There are three types of evaluation, starting from process to outcome and impact (23). It is useful in informing and measuring changes while implementing the policy and assessing whether there is a need for regulations or not (23).

The MoE staff usually monitors the school canteens for implementing the policy, but not using a fully scientific approach to evaluation. So, based on their needs and shortage of data related to this topic, the evaluation of the school nutrition policy using a scientific approach will be done.

1.5 Aim and Objectives

The aim of this study is to evaluate the implementation process of the “school nutrition policy” program at public schools in the northern West Bank.

Objectives:

1. To evaluate food items served in school canteens compared with the MoE guidelines.
2. To assess the canteen environment compared with the MoE guidelines.
3. To explore canteen workers' **opinions** in implementing the policy.
4. To assess canteen workers' practices in preparing and serving food items.

1.6 Operational & conceptual definitions:

1.6.1 Operational definitions

Canteen: a store that sells food and beverages at schools for the students or the school staff.

Canteen workers: workers who are responsible for preparing and selling food and beverages in school canteens.

Received training: training that was conducted by the MoE with NGO cooperation on managing school canteens and facilitating the implementation of the school nutrition policy.

1.6.2 Conceptual definitions

School canteen follow up: a periodical follow up by a health officer in the MoE and the School Health Department in the district with the Department of Consumer Protection in the Ministry of Economy and the Environment Department at the MoH to check the implementation of the school nutrition policy, especially in school canteens based on lists of the policy (20). This follow up starts with information about the school itself, the first part related to the infrastructure of school canteen and usually done once every three years. The second part related to the instruments used in preparing and serving food and beverages in the canteen and usually done once every two years. The third part related to the nutritional standards which are done yearly, beside the fourth section related to food safety and hygiene (20).

Food-items checklist: A classified food list according to the possibility of food to be sold in the school canteen, based on a clear scientific basis, by which the extent of the food items to provide the main nutritional elements for the human body: fat, carbohydrates, protein, fiber, vitamins, and mineral is considered (20). This checklist contains different parts starting with foods that are allowed to be sold without conditions, like fresh fruits, vegetables, and low fat dairy products. Secondly, food sold permitted

within small containers, such as fried potatoes, chewing gum, and canned fruits. Thirdly, forbidden foods sold in school canteens, like soft and energy drinks, chips, and marshmallows.

Chapter II

Literature Review

Several studies have evaluated the implementation of school nutrition policies worldwide. Some of them are related to the impact of the nutrition policy. One of these studies was conducted in California (24) to assess the impact of legislation related to nutrition standards for foods and beverages that compete with school meals, using documentation of offered foods and beverages, surveys of and interviews with students and food service workers and sales accounts to conduct 3 studies measuring pre- and post-legislation, food and beverage availability, sales, and student consumption in 99 schools. It found that there was an increase in the availability of nutrition standard-compliant foods and beverages, while the availability of non-compliant items had decreased, and there was an enormous reduction in sodas and sweetened beverages, chips, and candy. School consumption of some non-compliant foods dropped, while regarding the home, the selected non-compliant foods did not increase.

Another study was operated in three middle schools in Houston (25) to assess the impact of changes in school food policy on student lunch consumption and the results in general were that student consumption of sweetened beverages declined, while milk, Calcium, vitamin A, saturated fat and sodium intake increased after the policy change. Snack chips consumption from the snack bar declined in year; however, the number of vending machines and consumption of snack chips and candy from vending machines doubled during the study period.

A study in Leeds (26) was carried out to implement a school-based health promotion program aimed at reducing risk factors for obesity. To evaluate the implementation process and its effect on the school, 634 children (350 boys and 284 girls) aged 7-11 years responded to questionnaires, teachers' evaluation of training and input were collected, evaluating the content of school meals was done, and children's knowledge of healthy living beside self-reported behavior was assessed. Results showed that 76 (89%) of the action points determined by schools in their school action plans were achieved, beside positive changes in school meals. Since the support for nutrition education and promotion of physical activity was expressed by teachers and parents, children showed a higher score for knowledge, attitudes, and self-reported behavior for healthy eating and physical activity.

A cross-sectional survey was done in Palestinian schools (53% from West Bank and 47% from Gaza Strip) in grades 6, 8, 10 and 12 students with a total of 8885 students were included to describe the food habits and physical in-activity patterns among Palestinian adolescents (27). Results show that adolescents in the West Bank consume more fruit, meat, chicken, sweets and soft drinks, but less vegetables than adolescents in Gaza ($P < 0.01$). Girls reported more daily consumption of fruit, vegetables and sweets than boys ($P < 0.001$), and less consumption of soft drinks, milk, meat and chicken ($P < 0.01$). Boys were physically more active than girls ($P < 0.01$), whereas girls reported doing more homework ($P < 0.001$). Both boys and girls reported less physical activity with

increasing age ($P < 0.001$). Consumption of fruit and milk was positively associated with both parents' education, while consumption of meat, chicken and soft drinks was positively associated with mother's education only. Having breakfast on schooldays was positively associated with the father's education. The parents' level of education had no effect on vegetable consumption and dieting status (27)

These findings indicated that there are problems with Palestinian adolescents' eating, dieting and physical activity. Regional, gender and parental socio-economic status differences should be taken into account (27) .

Generally, concerning the impact of the nutrition policy on school canteens, studies show that there is a reduction in the availability and consumption of empty-calorie food. If no actions are taken toward the whole environment, no significant change occurs (24-26).

Other studies were related to food items served under food and nutrition policies. In Georgia (28), a study titled “Using the school environment to promote physical activity and healthy eating” showed that intramural programs and admission to school physical activity services outside of school hours can provide opportunities for health-enhancing physical activity. School districts and schools can implement creative interventions to promote healthy eating through the foods and beverages offered at school and establishing strong policies. Through school policies, psychosocial support and support for physical activity and healthy eating can be

presented, assuming administrative commitment, role modeling by school staff, and the use of cues and incentives.

Studies on food items served under food and nutrition policies show the differences between schools who implement nutrition policy and those that do not (25,26,28).

A study was conducted in the Netherlands (29) to measure the changes in the school environment, awareness and actions regarding overweight prevention among Dutch secondary schools between 2006–2007 and 2010–2011 using questionnaires. The study showed that the percentage of schools with vending machines remained fairly stable for soft drinks (~90%) and sweets (~80%), whereas slightly more schools indicated having a canteen (87%-91%). Healthier food supply was reported in 2010-2011 compared to 2006-2007. Fresh fruits (+8%), sandwiches (+11%), water (+11%) and salad (+7%) and less often sugar sweetened soft drinks (–10%) were offered by canteens and/or vending machines. However, unfavorable changes such as an increase in the supply of pizza slices (+13%) and milk and yoghurt drinks with added sugar (+12%) were also reported. Between 2006-2007 and 2010-2011, the presence of water coolers increased (12% versus 33%) as well as facilities for physical activity (67% versus 77%). Fewer schools indicated that they expect to pay more attention to overweight prevention in the near future (56% versus 43%), but none of them expected to pay less attention.

Steyn K and his colleague (30) carried out a study in Minnesota schools to examine associations between high school students' lunch patterns and vending machine purchases and the school food environment and policies. A randomly selected sample of 1,088 high school students from 20 schools was chosen who completed surveys about their lunch practices and vending machine purchases. School food policies were assessed by principal and food director surveys. The number of vending machines and their hours of operation were assessed by trained research staff. Results showed that fast food was significantly more consumed by students who are at schools with open campus policies during lunchtime compared to students at schools with closed campus policies (0.7 days/week vs. 0.2 days/week, $p < .001$). Student snack food purchases at school were significantly associated with the number of snack machines at schools ($p < .001$) and policies about the types of food that can be sold. Students purchased soft drinks from vending machines 1.4 ± 1.6 days/week as compared to 1.9 ± 1.8 days/week in schools in which soft drink machines were turned on during lunch ($p = .040$).

A study was operated in Portuguese school canteens (31) to evaluate food handlers' knowledge and self-reported behavior regarding the safe handling of food in school canteens. The study was operated in 32 school canteens and included 124 participants. A reasonable level of knowledge, particularly regarding personal hygiene and cross-contamination were displayed by food handlers, but they fare worse in other areas. The level of knowledge displayed was influenced by age, motivation and training.

A high accuracy in handlers' self-reported behavior towards food safety was observed, with a negative trend appearing when workload was increased. Assessment of current knowledge levels indicates that food professionals need to be made significantly more aware of the importance their actions can have on children's health.

Summing up, healthier food supply was reported after nutrition policy implementation compared to other schools. Also, food handlers show a higher level of knowledge, which leads to healthier attitudes(29-31).

Other studies were related to school environment and food and drinks in schools. A study was conducted to check if school environment and policies affect choices at school and away from school that found that school lunch participants consume more fruits and vegetables, relatively more at school and less away from school compared to non-participants (32). Meal policies had little effect on participation itself. Policies that restrict high fat milks or desserts and restrict the sale of competitive foods are associated with greater fruit and/or vegetable intake at school.

In the USA (33), a study was carried out to describe food-related policies and practices in secondary schools in Minnesota (n=610; response rate: 463/610=75%). **From the returned surveys which met the eligibility criteria there was only** 32% of principals reported a policy at their school while 65% believed it was important to have a nutrition policy for the high school. However, principals reported positive attitudes about providing a healthy school food environment, but 98% of the schools had soft drink

vending machines. Food sold at school was mostly candy, fruit, and cookies.

A study was done in 1999 in Denmark (34) to describe food and drinks available in food stands or canteens in Danish schools and food and drinks provided at after school care institutions using survey results that 3% of schools and 4% of after school care institutions have a written policy on nutrition. Despite the low levels of written policies, all Danish children had access to milk at school and are free to choose between milk with low and high content of fat. Vending machines are rare at schools and are not present at all at after school care institutions. Fruit is available daily in 35% of schools, and only 10% of schools offer children sugared carbonated drinks at food stands. In after school care institutions, sweets and sugared carbonated drinks are rare. However, juice is served daily in 47% of after school care institutions.

A study was conducted in Malaysia by using cluster sampling demonstrated that food handlers' attitude have positive and significant relationships with safe food handling. Adherence to school canteen rules and government regulations play important roles in influencing food handlers' attitude towards safe food handling. (35)

In summary, these showed that nutrition policy can help to have positive attitudes and supportive school environments, which is reflected by serving healthier food which means a higher intake of it.

Chapter III

Methodology

Study design:

A **triangulation study** was used in schools to achieve the study objectives. Its an observational analytical design .For the first, second , **and forth** objectives, a cross-sectional design was used, while for the third objective a structured-interview **was** used.

Study settings:

The study was conducted in governmental schools in the Nablus **governorate** during the period from April 2015 to May 2015. A list of 165 governmental schools in Nablus district was obtained from the MoE, among which the required sample was chosen using a random number generator. Schools were chosen randomly from Nablus district which by that cover the city and villages, basic and high schools, and male and female schools to start completing the food items checklist

Study population and sample:

The population of the study included canteens of governmental schools in Nablus and canteen workers. For the first , second, and forth objectives, **school canteens were the study population.** For the forth objective, **school canteen workers were the study population.**

A convenience sample **consists** of **16** canteen workers in public schools was selected and interviewed. It was conducted in 16 governmental

schools in the Nablus district to ensure the saturation of sample size for the interviews and 16 governmental schools in Nablus district to make it represented sample for the checklist. A simple random sample of canteens in governmental schools was applied to select the participant schools. Each school in Nablus governorate was given a number, and then we obtained the needed sample randomly, using a random number generator application which by the 16 school canteens were from the city and the villages .

To achieve confidence interval of 95% and standard error of 5% , the following equation was used :

$$N = Z^2 P(1-P)/d^2$$

N= sample size

Z= Z statistics for a level of confidence, = 1.96

P= Expected proportion = 12%

d= confidence interval

According to this equation the sample size was 16 school canteens.

Data collection tools:

Data collection tool was composed of 2 parts: the first one was consisted of checklist the other part was consisted of interview

Checklist: It was constructed based on the MoE guidelines (Appendix 1) and by observation it was used for evaluating food items in canteens, for

assessing the environment of the canteen itself, and for assessing the canteen workers' practice. The checklist **was modified in some sections** to meet the study objectives, like removing the height and number of windows in the school canteen environment section. Additionally, the break duration from the food-items section was also removed.

– **Structured interview** (Appendix 2): was **established and** used to express canteen worker experience, strengths, weaknesses and barriers; the interview was recorded after getting the consent of participants. **The first part was related to socio-demographic characteristics. The second section was related to school canteen workers satisfaction and opinions regarding the school canteens which was an open ended question .**

Field work:

Visits were done after the coordination between the schools itself, MoE employee and the researcher without informing canteen workers. Those visits were done during the break to obtain data for checklist and to complete the structured-interview while there is no break.

Study variables:

Dependent variables:

– **School canteen environment score (continuous variable):** These points are related to the existence of the canteen itself and the building, such as the tile on the walls, the canteen water from a drinkable source, and the machines to prepare food (mixer, oven). **Each question reflected one item and got a score of one if it exists and zero if not;** the total for this variable

is 14 points which were divided into three categories: excellent (10-14 points), good (5-9 points), and fair (1-4 points) (36).

– Food-items score (continuous variable): These points are related to food nutrition labels, and accepted and forbidden food-items. Each question reflects one item and got a score of one **if it exists and zero if not**. The total for this variable is 19 points, which was divided into three categories: excellent (14-19 points), good (7-13 points), and fair (1-6 points) (36).

– Practice score (continuous variable): These points are related to worker hygiene and method of preparing food, such as wearing uniforms, maintaining health standards, and cleaning the canteen daily. **If those items were exists**. Points were divided into three categories: excellent (9-12 points), good (5-8 points), and fair (1-4 points) (36).

Independent Variables:

- Socio-demographic characteristics: Age (continuous), gender (nominal either male or female), educational level (ordinal: uneducated, primary, secondary and university education), marital status (nominal: married, unmarried or widow), place of residence (nominal: refugee camp, village, or city)
- School canteens follow up:
 - Infrastructure: canteen building existence and its doors and windows, toilets, etc. of school canteen. **Canteen which has these requirements considered 1 and the missing one considered 0** (nominal: if yes 1, if no 0).

- Instruments: A refrigerators, tables, plates, knives oven, etc. used in preparing and serving food and beverages in the canteen. **Canteen which has these requirements considered 1 and the missing one considered 0** (nominal: if yes its 1, if no 0).
- Nutritional and food safety and hygiene: the source of food, its validity and storage, etc. **Each point if it meet the standards it is considered 1 and if not its 0** (nominal: if yes 1, if no 0).
- Food-item checklist: **Appendix (3)was evaluated into three sections based on the MoE school nutrition policy:**
 - Allowed to be sold without conditions: foods which are high in fiber, vitamins and minerals, and protein, such as fruit, vegetables and milk (nominal: if yes 1, if no 0).
 - Allowed to be sold in small quantity which are low in fiber but have vitamins and minerals and protein, like biscuits, cake, fried potatoes, etc. (nominal: if yes 1, if no 0).
 - Forbidden foods to be sold which are high in fat, sodium and sugar (nominal: if yes 1, if no 0).
- Received training: if the canteen workers received training either from the MoE or NGOs. Those received training were coded as 1 and zero for those who didn't receive(nominal: if yes 1, if no 0)

This was a checklist that constructed based on MoE policy manual, which is officially used by them .

- **Data collection procedure:**

At first, schools were given a number to be used by a random number generator;. Visits were done during the period April 2015 to May 2015 after the coordination between the schools itself, MoE employee and the researcher, without informing school canteen workers .An approval letter was taken from the MoE which letter was shown to school principles before starting data collection in each school. Each day 2-3 schools visits were done. During the same visit, face to face interviews with canteen workers were conducted on the school canteen itself while there is no break for the students and, finally, observation of canteen worker practice during the break.

Data analysis plan:

The Statistical Package of Social Sciences (SPSS) version 22 was used for data entry and statistical analysis.

Ethical consideration:

The study was approved by the Institutional Review Board (IRB) at An-Najah National University. Appropriate permissions were taken from the university and the MoE before conducting the study, beside permission for taking pictures. A brief summary about the study and its objectives was provided to participants and anonymity of the participants and confidentiality of the collected data was assured. Verbal consent was taken from all participants before the interview.

Chapter IV

Results

The purpose of this study is to evaluate the **implementation** of the “nutrition school policy” in public schools in the northern West Bank. This chapter will include four main parts: the first part deals with food items served in school canteens compared with the MoE guidelines; part 2 deals with the canteen environment; part 3 deals with canteen workers' experience in implementing the policy; and part 4 deals with canteen workers' practices in preparing and serving food items.

In this study the total sample size was **16** schools canteens and 15 canteen workers, and the response rate was 100%.

4.1 Canteen environment

Table 1 shows school canteen infrastructure .The majority (88%) have canteens inside the schools; one of them does not have canteen but offer products for students; 86% of them have canteens in a separate room, 80% of the school canteens are far enough from toilets, and only 40% of the school canteens have channels covered and slanted to drain water during production and cleaning processes.

Regarding canteen internal standards, 60% of school canteens did not have ceramic walls, almost half of them (53%) had adequate ventilation and lightning, and only 20% had screens on doors and windows. This study showed that almost 73% of school canteens have a source of drinkable water, 80% have a sink to be used by workers, and only 33% of school

canteens have suitable shelves and pantries to be used while working. While 67% have sufficient and appropriate equipment and working area, only 33% of school canteens are fully equipped. The majority of schools (93%) have refrigerators to store extra food and 93% use non-metal material while preparing food.

Table 1: School Canteen Infrastructure (n=16).

Question	Yes	No
	Frequency (%)	Frequency (%)
Is there a canteen in the school?	14 (87.5)	2 (12.5)
Is the canteen in a separate room?	13 (86.6)	2 (13.3)
Is the canteen far from toilets?	12 (80.0)	3 (20.0)
Are there covered channels and slanted floors to drain water during production and cleaning operations?	6 (40.0)	9 (60.0)
Is there tile on the walls of the canteen?	6 (40.0)	9 (60.0)
Is the available water in the canteen from a drinkable source?	11 (73.3)	4 (26.6)
Is there adequate ventilation and lighting in the canteen?	8 (53.3)	7 (46.7)
Do canteen workers have a sink?	12 (80)	3 (20.0)
Is the canteen area sufficient and appropriate for the equipment and selling process?	10 (66.7)	5 (33.3)
Are there machines to facilitate preparing food, like a mixer and oven?	2 (13.3)	13 (86.7)
Is there a refrigerator to store food?	14 (93.3)	1 (6.7)
Is there a screen on the doors and windows?	3 (20.0)	12 (80.0)
Are there a suitable shelves and pantries for storage?	5 (33.3)	10 (66.7)
Are the used tools (tables, dishes, knives) from non-metal materials?	14 (93.3)	1 (6.7)

Almost all participating schools got a good score regarding the school canteen environment when compared to the MoE guidelines, Figure 1 presents the categories of score for school canteen environment as the total for this variable is 14 points which were divided into three categories: excellent (10-14 points), good (5-9 points), and fair (1-4 points).

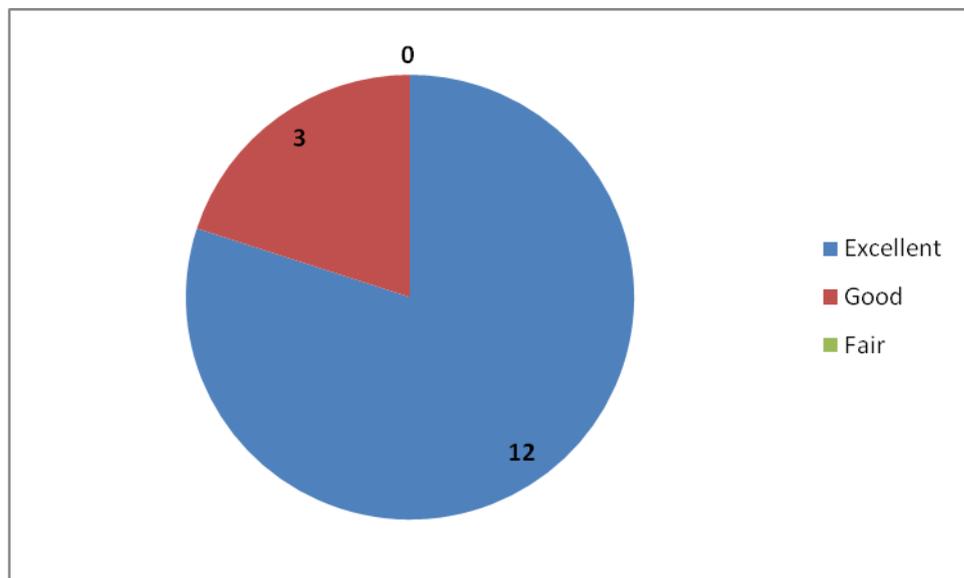


Figure 1: Categories of score for school canteen environment

4.2 Food items served in school canteens

Table 2 showed the frequency of food items served in school canteens. Results showed that 93% of the school canteens' items met the health requirements, and 93% of the school canteens' items have nutritional labels that are matched to food items.

Regarding sandwiches, almost half of school canteens (47 %) use plastic bags to protect food items from contamination. About 80% of school canteens usually serve a minimum of three types of sandwiches, while the majority of those sandwiches (93%) are kept according to health standards.

Forbidden food items: there were no soda drinks, energy drinks, salty nuts, marshmallows, ras-alabed, jello, and any other product that doesn't adhere to the Palestinian health standards.

During this study, it was shown that 53% of school canteens have juices with less than 10% natural fruit; also, 13% of school canteens have puffed corn products, potato chips and chewing gum, while only 7% of school canteens have sweets made from water, sugar, starch, and gelatin.

Healthy food items alternatives

Table 2 showed that more than the half (67%) of school canteens serve pastries, 40% serve mineral water, 33% serve fruit of different types (whether fresh fruit, canned, or fruit salad), around one-third (27%) serve vegetables of different types (whether fresh vegetables, canned, grilled, or salads). None of the school canteens serve fresh fruit juices, while only 7% of them serve yogurt and flavored milk.

Table 2: Frequency of food items served in school canteens (n=15) .

Question	Yes	No
	Frequency (%)	Frequency (%)
Are sold items meeting health requirements?	14 (93.3)	1 (6.7)
Do nutritional labels exist and match with food items?	14 (93.3)	1 (6.7)
Are there plastic bags to protect sandwiches from germs?	7 (46.7)	8 (53.3)
Are there multiple kinds of sandwiches (at least three kinds)?	12 (80.0)	3 (20.0)
Are those sandwiches kept by health standards?	14 (93.3)	1 (6.7)
Presence of soda and/or energy drinks?	0 (0.0)	15 (100.0)
Are there soft drinks out of fruit juice in a ratio that is less than 10%?	8 (53.3)	7 (46.7)
Is there puffed corn and chips?	2 (13.0)	13 (87.0)
Presence of marshmallows and Ras al-abed and clear fruit-flavored jello?	0 (0.0)	15 (100.0)
Processed sweets made of water, sugar and gelatin, including colored grains, etc.?	1 (6.7)	14 (93.3)
Presence of gum?	2 (13.0)	13 (87.0)
Presence of salty nuts?	0 (0.0)	15 (100.0)
Presence of pastry?	10 (66.7)	5 (33.3)
Presence of buttermilk?	1 (6.7)	14 (93.3)
Presence of multi-flavored milk?	1 (6.7)	14 (93.3)
Presence of natural juices?	0 (0.0)	15 (100)
Presence of mineral water?	6 (40.0)	9 (60.0)
Presence of vegetables?	4 (26.7)	11 (73.3)
Presence of fruit?	5 (33.3)	10 (66.7)

Almost all schools got an excellent score regarding the served food items in their canteens when compared to the MoE guidelines according to this categories ; excellent (14-19 points), good (7-13 points), and fair

(1-6 points) . Figure two presents the categories of score for served food items

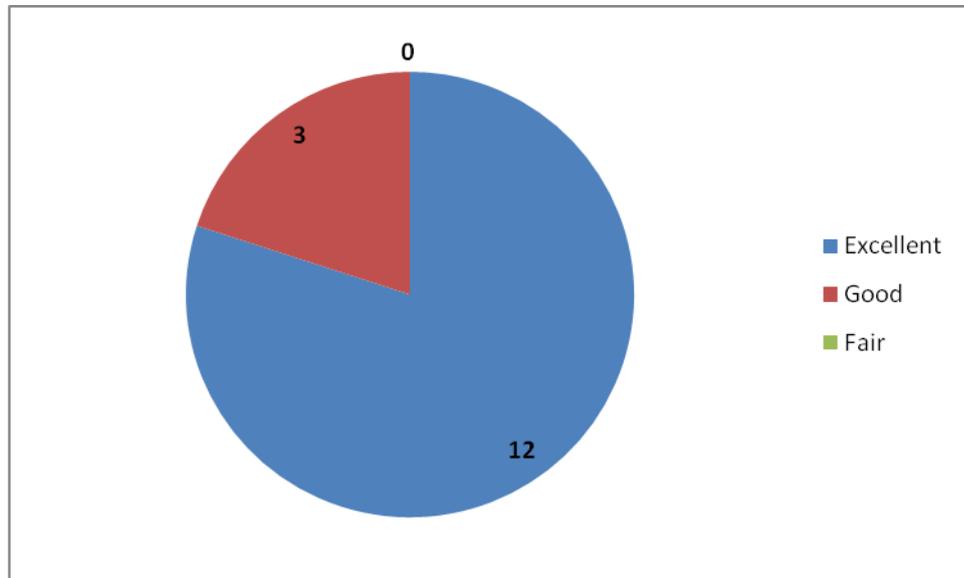


Figure 2: Categories of score for served food items

4.3 Canteen workers' practices in preparing and serving foods

Table 3 summarizes Food safety and cleanliness of school canteens. All workers in school canteens maintain the health standards. 88% of school canteen workers follow healthy habits (like no smoking) in canteens, while only 33% of them use healthy dress (uniforms, gloves, etc.) during preparing and serving food items. Regarding training, only 27% of them reported attending trainings held by the MoE.

Regarding food items, all school canteens have trusted known sources for food, the food is transferred according to health standards with a clear and specific date of validity, while none of the school canteens have any dangerous materials.

Regarding cleanliness and sanitation, 93% of used tools are cleaned immediately after use, 80% of school canteens are cleaned daily, while only 33% of school canteens have enough garbage baskets that are covered with plastic bags.

Table 3: Food safety and cleanliness of school canteens (n=15).

Questions	Yes	No
	Frequency (%)	Frequency (%)
Do canteen workers maintain the sanitary conditions and decency?	15 (100.0)	0 (0.0)
Do they use (uniforms, gloves, etc.) when preparing meals and selling them?	5 (33.3)	10 (66.7)
Do they take into account the health habits in the canteen (not smoking, washing hands, no guests)?	13 (86.7)	2 (13.3)
Do they attend training of school canteens?	4 (26.7)	11(73.3)
Are the sources of food known?	15 (100.0)	0 (0.0)
Is the food transported in a healthy way to protect it from pollution and corruption?	15 (100.0)	0 (0.0)
Is the storage and sale process of food done in a healthy way to protect it from damage and corruption?	14 (93.3)	1 (6.7)
Does the expiry date exist on food?	15 (100.0)	0 (0.0)
Are there any hazardous substances sold in the canteen (fireworks, glass containers, materials expired)?	0 (0.0)	15 (100.0)
Are the used tools cleaned immediately after use?	14 (93.3)	1 (6.7)
Is the canteen cleaned daily?	12 (80.0)	3 (20.0)
Are there enough trash baskets in canteen?	5 (33.3)	10 (66.7)

Almost all participating schools got excellent scores regarding canteen workers' practices in preparing and serving food items. Points were divided into three categories: excellent (9-12 points), good (5-8 points), and fair (1-

4 points). **Figure three shows the categories of score for canteen workers practice.**

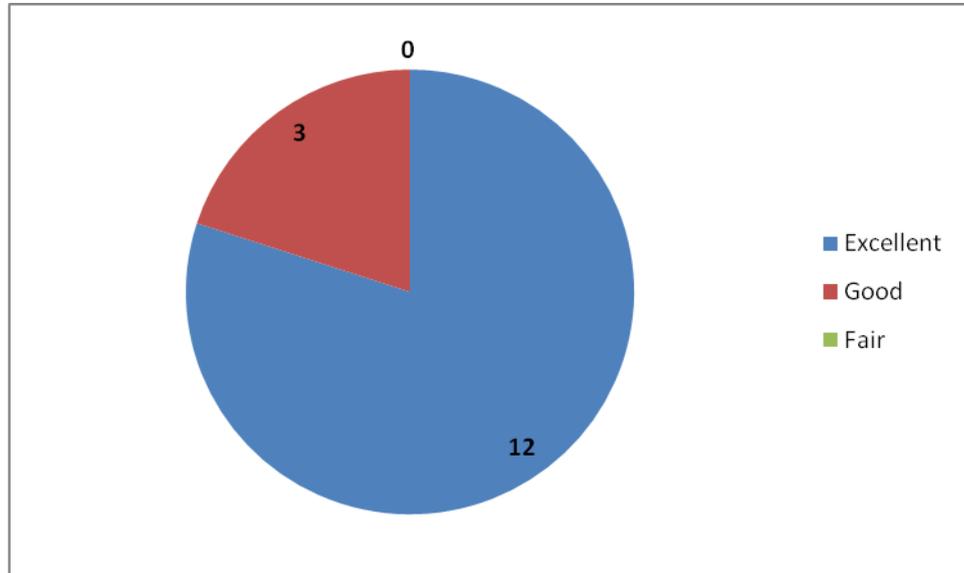


Figure 3: Categories of score for canteen workers practice

4.4 Canteen workers experience in implementing the policy

Interviews were held during the period from April 20th to May 15th with 15 school canteen workers **since one school do not have canteen and do not serve food items in the school at all**, which were randomly chosen to get in-depth data about their satisfaction level about the nutritional policy itself, and the canteens, beside their **opinion** about the strengths, weaknesses, opportunities, and threats of school nutrition policy, this interviews were done for the instruction which reflect school nutrition policy. Those interviews were held after calling the schools to make appointments and take permission to enter and record. Each interview took around 15 minutes, and was recorded for the purpose of collecting data with high confidentiality.

Socio-demographic characteristics

Table 4 shows the socio-demographic characteristics of school canteen workers. The majority of participants were females (66.7%). The mean age of participants is 42.9 years, (SD \pm 10.8). Results also show that 33.3% of participants were single while 66.7% were married, and none divorced or widowed.

About one fourth (26.7%) of participants are living in a village while 73.3% of them are living in city, and none from refugee camps. Only 13.3% of them have higher education while 40% have primary education and 46.7% have secondary education (Table 4).

Table 4: Socio-demographic characteristics of school canteen workers (n=15).

Variable	Frequency	Percent
<i>Sex</i>		
Male	5	33.3
Female	10	66.7
<i>Age group</i>		
≤ 30	2	13.3
31-40	3	20
41-50	8	53.3
>50	2	13.5
<i>Academic level</i>		
Primary education or less	6	40.0
Secondary education	7	46.7
Graduated	2	13.3
<i>Marital status</i>		
Single	5	33.3
Married	10	66.7
<i>Residency</i>		
Village	4	26.7
City	11	73.3

Level of Satisfaction of school canteen workers

Almost half of participants showed satisfaction regarding the quality of the building dedicated for the canteen. One of canteen workers said: *“It’s well organized and has shelves which help me during my work”*. The other half show dissatisfaction since many of the canteens are small or in the basement or they do not have a canteen at all. One of the canteen workers said *“I’m not satisfied; if an earthquake happens the stairs will fall on our heads”*. One canteen worker commented *“the school is a gift from the Samaritan community. There was no canteen but we adapted and made the science laboratory into a canteen”*. Another commented: *“My canteen is not healthy; there is not enough ventilation so it’s always wet and it’s small”*. The equipment quality shows higher satisfaction among canteen workers since many of the schools receive equipment as donations. Many of them have a cooker, oven, refrigerators, shelves and lockers, and non-metal materials for used tools. One of the workers said: *“I have excellent equipment in all canteens I work in”*. One canteen worker described: *“the equipment quality is good, and it’s getting better, so I can offer students healthier choices”*. Other canteen workers show lower levels of satisfaction due to a lack of equipment. Regarding canteen workers' ability to understand the school nutrition policy, those workers who had training before they worked can understand and apply the policy perfectly; others, which are the majority, do not understand or even know about it. They only know about the forbidden food items and the uniform they have to wear, both of which were announced by the schools' directors or by

experience. One of the canteen workers said: *"I do not know about the nutrition policy, but I know what is allowed and what is forbidden regarding food items"*. Other workers commented: *"I do not know about it"*. Another commented: *"I know about health aspects, but deeply I do not know about the nutrition policy. I know it's forbidden to use Israeli food items, so I'm trying to bring alternatives"*. Canteen workers who attended trainings understand and apply the policy very well. One of canteen workers commented: *"I understand the nutrition policy and apply it in all canteens I work with"*. Another commented: *"I understand the nutrition policy since I was working in private schools"*.

Opinion of canteen workers

A structured interview was developed for assessing strengths, weaknesses, opportunities, and threats of canteen workers. All 15 participants accepted to be interviewed.

The vast majority of canteen workers use the term guidelines and forbidden list instead of school nutrition policy, they agreed that the forbidden food items list is for the benefit of everyone, especially the students, and helpful in improving community health comprehensively. One canteen worker described: *"the school nutrition policy improves everyone's health; it's good"*. Another worker said: *"It's a powerful policy that helps improve students' health"*. Only one worker commented: *"It is a slogan without any application; there is a lack of awareness in the home and among mothers, which makes it useless"*.

All canteen workers agreed that the nutrition policy focuses on serving healthy food items for students, the nutrition policy is inclusive and comprehensive, and strong enough as it cares about the students' health, which improves their academic performance and their growth. One of workers said: *“It can help students gain healthy habits”*. Another commented: *“It’s a nutrition plan which helps control their diet during this age”*.

Also, canteen workers agreed on some weak points, such as that the policy does not contain instructions related to smoking, which is a phenomenon especially in male schools. The second main point that the vast majority of canteen workers agreed upon was that there is weak monitoring on supermarkets and cafeterias around the schools. One canteen worker commented: *“Due to a lack of awareness among students, they buy forbidden food items from outside the school canteen, and consume it during the break. This affects students' health and works against the school nutrition policy”*. Another canteen worker commented: *“We can’t control what students consume because there is no nutrition policy outside the school”*.

Regarding the difficulties canteen workers face, the majority of canteen workers agreed that many students do not accept new healthy food items. One canteen worker described: *“The lack of awareness among students and their family make applying the school nutrition policy harder”*. Another worker said: *“There is no nutrition policy outside the school, and a lack of awareness”*.

Canteen workers see opportunities to improve the school nutrition policy by suggesting extra training for all school canteen workers; others suggested weekly programs for increasing the awareness among students, family members and school staff. One canteen worker suggested using more home-made healthy food items and to get-rid of unhealthy food items.

All canteen workers agreed that the only threat they face is the outside cafeterias and supermarkets.

Chapter V

Discussion

The school nutrition policy consists of clear standards for school nutrition programs in general, and school canteens in particular to promote healthy behaviors in Palestinian society.

This study was conducted to evaluate the implementation of the school nutrition policy at public schools in the northern West Bank. Evaluation studies are based on a scientific approach, which will help determine any need for regulation to help reach the main goal of the policy. Also, it will give recommendations to make modification to improve the application of the school nutrition policy for better outcomes for the students and therefore **for** the community.

This study is triangulation study, which was conducted on 16 governmental schools in the Nablus district. A list of 165 governmental schools in the Nablus **governorate** was obtained from the MoE, and by using a random number generator the sample was chosen.

This chapter will include: firstly, food items served in school canteen; secondly, the canteen environment compared with the MoE guidelines; thirdly, canteen workers' **practice** in implementing the policy, and finally canteen workers' practices in preparing and serving food items.

Canteen environment

The majority of schools have canteens inside the school, which is a good indicator of responding to the nutrition policy. Also, 87% of these schools have canteens in a separate room. Despite that most of the schools' canteens are far enough from toilets to avoid any contamination that could occur and to ensure the safety and high quality of food, still 20% of schools have their canteens near toilets. This is due to bad and old construction since many schools were old houses. For the same reason, only 40% of those school canteens have channels covered and slanted floors to drain water during production and cleaning processes, which affects the process of excluding dirt, dust, fumes, smoke and other contaminants, and prevent the entry of pests.

Regarding canteen internal standards, more than the half of school canteens did not have ceramic walls. This facilitates cleaning and prevents the accumulation of dirt and reduces condensation and the growth of undesirable mould and the shedding of particles. This situation is due to improper school construction, as some of them were designed for other purposes than a school. Consequently, the canteens were not designed for this purpose. Adding to this, only half of school canteens have adequate ventilation and lightning due to old and inappropriate buildings of schools themselves and canteen in particular , which affects food hygiene practices including protection against contamination between and during operations; only one-fifth of canteens have a screen on doors and windows , **It serves to keep leaves, debris, insects, birds, and other animals from entering**

without blocking fresh air-flow . Two-thirds of school canteens have a source of drinkable water, and have a sink to be used by workers while producing and cleaning process . Only one-third of school canteens have suitable shelves and pantries to be used while working. This is due to unsuitable canteen structure, which may affect the food storage and increase the probability for contamination and food-borne illnesses. Two-thirds have sufficient and appropriate equipment and working area adequate to facilitate the work and give space for food preparation and food storage. This facilitates the workflow and prevents contamination during the cooking process.

Food items served in school canteens

This study shows an excellent score regarding the served food items served in school canteens as it was compared to MoE guidelines. Almost all school canteens meet health requirements and have nutritional labels on food items due to regular monitoring done by MoE employees. This was found to be comparable to what was reported in some studies (28) (25) Monitoring of school canteens is done randomly, which increases the credibility. This encourages students to read nutritional labels and focus more on the needed nutrients they have been educated about during their classes.

Regarding sandwiches, half of school canteens laminated plastic bags to protect food items from pollution, since bagged prepared food reflects consumer demand for fresh, healthy, convenient, and additive-free foods

that are safe and nutritious, which promote the healthy aspect for students. While half of school canteen workers did not wrap food items, this increases the opportunity for food-borne illnesses. **These findings are consistent with the study that shows that there is higher demand for healthier food supply especially sandwiches (30)** .This can be double-edged: food must be protected from contamination, but using the right materials. Plastic bags may be harmful for students' health. Additionally, food must be protected from pollution so it's advised to specify a safe material to protect food items with in school canteens.

The majority of school canteens usually serve a minimum three types of sandwiches; 94% of those sandwiches are kept according to health standards. **This was found to be comparable to what was reported in some studies (25), which** gives a diversity to students and increase the opportunity to eat balanced diets, so it improves their health outcomes and assures they get adequate nutrients.

Regarding forbidden food items; there were no soda drinks, energy drinks, salty nuts, marshmallows, ras-alabed, jelly, and any products that do not match the Palestinian health standards. **This was found to be counteractive with the study of USA which show that food sold at school was mostly candy, cookies and soft drinks (34)**. This helps students have a high quality of food with diversity rather than quantity, which improves their lifestyle and helps them gain healthy habits. This is due to regular monitoring done by the MoE staff after distributing the forbidden food items list to all

school canteens, although if any forbidden food items are found, not enough actions are done.

Almost half of school canteens have juices with less than 10% natural fruit, 13% of school canteens have puffed corn products, potato chips, and chewing gum, while only 6% of school canteens have sweets made from water, sugar, starch and gelatin. **These findings are consistent with the study that show that school food policies decrease access to foods high in fats and sugars are associated with less frequent purchase of these items in school** (33). This indulgence in some forbidden food items is due to a weak penalty system for canteen workers, which in a way or another affects students' health negatively since these types of food items are high in calories and low in nutrients. As canteen workers focus on profit, these types of food items are cheaper than healthy food and with a high demand so they give back higher profit.

Almost two-thirds of school canteens serve pastries, which is a home-made alternative help provide student with essential nutrients and modify their dieting habits; 40% serve mineral water as an alternative for juices and soft drinks, even though schools have a drinkable source of water, students, especially females in higher grades practice their knowledge toward water as drinking water with zero calories is a healthier alternative and involved in all body functions. Around one-third served fruits in different types (whether fresh fruit, canned, or fruit salad) to help students get a higher dose of vitamins and minerals with the lowest amount of calories and sugar as a substitute for juice, chocolate and chips. Regarding vegetables, one-

third served vegetables (whether fresh vegetables, canned, grilled, or salads). **Which are low percentage as policies that restrict desserts and restrict the sale of competitive foods are associated with greater fruit and/or vegetable intake at school** (28) (29). This gives higher opportunity for students to have healthier alternatives and gain healthier habits for the long-term by reducing the risk of a variety of diseases, including heart attack, stroke, and obesity.

None of school canteens serve fresh fruit juices. Although fresh juice is nutritious, it is full of calories and sugars. Eating the whole fruit with its vitamins, minerals, fibers and calories is healthier. Only 6% of them serve yogurt and flavored milk, this percent is very low compared to students' need for calcium during these ages. This is consistent with what has been shown in the guidelines of the Dubai health directorate. They prohibited some food items in school canteens starting from all kinds of soft drinks, energy drinks, all types of fruit drinks, milk, and yogurt with synthetic flavors. All types of chewing gum and candies, bofak (a special type of chip), sweets composed of excessive sugar, plain chocolate, food items containing monosodium glutamate, high-fat food, and chips were also prohibited (37).

Canteen workers' practice in preparing and serving food items

Among 15 participating schools, almost all schools got an excellent score regarding canteen workers' practices in preparing and serving food items.

All workers in school canteens maintain the health standards compared to MoE guidelines. The majority of school canteen workers take healthy habits in their consideration in canteens due to the regular monitoring done by MoE staff, which encourages them to follow healthy habits despite the fact that only one-third of them attended the training held by the MoE. **This was consistent with what was reported in other studies as food handlers displayed a reasonable level of knowledge, particularly regarding personal hygiene and cross-contamination (35).** However, only one-third of them use healthy dress (uniforms, gloves, etc.) during preparing and serving food items, which may reflect people's culture and beliefs toward formal dress, which actually protects them from injuries and avoids food contamination.

Regarding food items, all school canteens have trusted known sources for food, and the food is transferred according to health standards with a clear and specific date of validity. None of the school canteens have any dangerous materials, which show a good understanding of the part related to forbidden items considered in school nutrition policy.

Concerning cleanliness and sanitation, the majority of used tools are cleaned immediately after use; 81% of school canteens are cleaned daily, which results from routine checking from the school manager and the existence of health committees in each school beside the unexpected monitoring visits of MoE staff. However, only one-third of school canteens have enough garbage baskets that are covered with plastic bags, as canteen workers are limited with a small area.

Canteen workers' experience in implementing the policy

The majority of participants were females, a finding which is consistent with a study that shows that 69.5% of food handlers are females (38) . Since the community encourages women to work for a small number of hours, many of them face poverty and need any job opportunity. The community orientation usually prefers females for any related cooking jobs.

The mean age of participants is 42.9 years (± 10.8). This is consistent with a study that shows that the mean age for food handlers was 41 +/- 12 years (38). These ages have more free time to work and need financial stability.

Results also show that one-third of participants were single, while two-thirds were married, and none divorced and widowed, since most of them are housewives and unemployed and need an easy work with limited working hours to improve themselves.

Results show that only 13.3% of them have higher education while 40% have primary education and 46.7% have secondary education. In Palestine, women are often less educated since parents do not consider females as earning members of their family, and after marriage they have to leave their parents' home; also, many girls get married at an early age (39).

Almost half of participants show satisfaction regarding the quality of the building dedicated for canteen. This result could be misleading since many of them have a low educational level and face poverty so they are satisfied

with any condition, even if it's below the standards. As mentioned before, many schools were old houses or founded for other reasons, so their structure does not fit the school needs. Another reason is that there is no regular maintenance for the canteen and the schools themselves. The equipment quality shows higher satisfaction among canteen workers since many of schools receive equipments as donations; many of them have a cooker, oven, refrigerators, shelves and lockers, and non-metal materials for used tools. Also many canteens offer ready-packaged food so there is no need for high level equipment.

Related to canteen workers' ability to understand the school nutrition policy, workers who had training before they began work could understand and apply the policy perfectly **This findings are consistent with the study of Portuguese that show that the level of knowledge was influenced by training** (31). Others, which are the majority, do not understand or even know about it; they only know about the forbidden food items and the uniform they have to wear, which were announced by the schools' directors, or by experience. This training is done in cooperation with NGOs, so not all canteen workers attended it. Canteen workers who attend trainings understand and apply the policy very well since the nutrition policy is explained very well beside a part related to financial issues, which encourages canteen workers to attend and get the higher benefit from the training. Governmental schools usually focus on the school itself and pay less attention to canteens compared to private schools; this is maybe due to MoE priorities compared to their financial plans.

Opinion of canteen workers

All 15 participants accepted to be interviewed to assess their strengths, weaknesses, opportunities, and threats.

The vast majority of canteen workers agreed that the nutrition policy is for the benefit of everyone, especially the students, and is helpful in improving community health comprehensively. **These findings are consistent with the study of USA that show that 65% of principles believed it was important to have a nutrition policy** (33) Schools provide many of the meals, snacks and beverages students consume in a day. Healthy eating at school supports learning, physical and mental growth and development and the adoption of healthy skills and choices. Students learn best when the lessons they receive in the classroom are consistently reinforced outside of the classroom. Offering healthy food choices in the canteens, and at school events, consistently support students to develop the knowledge, skills and habits needed for lifelong well-being. All canteen workers agreed that the nutrition policy focuses on serving healthy food items for students, the nutrition policy is inclusive and comprehensive, and is strong enough as it cares about the students' health, which improves their academic performance and their growth.

Also, canteen workers agreed on some points of weakness. The policy does not contain a part related to smoking, which is a phenomenon especially in male schools. This habit affects the students' appetite since they always ask for beverages, especially soft drinks, and avoid healthy food items. The

second main point that the vast majority of canteen workers agreed that there is weak monitoring on supermarkets and cafeterias around the schools, and students usually bring all forbidden items from outside sources and due to weak monitoring on students during the break, they consume unhealthy items.

Regarding the difficulties canteen workers face, the majority of canteen workers agreed that many of the students do not accept new healthy food items, especially since they can get unhealthy items at cheaper prices. Also, the social environment that encourages unhealthy food choices since it's cheaper and tastier was seen as a challenge, as was a lack of nutrition policy outside the school itself. **These findings are consistent with the study of Georgia that show that through school polices, and psycho-social support, physical activity and healthy eating can be promoted (28).**

Canteen workers see opportunities to improve the school nutrition policy by suggesting extra training for all school canteen workers to make them more concerned about the policy and how to apply it smoothly; others suggested weekly **educational** programs for increasing the awareness among students, family members and school staff. One canteen worker suggested using more home-made healthy food items and to get-rid of unhealthy food items.

All canteen workers agreed that the only threat they face is the outside cafeterias and supermarkets.

Strength of study

The occupied Palestinian territory (oPt) is a unique situation of fragility because of the Israeli occupation. Despite this situation, policies, plans, programs and services were achieved successfully in the face of geographic division due to Israeli barriers and the internal Palestinian division.

Because of the increased global attention to good nutrition, the MoE & MoH decided to construct the school health program as the target group is easy to shape and adopt healthy lifestyle behaviors and change wrong behaviors.

This study requires careful planning to get benefit from all collected data and integrate it in a perfect way, as different tools were used which gain in-depth understanding and corroboration while offsetting the weaknesses innate while using each approach by itself.

Limitation of study

This study targeted governmental schools in Nablus governorate since no evaluation study on this topic was found. Working in the Nablus governorate only could limit generalizing the findings on other **governorates** in Palestine. However, ongoing school nutrition policy evaluations are needed.

Conclusion & Recommendations

The middle years of childhood are extremely sensitive times for a number of health issues, especially when it comes to adopting healthy behavior that can have lifelong consequences. That is why school nutrition policy is very important as is evaluation of public health practices.

This study show that the majority of schools have canteens inside the schools which sell items meeting health requirements and have nutritional labels that matched with food items with a variety of healthy food choices especially sandwiches which are all kept by health standards. Sanitary conditions were maintained by canteen workers; also a healthy storage and sale process of food was done.

School canteen workers who attend training understand and practice the policy better. Canteen workers agreed on some weak points, such as that the policy does not contain instructions related to smoking, and the weak monitoring on supermarkets and cafeterias around the schools. Also school canteen workers faces problems with many students who do not accept new healthy food items

According to the results, recommendations are suggested to improve the implementation of school nutrition policy in the future;

Recommendations for the policy makers;

- Enforce the laws and regulations outside school canteens that facilitate buying forbidden food items according to the school nutrition policy.

- Do not rely on donors and external funds to implement the policy, but reallocate the resources in order to cover all public schools.
- Dietician professional's existence in the team of the schools is necessary to facilitate implementation of school nutrition policy.

Recommendations for the school principles;

- Raising school staff awareness and social support through designing staff programs.
- Routine monitoring and evaluation are recommended for the canteens.

Recommendations for canteen workers;

- Training for canteen workers and inspectors on food safety techniques and healthy practicing measures to assure the quality of food items provided for the students.
- More surveillance studies are needed as are evaluation studies (process, outcome and impact) regarding the service, and further study is needed in this field.

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Appendix

(1)

استمارة متابعه المقاصف المدرسيه

رقم المدرسة

..... الرقم الوطني.....

عدد طلبة المدرسة التاريخ.....

البنية التحتية:

ملاحظات	لا	نعم	
			هل يوجد مقصف داخل المدرسة هل يوجد المقصف في غرفة مستقلة هل المقصف بعيد عن دورات المياه هل يوجد قنوات مغطاة بالشبك ومائلة لتصريف المياه أثناء عمليات الإنتاج والتنظيف
			مواصفات المقصف الداخلية: هل يوجد بلاط صيني على الحيطان هل تتوفر بالمقصف مياه من مصدر صالح للشرب هل توجد تهوية و إضاءة كافية بالمقصف هل تتوفر مغسلة للعاملين بالمقصف
			هل مساحة المقصف كافية ومناسبة للأدوات والبيع
			هل توجد ماكينات للتخصير (عجانة , فرن)
			هل توجد ثلاجة لحفظ الاطعمة المبردة
			هل يوجد شبك على الأبواب و الشبابيك
			هل توجد خزائن و رفوف محكمة و مناسبة للتخزين
			هل الأدوات المستخدمة (طاولات , صحنون , سكاكين) مواد غير قابلة للصدأ

المعايير التغذوية:

ملاحظات	لا	نعم	
			هل المواد المباعة مستوفية للشروط الصحية
			هل يوجد على المنتجات بطاقة بيان باللغة العربية مع مطابقة المنتجات لمواصفات بطاقة البيان
			الساندويتشات: مغلقة بأكياس بلاستيكية لحمايتها من التلوث متنوعة (٣ أنواع على الأقل) يتم حفظها حسب المعايير الصحية (مثلا داخل الثلاجة لما يحتاج تبريد)
			المواد الممنوع بيعها في المقصف: المشروبات الغازية مشروبات الطاقة المشروبات من أصل الفاكهة والتي تقل نسبة العصير الطبيعي بها عن ١٠ % منتجات الذرة المنفوشة ورقائق شيبس البطاطا

			<p>المارشملو ورأس العبد والجلي بطعم الفاكهة المحليات المصنعة من الماء والسكر والجيلاتين أو النشا وتشمل (حيايا، سمارتز، الحبوب الملونة،... الخ) العلكة بأنواعها البيزر المملح بأنواعه أية منتجات غير مطابقة للمواصفات لفلسطينية الخاصة بها</p>
			<p>البدايل الصحية: معجنات لبن أب حليب بنكهات مختلفة عصائر طبيعية مياه معدنية خضار فاكهة</p>

السلامة الغذائية و النظافة

ملاحظات	لا	نعم	
			<p>خاص بعامل المقصف: يحافظ على الشروط الصحية (المظهر, اللباس, النظافة) و لائق صحيا يستخدم اللباس الصحي (المريول, الكفوف البلاستيكية) عند تحضير الوجبات و بيعها يراعي العادات الصحية السليمة داخل المقصف (عدم التدخين, غسيل الأيدي , عدم وجود زوار) حضر تدريباً خاصاً بالمقاصف المدرسية</p>
			<p>خاص بالمواد الغذائية: مصادر المواد الغذائية معروفة يتم نقل المواد الغذائية بطريقة صحية لحمايتها من التلوث و الفساد يتم تخزين وبيع المواد الغذائية بطريقة صحية لحمايتها من التلف و الفساد تاريخ انتهاء صلاحية المواد الغذائية محدد بصورة واضحة هل هناك مواد خطرة تباع داخل المقصف(مفرقات, عبوات زجاجية, مواد منتهية الصلاحية)</p>
			<p>خاص بالنظافة: هل يتم تنظيف الأدوات المستخدمة مباشرة بعد الاستعمال هل يتم تنظيف المقصف يوميا هل تتوفر سلال كافية بالمقصف؟ و هل توضع بها أكياس بلاستيكية للتخلص من النفايات</p>

السلام عليكم،،،،

أنا آلاء المصري طالبة ماجستير قسم الصحة العامة بجامعة النجاح الوطني، أقوم بعمل دراسة تهدف إلى تقييم سياسه التغذية المتبعه بالمدارس و سيتم تطبيق الدراسه بمدارس مديريه نابلس. تتكون المقابله من قسمين اساسين الاول يتعلق بالمعلومات الديموغرافيه و الاخر يتعلق بتطبيق سياسه التغذية بالمدارس.

هذه المعلومات سيتم التعامل معها بمنتهى السريه و الخصوصيه و سنتعمل فقط لاغراض البحث العلمي
شكراً

الطالبه آلاء المصري

ماجستير صحه عامه/ جامعه النجاح الوطني

اسئله المقابله:

القسم الاول:

بيانات العامل:

1. الجنس: ذكر انثى
 2. العمر
 3. المستوى التعليمي: امي
 4. الحاله الاجتماعيه: اعزب
 5. مكان الاقامه: قريه
- | | | |
|----------------|--------------|--------------|
| مرحلة ابتدائيه | مرحلة ثانويه | مرحلة جامعيه |
| متزوج | مطلق | ارمل |
| مدينه | مخيم | |

القسم الثاني:

مستوى الرضى:

- ✓ جوده الابنيه المخصصه للمقاصف في المدرسه
- ✓ جوده التجهيزات في المقاصف
- ✓ القدره على فهم سياسه التغذية

اراء:

- ✓ ما هي نقاط القوه في سياسه التغذية
- ✓ ما هي نقاط الضعف في سياسه التغذية
- ✓ ما رايك بالسياسه المطبقه بالمدارس
- ✓ ماهي الصعوبات التي تواجهك بتطبيق السياسه
- ✓ ماهي الفرص المتاحة ل تحسين تطبيق السياسه
- ✓ ماهي التهديدات التي تواجه تطبيق السياسه

Food items in school canteens

<p style="text-align: center;">Food items that are allowed to be sold in school canteens</p>	<ul style="list-style-type: none"> • Fresh fruits • Canned fruits • Dried fruits • Soft drinks out of fruit juices in a ration that is more than 10% • Fresh or cooked vegetables • Vegetable soup • Dairy milk products • Boiled egg • Boiled legumes • Water
<p style="text-align: center;">Food items that are allowed to be sold in limited amounts</p>	<ul style="list-style-type: none"> • Fruits canned in sugar • Dried fruit with sugar • Biscuits stuffed in cream • Cake • pretzels • corrosion • donuts • muffins • fried potatoes • chocolate • custard • liquid chocolate • salty nuts

	<ul style="list-style-type: none">• free-sugar gums
Forbidden food items to be sold	<ul style="list-style-type: none">• soda drinks• energy drinks• Soft drinks out of fruit juices in a ration that is less than 10%• Puffed corn and chips• Marshmallows, Ras-alabed, and clear fruit0flavored jello• Sweets made of waters, sugar and gelatin• Salty seeds• All types of gums

علم الطرب

An - Najah National University

Faculty of Medicine & Health Sciences
Department of Graduate Studies

بسم الله الرحمن الرحيم



جامعة النجاح الوطنية

كلية الطب وعلوم الصحة
دائرة الدراسات العليا



التاريخ: 2015/4/6

حضرة السادة ادارة وزارة التربية والتعليم المحترمين ،،،

تحية طيبة و بعد ،،،

الموضوع : تسهيل مهمة طالب/ة

نحيطكم علماً بأن الطالب/ة الاء ناجي فتح الله المصري ، طالب/ة ماجستير صحة عامة في كلية الطب و علوم الصحة في جامعة النجاح الوطنية، وستقوم باجراء بحث علمي حول

(تقييم سياسة التغذية في المدارس)

يرجى مساعدة الطالب/ة في جمع المعلومات المتعلقة ببحثها/ا في المدارس الحكومية في محافظة نابلس.

شاكرين لكم تعاونكم،،،

د.حمزة الزبيدي
رئيس قسم الصحة العامة
مدير برنامج
ماجستير الصحة العامة
كلية الطب وعلوم الصحة

**An - Najah
National University**
Faculty of Medicine & Health Sciences
Department of Graduate Studies

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



**جامعة النجاح
الوطنية**
كلية الطب وعلوم الصحة
دائرة الدراسات العليا

IRB Approval letter

Study title:

Evaluation of Governmental School nutrition policy in Nablus city / West Bank-2015

Submitted by:

Alaa Almasri

Date Reviewed:

Mar 18,2015

Date approved:

April 5, 2015

Your study titled: "Evaluation of Governmental School nutrition policy in Nablus city / West Bank-2015" with archived number 24/Mar/2015 , Was reviewed by An-Najah National University IRB committee & approved on April 5, 2015 .

Hasan Fitian , MD

IRB Committee Chairman
An-Najah National University

جامعة النجاح الوطنية
كلية الدراسات العليا

تقييم المقاصف في المدارس الحكومية في محافظة نابلس - الضفة الغربية / 2015

إعداد
الإلاء ناجي فتح الله مصري

إشراف
د. زاهر نزال

قدمت هذه الأطروحة استكمالاً لمتطلبات الحصول على درجة الماجستير في الصحة العامة،
بكلية الدراسات العليا، في جامعة النجاح الوطنية في نابلس - فلسطين.

2016

ب

تقييم المقاصف في المدارس الحكومية في محافظة نابلس - الضفة الغربيةه /2015

إعداد

آلاء ناجي فتح الله مصري

إشراف

د. زاهر نزال

الملخص

مقدمة: الاطفال في سن المدرسة هم من اكثر الفترات المناسبة لتعديل السلوكيات غير الصحية، وتعزيز الأكل الصحي ونمط الحياة. ولذلك، فإن وزارة التربية والتعليم تتعاون مع وزارة الصحة لتطبيق سياسة التغذية المدرسية. يشكل الأطفال الفلسطينيين من الفئة العمرية 0-17 سنة ما يقارب 49% من السكان، حيث ان هناك تقريبا 1.450.000 طالبا في المدارس الفلسطينية في عام 2011، من هنا تكمن اهمية تطبيق سياسيه التغذية بالمدارس و مراقبتها و تقييمها. وبالتالي الهدف الرئيسي لهذه الدراسة تقييم كفاءة تنفيذ "سياسة التغذية " في المدارس الحكومية في شمال الضفة الغربية.

طريقه البحث : التقييم في هذه الدراسة كان كما و نوعا حيث استخدمت المدارس لتحقيق أهداف الدراسة. وقد أجريت الدراسة في 16 مدرسة حكومية في منطقة نابلس. للبيانات الكمية، تم استخدام استبيان لتقييم المواد الغذائية المقدمه في المقاصف المدرسية وتقييم بيئة المقصف مقارنة مع المبادئ التوجيهية من وزارة التربية والتعليم. للبيانات النوعية، استخدمت مقابلة منظمة لاستكشاف تجربة العاملين في تنفيذ السياسه وتقييم العاملين خلال عملهم في المقصف .

النتائج: أظهرت النتائج أن جميع المدارس تقريبا حصلوا على علامات ممتازة بشأن المواد الغذائية المقدمه في المقاصف بالمقارنة مع المبادئ التوجيهية من وزارة التربية والتعليم. تقريبا حصلت على جميع المدارس المشاركة على درجة جيد فيما يتعلق ببيئة المقاصف المدرسية، درجات ممتازة فيما يتعلق بممارسات عمال المقصف في إعداد وتقديم المواد الغذائية. أظهر ما يقرب من نصف المشاركين الذين تمت مقابلتهم رضا فيما يتعلق بنوعية المبنى المخصص للمقصف، ونوعية المعدات حصلت على أرتياح اعلى. فيما يتعلق بقدرة عمال المقصف على فهم سياسة التغذية

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المدرسية، العمال الذين تلقوا تدريب اظهروا فهما وتطبيقا متقنا للسياسة. بينما الآخرين، وهم الأغلبية، لا يفهمون أو حتى يعرفون عن سياسة التغذية. كما ان غالبية العاملين اجمعوا على أن سياسة التغذية لصالح الجميع، وخاصة الطلاب.

الخلاصة: سياسة التغذية المدرسية تلعب دورا هاما في تحسين آفاق الصحة للطلاب، على الرغم من حاجة لتدريبي العاملين في المقاصف وكذلك المراقبه والتقييم الروتيني.