Ethiopian Journal of Health and Biomedical Sciences

Original article Open access

Enhancing Adolescent Nutritional Behaviour through School Food Club Interventions

Mary Ibukunoluwa Tubi[1], *Oyediran Emmanuel Oyewole* [2], *Omonigho Simon Umukoro*[3]

[1]*Department of Nutrition and Dietetics, Bowen University, Iwo, Nigeria,* [2]*Department of Health Promotion and Education, University of Ibadan, Nigeria,* [3]*Department of Psychology, University of Lagos, Nigeria*

Corresponding author: ibukunoluwatubi@gmail.com

Citation: Tubi MI, Oyewole OE, Umukoro OS. Enhancing adolescent nutritional behaviour through school food club interventions: Enhancing Adolescent Nutritional Behaviour through School Food Club Interventions. Ethiop J Health Biomed Sci .2024;14(1):29-44

DOI: https://doi.org/10.20372/ejhbs.v14i1.681

Article History

Received: February 05, 2024

Revised: July 22, 2024

Accepted: August 09, 2024

Key words: Nutritional behaviour, School food club, Adolescents, Nigeria

Publisher: University of Gondar

Abstract

Background: *There is a growing concern over the rising prevalence of malnutrition among adolescents in Africa. This issue is largely attributed to the decline in dietary quality during this crucial stage, which compromises the ability to meet nutritional needs and increases vulnerability to various illnesses and nutrition-related diseases. Understanding the factors that can enhance adolescent nutritional behavior is essential to addressing this public health challenge.*

Objective: *This study aimed to investigate the impact of adopting School Food Clubs (SFC) on the nutritional behavior (NB) of adolescents in private secondary schools in Ibadan, Oyo State, Nigeria.*

Method: *With a quasi-experimental design, two Local Government Areas (LGAs) were randomly assigned as the Intervention Group (IG; Ibadan South West) and Comparison Group (CG; Ibadan North). Three private secondary schools with existing SFCs were randomly selected from each group. A total of 162 adolescents (IG=85, CG=77) interested in SFC were recruited. Quantitative assessments were performed using a semi-structured questionnaire at baseline and post-intervention.*

Result: *Knowledge, attitude, self-efficacy, and practice scores significantly increased in the IG post-intervention compared to the CG. The SFC adoption positively influenced knowledge (21.7±3.1), attitude (22.3±2.8), self-efficacy (24.4±3.1), and practice (22.2±5.0) scores at the 3-month follow-up. The study revealed consistent improvements across these variables, indicating a significant positive relationship between SFC adoption and NB promotion.*

Conclusion: *The School Food Club demonstrated effectiveness in promoting the nutritional behavior of adolescents in Ibadan. The study suggests that SFCs have the potential for sustainable positive nutritional behavior changes among the target population and recommends their encouragement in other schools. This research contributes valuable insights into addressing the increasing prevalence of malnutrition among adolescents, emphasizing the need for interventions that focus on holistic nutritional behavior improvements through innovative and sustainable platforms like SFCs.*

Introduction

There is an increasing prevalence of malnutrition among adolescents in developing countries. A major factor contributing to this is the decline in the quality of the diet of adolescents [1]. Eating behaviour is of high significance at this stage because adequate nutrition is vital to meet the requirements of rapid growth and development, increased physiological activities, cognitive growth and development, and prevention of illnesses and nutrition-related diseases [2]. There seems to be a unique relationship between the adolescence stage and their capacity for healthy food choices [3]. This is evident as peer acceptance is critical and can exert social pressure on their food choice [4]. Peers, for example, can influence their decision to skip meals and diet by indirectly bolstering the image of the "ideal" slender body form. Adolescents may also copy their classmates' poor eating habits, such as eating high-calorie items and drinking little water, which can lead to micronutrient deficiencies [5]. When nutrition demands are not met, adolescents become malnourished and consequently, have devastating effects on their development into productive adults [6].

A study among adolescents in the middle and high socioeconomic ladder showed a significant amount of underweight as the study recorded poor intake of fast food, sweets, and sugary beverages [7]. Another study among this group of adolescents also showed inadequate intake of fruits, vegetables, and fish over high-calorie meals, sweets, and snacks [8]. A crossectional survey of 172 students aged 10 to 16 in private schools in Port Harcourt found that 47% were of normal weight, 46.2% were underweight, and 6.6% were overweight [9]. Poor nutritional behaviour among adolescents is related to low knowledge, attitude, self-efficacy, and practices of nutrition [10,11].

Some examples of school-based nutrition education strategies for adolescents include School-based nutrition education for 3 months, for girls aged 15 to 19 years. Strategies included the use of lectures, movies, leaflets, and brochures to teach about the food pyramid, adequate eating, iron absorption stimulants and inhibitors, iron sources, anemia, and iron deficiency [12]. A different study used graphical materials with food models, images, and a packaging style [13]. For these strategies to be effective, factors determining adolescents eating preferences need to be considered, due to the wide disparity in the eating lifestyle of urban and rural adolescents [14]. Socio-economic factor plays a significant role in determining the variation between urban and rural adolescents. For instance, a high percentage of urban adolescents are from the high or middle socioeconomic income class and mostly attend private schools [15]. These adolescents usually have extra cash to spend which could be an advantage for healthy food choices. However, having access to food does not guarantee good nutritional status [16]. A good nutritional status is only built if the right food choices are constantly made. Right food choice is dependent on the presence of life skills in enhancing healthy eating behaviour.

Despite these intervention programmes, nutritional behaviour, especially among adolescents in private schools, has been poor [14]. While school nutrition intervention programmes remain an effective strategy that has been successfully used to promote nutrition knowledge, attitude, self-efficacy, and practice of adolescents [17]. Further strategies should incorporate the needs of adolescents from middle and high socioeconomic status, while also considering an engaging platform that can also be sustainable in promoting nutritional behaviour. One approach of interest is the adoption of school food clubs, which relies on an existing platform in the school for socialization, engaging, and educative approaches in providing nutrition education to adolescents. For instance, the strategy has been employed successfully in the past to provide free breakfast at vocational schools to decrease breakfast skipping [18], however, sustainability was an issue. Also, its practicability among adolescents of middle and high social-economic status in Nigeria has not received enough attention.

Although, private secondary schools in Nigeria operate on school curricula that have incorporated basic knowledge of nutrition into the context of health-based subjects such as home economics for the junior classes and food and nutrition for the senior classes. This will probably not be enough as the scheme focuses only on the Introductory context of healthy eating such as; basic food nutrients, condiments, seasoning, digestive system, food safety, and storage of foods to mention a few. Also, the classroom nutrition education approach, do not usually consider the use of the enter-education method, which is an essential method of teaching among adolescents [19] in other to promote nutritional behaviour among

adolescent. This could leave a major gap in the development of healthy nutritional behaviour among students which is a concern as the prevalence of malnutrition among adolescents is on the increase.

Also, while some secondary schools in Nigeria have included school food clubs as a part of their extracurricular club activity, formative research shows that lessons taught focused more on the art of cookery and recipe development of local and intercontinental dishes and have failed to include education and activities with potentials to develop their knowledge and skills capable of promoting healthy nutritional behaviour. The scope of learning might create major gaps in their knowledge of nutrition and healthy lifestyle.

A sustainable platform such as a school food club has proven to be an effective health-promoting setting. This study intends to adopt the existing school food club to fill the void in the lack of adequate nutrition education by providing peer-targeted nutrition education interventions. Since in-school adolescents spend most of their time in school, the platform is capable of promoting their knowledge, attitude, self-efficacy, and practices of nutritional behaviour. Also, very few studies have used school food clubs as interventions around the world. School food clubs, for example, had a substantial impact on students' knowledge and dietary diversity in research conducted among Somali primary school students. There was a 0.8 standard deviation increase in knowledge compared to the adolescents in the Comparison group, a 14 % higher value of Dietary Diversity Score [DDS] in the last 24 hours, and a 15 % age point drop in the rate of underweight [20]. Another study done in Ethiopia among primary school pupils promoted awareness of nutrition and equipped the pupils to take the messages to the community and raise awareness among peers [21]. These two studies although able to improve knowledge and nutritional behaviour was not done among adolescents, it also has not been able to maximize the strength of existing food clubs in the school to enrich their knowledge of nutrition lastly, previous interventions had not incorporated the influence of school environment and policy on their nutritional behaviour.

Adopting an existing food club can provide a peer-targeted intervention capable of producing good nutrition peer ambassadors who could have a positive influence on their peers. This is crucial since adolescents primarily get their information from peers, who may have been misinformed, and could lead to a cycle of poor food habits. This underscores the need for nutrition programmes that can engage in-school adolescents since many young people need to be educated in other to make proper food choices and also become positive peer influences in developing good nutritional behaviour. Therefore, the present study aimed to evaluate the effect of adopting a school food club as an intervention tool to promote a peer-acceptable and sustainable strategy, capable of improving adolescents' knowledge, attitude, self-efficacy, and practice toward healthy nutritional behaviour among adolescents in private schools in Ibadan, Oyo state, Nigeria.

Method

The study adopted a quasi-experimental design. The study adhered to the moral principles that govern studies involving human participants. The Oyo State Research Ethical Review Committee, Ministry of Health Secretariat, Ibadan, approved the research ethically and assigned reference number AD 13/479:1647A to it. Participants were informed that their involvement in the study was entirely voluntary, and the objectives of the investigation were thoroughly explained in English. Every ethical issue was handled with care. Additionally, before the adolescents' enrolment, written informed consent was collected from their parents and legal guardian, stating their permission to allow their children to participate in the study. Visits were made to the selected schools in each LGA, the principals of the schools were contacted and informed of the objective of the study, and permission was obtained. Permission was also obtained from, the coordinator of the school food club, who was also the home economics and food and nutrition teacher in all the schools, and lastly, student representatives of members of the school food club in each school. All stakeholders were met to brief them on terms of study goals and also to garner their support in the facilitation and implementation of the study.

The study was conducted among in-school adolescents in two Local Government Areas (LGAs) -Ibadan South West Local Government Area and Ibadan North Local Government Area. The Intervention and Comparison sites were selected due to the presence of established school food clubs located in the existing private schools. All intervention activities were carried out in the school food club. This was done

using already established and structured school food clubs with due permission from the participating schools. Also, JSS 3 and SS3 students were excluded from the study because of preparation for final exams which might interfere with their commitment to the research.

The sample size was calculated considering the prediction of a 50% increase in nutritional behaviour after the intervention. A significance level of 0.05 and a power of 80% were considered. Under this condition, the minimum sample size was a total of 62 participants per group. With the inclusion of percentage loss, the participants were increased to 85 for the Intervention and 77 for the Comparison group, with a total of 162 participants in the two groups. A 5-stage random sampling was adopted in selecting study participants**.** Using the state profiling data, stratification into urban and rural areas from the 11 LGAs present in Ibadan, Oyo state, according to the amount of industrial concentration and commercialization [22]. From the five urban LGAs in Ibadan Metropolis, a random selection of Ibadan South West LGA and Ibadan North LGAs was done and allocated into Intervention and Comparison sites, respectively using simple random sampling. The total number of private schools in each local Government Area was collected from the Ministry of Education. Ibadan South West LGA comprised one hundred and twenty-four (124), while Ibadan North comprised one hundred and seventy-nine (179). A list of schools with school food clubs in the selected LGAs was collected from the chairman of the private secondary school proprietor. Purposive selection of five schools in IBSW and six in IBN based on the presence of school food clubs. 6 out of 11 schools (3 from each LGA) consented to participate in the study.

Desk reviews of all six school food club curricula were conducted and the standard nutrition manual by UNICEF [23] was used as a guide. The instrument used was secondary data from the school food club curriculum, collected from the school principals. The process included a review of the school food club curricula. Findings from the desk review showed the knowledge gap that could promote healthy nutritional behaviour in the school food club manuals. Activities in the school food club focused on improving their knowledge of local and continental dishes recipe development with very little emphasis on educational activities that could promote their healthy nutritional behaviour. Monthly activities included the preparation of meals and at times, competition for the best chef. The gaps observed including, poor knowledge, attitude, self-efficacy, and practice of nutritional behaviour were documented and presented to stakeholders in the Intervention schools. The Comparison group was provided with a placebo, and information on knowledge of reproductive health.

A meeting date with two coordinating teachers (one food and nutrition teacher and one home-economics teacher) per school and four representatives of the adolescents in the school food club (a male and female from each of the upper and lower classes, respectively) was scheduled, to reveal the gaps accessed in the school club curricular in promoting nutritional behaviour among adolescents and for the development of a modified school food club manual with the tendency of bridging the gaps. The adopted school food club sessions were done once weekly during their extra-curricular activities time for 8 weeks. The duration for each session lasted from 45 minutes to 1 hour. The sessions were held in the school hall in some schools and the home economics lab in others. A pre-testing evaluation exercise was conducted to measure the adolescents' prior knowledge of nutritional behaviour before the weekly training started and a post-testing evaluation at the end of the weekly training, to test the effectiveness of the programme on them.

At the commencement of each session with adolescents, the modified school food club curriculum was given to the school teachers coordinating the school food club. An overview of the concept behind the adopted school food club and the expectations of the adolescents during the sessions were discussed. There were opportunities for the adolescents to ask questions concerning the adopted school food club programme as feedback and answers were provided. The training employed a participatory and enter-educative workshop approach. As a session begins, attendance was taken, followed by feedback and a recap on the previous topic discussed. Then, the topic of the present session was introduced and an interactive session followed, in which the activity book served as a guide. These activities were aimed at encouraging them to apply lessons learned before the next session. Feedback on previous session activities was given before the start of another session. The presentations were done in English and the session was guided by the nutritionist who is also the student researcher and assisted by the school's food club coordinator. Adolescents in the Compari-

son group attended a reproductive health education class at least once a week. As the study concluded, they received adopted school foods club modules and educational materials. (See Appendix for content of the SFC intervention/ curriculum)

A semi-structured questionnaire was used to conduct a quantitative analysis of adolescents' knowledge, attitudes, self-efficacy, and practice of nutritional behaviour to determine the effect of the intervention based on the developed manual. In a prior study, which was not included in the current study, the questionnaire was pilot tested with adolescents from private schools in a different urban local Government area from the study. The questionnaire has four sections concentrating on socio-demographic features, adolescents' level of nutrition knowledge, attitude toward nutritional behaviour, self-efficacy of adolescents' nutritional behaviour, and practices of adolescents' nutritional behaviour,. The validated questionnaire is a 39-item at pre-intervention (including additional 3 questions to check for confounders) and 36-item at post-Intervention which was adapted from two tools; Questionnaire for Nutritional behaviour [13]. Respondents in the Intervention and Comparison groups completed the same questionnaires at baseline and immediate post-Intervention and 3 months follow-up. The topics addressed include; Healthy eating, Timing of meals, Personal Hygiene/ Hand washing, and Deworming.

Knowledge Scale*:* A dichotomous knowledge scale was developed to quantify the knowledge of the study respondents. This was done to allow for comparison at the pre-test, and post-test both for the Intervention and Comparison group. The total number of test items in the knowledge section of the questionnaire was documented. A right answer was scored as 2 while a wrong answer scored 0. The total scores on the knowledge section were measured on a 12-item scale. The weight of the scale is 24 points. Centile was used for categorization of the scores. A score ≥ 12 was categorised as good knowledge of nutritional behaviour while a score < 12 was classified as poor knowledge.

Attitude Scale: An 8-item and 24-point attitude scale (Agree and Disagree) was developed. The total number of test items in the attitude section of the questionnaire was documented. The responses were also assigned scores. The right score is 3, while the wrong score is 0 using the 50th percentile for categorization of the scores, every respondent's attitude score ≥ 12 was categorized as having a positive attitude while respondents who scored < 12 were categorized as having a negative attitude.

The self-efficacy scale: A 9-item self-efficacy scale. Also, based on centile dichotomization, a 27-point self-efficacy scale (Confident, Not-confident) was developed. The total number of test items in the attitude section of the questionnaire was documented. The responses were assigned scores of 3 points per question. The total number of test items in the self-efficacy section of the questionnaire was documented. Categorization of the respondents' self-efficacy was done using the 50th percentile. Every adolescent self-efficacy score ≥ 13.5 was categorized as positive self-efficacy while participants who score < 13.5 were categorized as having poor self-efficacy.

Practice scale: A 7-item practice scale. The weight of the scale is 28. Based on a centile dichotomization, a dichotomous scale was developed. For the dichotomous scale, the right answer was scored 4, while the wrong answer was 0. The total number of test items in the questionnaire's practice section was noted. Using the 50th percentile for categorization of the scores, every respondent's practice score ≥ 14 was categorized as good practice while respondents who score < 14 were categorized as poor practice.

Statistical Package for Social Sciences (SPSS) version 20.0 was used for survey data entry and analysis. Descriptive statistics were employed to describe the categorical data about the sample of students in the selected private secondary schools in terms of gender, age groups, class, and other socio-demographic questions, and to summarize the data regarding adolescents' knowledge, attitude, self-efficacy, and practice towards nutritional behaviour. The differences between the two groups at baseline and post-Intervention were compared using the independent sample t-test. The p-value was used to conclude whether the results were merely coincidental or accurately reflective of the population. To predict a significant difference between the Intervention and Comparison group in terms of the (a) level of knowledge of nutritional behaviour, and (b) attitudes of adolescents towards nutritional behaviour. (c) self-efficacy of adolescents towards nutritional behaviour, (d) practices of nutritional behaviour among adolescents. Cohen-D test of significance was used to measure the connotation difference with effect size at baseline and post-Intervention for all study variables.

Result

A total of one hundred and sixty-two (162) in-school adolescents (respondents) including both males and females participated in the study. The number of adolescents in the Intervention group was eighty-five (85) and seventy-seven (77) in the Comparison group. The adolescents that participated were 39.0% of Male Adolescents in the Intervention group and 36.0% in the Comparison group. While 61.2% were female in the Intervention group and 64.0% in the Comparison group. Information on socio-demographic characteristics, level of knowledge, attitude, self-efficacy, and practices of Nutritional behaviour were obtained. The mean age of the participant was 13.8±1.1 for the intervention and 13.8±1.6 for the comparison. Table 1 shows the mean scores for nutritional knowledge from baseline to follow-up. At immediate post-intervention and three-month follow-up (p=0.001), the mean scores nutritional knowledge scores were significantly higher than baseline scores. Similar results occurred with nutrition attitudinal scores (Table 2), nutritional self-efficacy (Table 3), and nutritional practice (Table 4)

Table 1: Mean Nutritional Knowledge Scores of Intervention Vs Comparison from Baseline To Post-Intervention And Follow-Up

Knowledge	Intervention			Comparison			F	t	df	P-value
	N	Mean	SD	N	Mean	SD				
Baseline	85	9.1	3.5	77	8.8	3.8	0.0	0.5	160	0.7
Immediate PI	85	18.2	4.6	77	8.9	4.1	0.3	13.5	160	0.0
1st month PI	85	20.6	3.8	77	8.9	3.9	0.9	19.1	160	0.0
2nd month PI	85	20.7	3.1	77	9.2	4.0	2.9	20.4	160	0.0
3rd month PI	85	21.6	3.1	77	9.9	3.8	9.8	21.6	160	0.0

Table 2: Mean Nutritional Attitudinal Scores of Intervention Vs Comparison Group from Baseline to Post-Intervention And Follow-Up

Attitude	Intervention			Comparison			F	t	df	P-value
	N	Mean	SD	N	Mean	SD				
Baseline	85	6.4	3.8	77	6.9	4.4	1.8	-0.7	160	0.5
Immediate PI	85	18.5	4.9	77	7.6	4.8	0.0	14.3	160	0.0
1st month PI	85	20.1	4.6	77	7.9	4.6	0.3	16.8	160	0.0
2nd month PI	85	21.0	4.0	77	7.8	4.5	3.6	19.7	160	0.0
3rd month PI	85	22.3	2.9	77	8.2	4.7	27.0	23.2	160	0.0

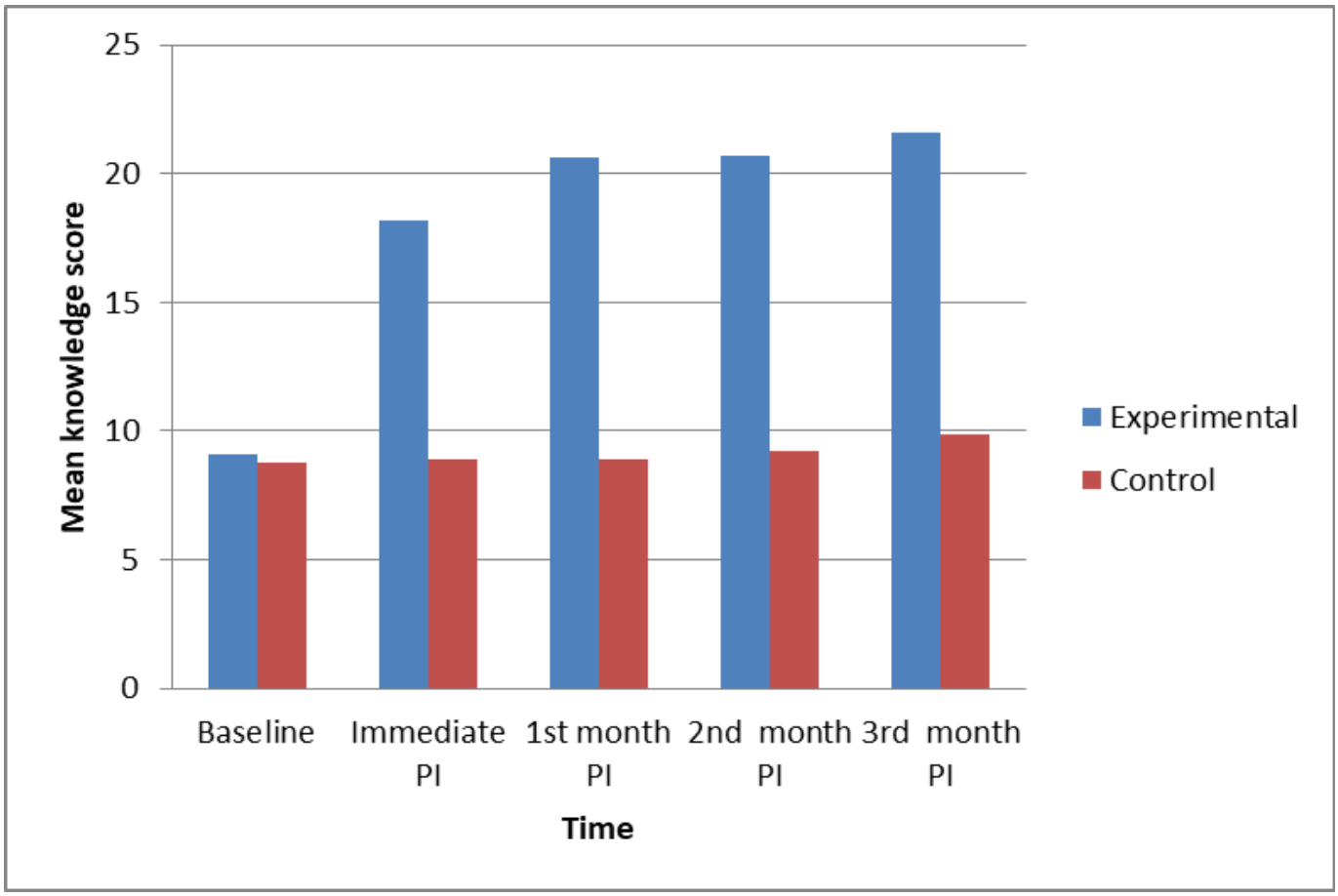
Table 3: Mean Nutritional Self-Efficacy Scores of Intervention Vs Comparison Group from Baseline to Post-Intervention and Follow-Up

Self-efficacy	Intervention			Comparison			F	t	df	P-value
	N	Mean	SD	N	Mean	SD				
Baseline	85	10.7	4.2	77	9.7	5.0	2.9	1.5	160	0.1
Immediate PI	85	17.5	4.7	77	10.0	5.7	1.8	9.2	160	0.0
1st month PI	85	20.8	3.9	77	10.9	5.4	8.5	13.4	160	0.0
2nd month PI	85	22.7	3.3	77	11.1	5.5	19.4	16.4	160	0.0
3rd month PI	85	24.4	3.1	77	11.1	5.5	28.4	19.3	160	0.0

Table 4: Mean Nutritional Practice Scores of Intervention Vs Comparison From Baseline to Post-Intervention and Follow-Up

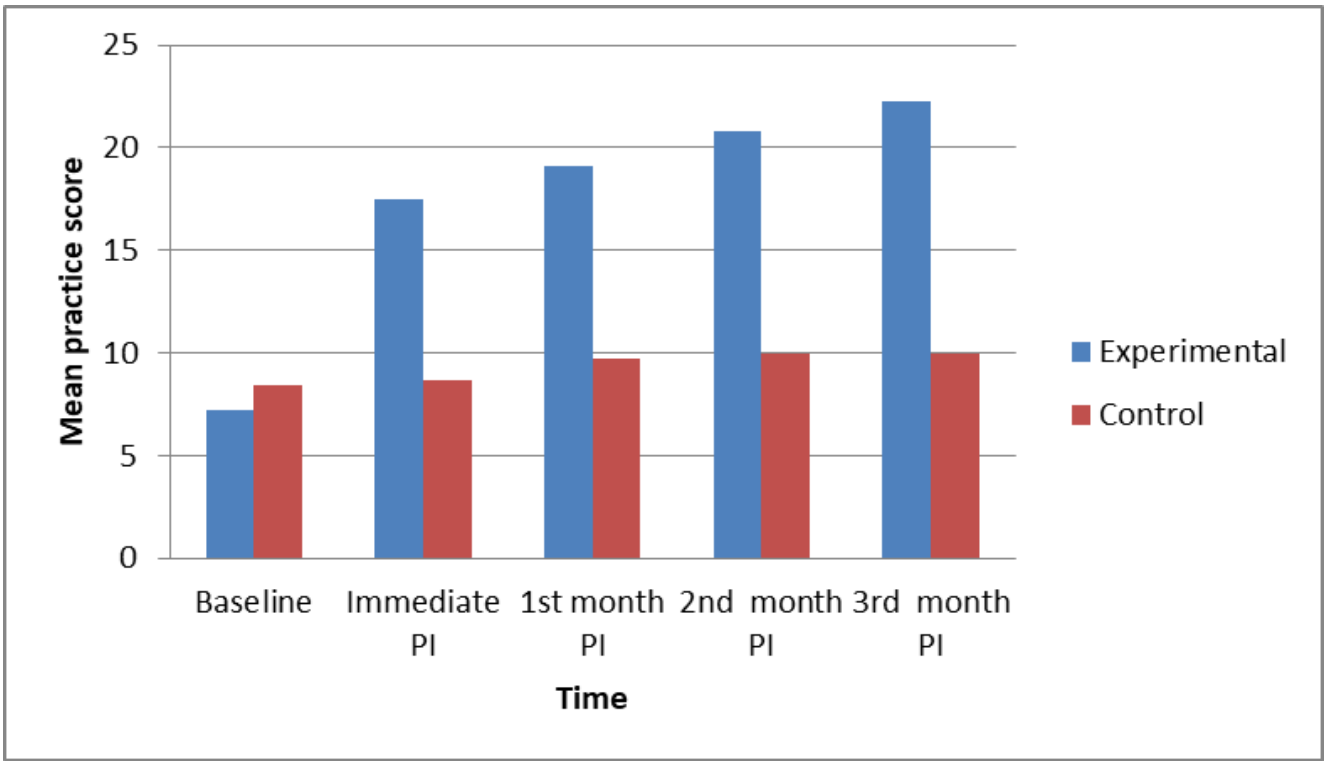
Practice	Intervention			Comparison			F	t	df	P-value
	N	Mean	SD	N	Mean	SD				
Baseline	85	7.2	5.1	77	8.4	5.0	0.5	-1.5	160	0.1
Immediate PI	85	17.5	6.1	77	8.7	5.5	1.9	9.7	160	0.0
1st month PI	85	19.1	5.7	77	9.7	5.4	0.1	10.8	160	0.0
2nd month PI	85	20.8	5.0	77	10.0	5.5	3.2	13.1	160	0.0
3rd month PI	85	22.3	5.0	77	10.0	5.4	1.9	14.9	160	0.0

Results in Figure 1 and Figure 2 showed that as intervention progressed through the months, adolescents were able to increase their knowledge and practice of nutritional behaviour. This was also consistent with the other study variables. Also, The Cohen-D test of significance for all study variables shows that there was a connotation difference with negligible effect size at baseline. At Immediate post-Intervention, First-month post-Intervention, Second-month post-Intervention and third-month post-Intervention, result shows a huge effect size which increases steadily from immediate post-intervention to third post-Intervention. This suggests a huge effect size which increases steadily from immediate post-intervention to third post-Intervention



PI*= Post Intervention*

Figure 1: *Baseline, Immediate post-intervention, First-month post-intervention, Second-month post-intervention, and Third-month post-intervention of mean nutritional knowledge for Intervention and Comparison*



PI *= Post Intervention*

Figure 2: *Baseline, Immediate post-intervention, First-month post-intervention, Second-month post-intervention and Third-month post-intervention of mean nutritional practice for Intervention and Comparison*

Discussion

This study aimed to evaluate the effect of adopting a school food club as an intervention tool to promote a peer-acceptable and sustainable strategy, capable of improving adolescents' knowledge, attitude, self-efficacy, and practice towards healthy nutritional behaviour among adolescents in private schools in Ibadan, Oyo state, Nigeria.

At the baseline of this study, the Intervention and Comparison groups did not differ significantly in their knowledge of nutritional behaviour. Findings showed poor knowledge of nutritional behaviour among adolescents. This implies that adolescents in private schools may have poor knowledge and understanding of healthy eating, proper meal timing, hand washing, and deworming. This shows a gap in the curriculum of school food clubs in the selected schools, which could serve as a platform to promote positive nutritional behaviour among adolescents.

In contrast, a study conducted among private school adolescents in Lagos showed moderate dietary knowledge, implying an understanding of healthy food choices, food nutritional values, and nutrition-related diseases [25]. Additionally, the result of knowledge of nutrition among adolescents in a secondary school in Ibadan showed positive knowledge [26]. Although Fatikhani and Setiawan [27] also reported good knowledge among adolescents, it showed no relationship between improved knowledge and adolescent nutritional status. On the other hand, a study revealed a significant relationship between knowledge and eating behaviour among adolescents, also showing poor food choices due to poor knowledge [28]. The baseline finding of this study is, however, similar to those of a similar study [33] where it was found that poor nutritional knowledge significantly increased at post-Intervention but does not indicate good nutrition eating habits.

In post-Intervention, the current study reports an increase in knowledge score in the Intervention group. Adolescents are now able to understand how to make healthy food choices, also, how to properly wash their hands and the benefits of deworming. This is similar to an intervention conducted by Ezezika, Oh, Edeagu, and Boyo [29], in Nigeria among adolescents which reported that nutrition education increased their knowledge leading them to alter their behaviour by incorporating more nutritious foods (such as fruits and vegetables) into their diet and engaging in more physical activity. Five themes

emerged from the analyses: increased knowledge, improved eating behaviour; increased physical and influencing others. Similarly, a study among adolescents in secondary school in Ibadan, Nigeria showed that Nutrition education through innovative strategies such as songs is effective in improving knowledge of healthy eating among adolescents [30].

The improvement of adolescents' knowledge at 8 weeks post-Intervention indicates that when appropriate knowledge of nutrition is included in the curriculum of the school food club, it has the potential of promoting their understanding of nutritional behaviour. The adopted school food club was able to provide a platform for an enter-educative approach to promote adolescents, knowledge of nutritional behaviour. Also, the nutritional behaviour of adolescents was seen to improve steadily at the 3-month post-Intervention, as the nutrition education continued. This implies that, when adolescents have good nutritional knowledge, it influences their decision to eat healthily and also has a major determining effect on the dietary patterns of adolescents. For instance, the intake of vegetables among adolescents was seen to be higher with an increased level of nutrition knowledge [31].

The current study's findings revealed no notable difference in the attitudinal disposition of participants in both the Intervention and Comparison groups at baseline. Both groups had a negative attitude toward nutritional behaviour, with (96.5%) in the Intervention (92.1%) in the Comparison group. These results can be attributed to the inadequate knowledge of participants about nutritional behaviour which might have a huge influence on their attitude towards it [32]. Similarly, a study by Salvy et al. [5] showed that a poor attitude towards healthy foods usually results in unhealthy nutritional behaviour. This corroborates finding among adolescent girls showing negative attitudes toward nutrition and majorly poor nutritional practice [33]. Adolescents who reported consuming a lot of fast food had similar opinions about eating nutritious meals, such as that they do not like the taste, do not have time to consume them, and also do not care about healthy food.

However, at Immediate Post-Intervention, there was an increase in the percentage of participants in the Intervention group with positive attitudes compared to the baseline. The attitudinal mean score was found to be statistically significant between the Intervention and Comparison groups. This is consistent with a study among adolescents in India that showed an increase in the attitude of adolescents by 7.4% from pre- to post-Intervention [34]. Attitude is an important indicator of food preference [35] and is also directly and indirectly associated with self-control [36]. This suggests that adolescents possessing a positive attitude will also have good intentions to choose healthy foods and also likely overcome peer influencing negatively promoting poor dietary habits [10]. A positive attitude towards nutrition in adolescents contributes immensely to adopting healthy nutritional behaviour. This corroborates a finding by Jayaveloo, Daud, and Rahman [37] that attitude has a positive correlation with dietary practices.

The adopted school food club served as a platform that reinforced adolescents' attitudes toward positive nutritional behaviour. Adolescents developed the attitude of choosing their food, not just for the taste but also the nutrient content by reading the nutritional label. Also, more adolescents preferred the intake of water to carbonated drinks, have a positive mindset about eating their meals at appropriate times, properly washing their hands before and after every meal, and lastly, deworming at appropriate times. The attitude of adolescents' nutritional behaviour was seen to steadily improve at 3 months post-intervention, indicating that their continuous exposure to the intervention promotes a positive mindset of nutritional behaviour.

At baseline, self-efficacy of nutritional behaviour in this study was found to be weak. The result showed that most adolescents in the Intervention (75.6%) and Comparison group (77.6%) had weak self-efficacy. This implies that adolescents do not have confidence in choosing to eat healthily, especially when it is not a tradition in the school environment or not widely acceptable among their peers. None of the schools enrolled in the study had positive variables that could promote the self-efficacy of participants in the adoption of nutritional behaviour. Examples of the positive variables include, sales of healthy foods in school tuck shops and nutritional behaviour reinforcing programs in the school food club. A study associated low self-efficacy for healthy eating and higher peer influence for unhealthy eating with poor eating habits [3]. This inferred that adolescents with low self-efficacy will most likely also have poor eating habits. A similar study showed a positive correlation between self-efficacy and intake of fruits and vegetables [38]. Indicating that when adolescents develop good self-efficacy, it impacts on intake of healthy foods [39].

As pointed out by Fitzgerald, Fitzgerald, Heary, Kelly, Nixon, and Shevlin [40] in a study of 483 adolescents aged 13-18, it was found that self-efficacy for eating and peer support for unhealthy eating are both associated with food intake patterns. Higher self-efficacy opinions were linked to eating healthy foods, while lower self-efficacy beliefs were linked to eating unhealthy foods, according to a study. A study among Nigerian adolescents confirms this [30]

In the post-Intervention group, adolescents in the Intervention group experienced an increase in self-efficacy in nutritional behaviour. This is consistent with a study that used Rango cards on food consumption, nutritional knowledge, and self-efficacy of healthy eating practices which showed that an increase in self-efficacy at post-Intervention had a positive significance on adolescents' adoption of nutritional behaviour [41]. This implies that the enter-educative approach in the development of the curriculum used for promoting nutritional behaviour in the adopted school food club was able to develop adolescents' confidence. The confidence of adolescents was seen to improve steadily at the 3-month post-Intervention to choose healthy foods, wash hands properly before and after meals and also deworm at appropriate times.

Practice disposition of adolescents at baseline in both Comparison and Intervention groups towards Nutritional behaviour was poor. This could be a result of the absence of a school food club curriculum that promotes their practice of nutritional behaviour. Such as teaching adolescents how to choose a variety of healthy meals and how to properly wash their hands.

Also, unhealthy snacks and soft drinks are comparably affordable and available in the school tuck shops and usually within budget, this could encourage adolescents to eat more snacks since they have some money available for daily spending. A study showed that students who ate at the school store in private schools more than three times a week were overweight. It also observed that high-fat-salt-sugar foods brought more sales to the store [42]. This confirms a study of an association between exposure of adolescents to food outlets in the school environment and its effect on their diet quality [43].

However, in post-Intervention, the practice of healthy nutritional behaviour of adolescents increased in the Intervention group but remained low in the Comparison group. This inferred that the adopted school food club intervention significantly influenced the decision to choose healthy foods. The dietary diversity of adolescents also increased. Adolescents steadily increased their intake of healthy food in varieties during the 3 months post-Intervention. In the study by Scaglioni, Cosmi, Ciappolino, Brambilla, and Agostoni [32], One of the most crucial aspects of satisfying the nutritional needs of adolescents is modeling healthy eating habits. Healthy eating habits are retained throughout adulthood, thus, lowering the chance of developing serious chronic diseases Christian and Smith [49], noted that there exists a direct relationship between poor nutrition practice during adolescents, development, and the prevalence of disease throughout the life cycle.

The findings in this study showed that the use of school food clubs as an Intervention increased the knowledge, attitude, self -efficacy, and practice of adolescents. This is consistent with a finding by Olowookere and Umukoro [50], that short-term nutrition intervention based on an active, participatory approach increased dietary knowledge and also influenced dietary intake of vegetables and reduced intake of carbonated drinks.

Also, a 3-month follow-up, a steady increase in the knowledge of nutritional behaviour among adolescents was seen in the first, second, and third-month follow-up. The increase in knowledge of nutritional behaviour among adolescents could be due to the nature of the delivery of the content in the modified school food training curriculum (MSFTC). The use of MSFTC was done with the use of methods such as; interactive discussions, hands-on demonstration, Information, Education and Communication (I.E.C) materials, and role-play. This nature of intervention has proved to be most effective in engaging and promoting knowledge among adolescents. A study by Moitra et al. [34] showed that nutrition education integrated into an intervention done 50 minutes weekly can have a positive effect on the knowledge, attitudes, and health behaviours of adolescents.

The steady increase can also be explained to be the positive influence of private schools on extracurricular activities in ensuring students adhered strictly to the requirements. Also, the activities of the curriculum took place at the school-stipulated time once every day. The advantage of constant exposure of adolescents to nutritional behaviour promoting materials and activities could serve as the reason for the steady increase in adolescents' knowledge of nutritional behaviour.

The change observed in the Intervention group could be attributed to the adopted school food club programme. There was no observable confounder among the independent variables of knowledge, attitude, self-efficacy, and practice which showed that the observable changes in the variables were not based on the influence of confounders. The broad objective of this study was to investigate the effectiveness of the adoption of school food clubs for change in nutritional behaviour among adolescents in private secondary schools. The mean difference in knowledge, attitude, self-efficacy, and practice of adolescents' nutritional behaviour at post-Intervention and 3 months follow-up, significant differences from the Intervention and Comparison group.

Baseline findings showed poor knowledge of nutritional behaviour among adolescents. This implies that adolescents in private schools may have poor knowledge and understanding of healthy eating, proper meal timing, hand washing, and deworming. In post-Intervention, the current study reports an increase in knowledge score in the Intervention group. Adolescents in the Intervention and Comparison groups had negative baseline attitudes toward reported nutritional behaviour. However, in post-Intervention adolescents experience a significant increase in attitude, while the Comparison group did not. Self-efficacy disposition of adolescents at the baseline, both the Comparison and Intervention groups had poor nutritional behaviour. In the post-Intervention group, adolescents in the Intervention group experienced an increase in self-efficacy in nutritional behaviour. The practice of adolescents' nutritional behaviour at baseline in the Comparison group and Intervention groups' dietary behaviour was subpar. However, in post-Intervention, the practice of healthy nutritional behaviour of adolescents increased in the Intervention group but remained low in the Comparison group.

The findings in this study showed that the use of school food clubs as an intervention increased the knowledge, attitude, self-efficacy, and practice of adolescents. Also, a 3-month follow-up, a steady increase in the knowledge of nutritional behaviour among adolescents was seen in the first, second, and third-month follow-up. The increase in knowledge of nutritional behaviour among adolescents could be due to the nature of the delivery of the content in the modified school food training curriculum (MSFTC).

Conclusion, Recommendation and Limitation

The use of adopted school food clubs in promoting nutritional behaviour is considered an effective nutrition intervention programme. The programme led to a positive change in the nutritional behaviour of adolescents over the study period. Therefore, a well-tailored intervention programme consisting of different educational strategies, targeted at promoting the knowledge, attitude, self-efficacy, and practice of nutritional behaviour such as; the use of role-playing, use of discussion, use of hands-on demonstration, use of posters and leaflets, use of games, and so on can play a major role in improving the nutritional behaviour of adolescents. It is also of note that, the current home economics curriculum (for junior classes) and food and nutrition curriculum (for senior classes) are inadequate in their capacity to promote the nutritional behaviour of adolescents. This is due to its deficiency in key healthy eating concepts and also the absence of engaging strategies in bringing the lessons to life. In conclusion, the outcome of this study provides significant insight into potential interventions through the development of an improved curriculum that promotes skills required for positive nutritional behaviour among adolescents in schools.

While the study yielded significant insights, several limitations must be acknowledged to contextualize the findings and suggest areas for future research improvements. One significant limitation is the sample size and its generalizability. Although the study involved 162 adolescents, the sample was limited to private secondary schools within two Local Government Areas in Ibadan. This limitation means the findings may not be representative of all adolescents in Ibadan or other regions of Nigeria, particularly those in public schools or rural areas where different socio-economic factors may influence nutritional behavior. The quasi-experimental design, while practical for this study, has inherent limitations. Unlike randomized controlled trials, quasi-experimental designs cannot fully control for all confounding variables, which may affect the internal validity of the results. For instance, other unmeasured factors such as socio-economic status, parental influence, and access to nutritional information outside school may have impacted the outcomes.

The use of an independent t-test in analyzing the data has limitations compared to more robust methods like difference-in-difference (DiD) analysis. While t-tests can compare means between two groups, they do not account for pre-existing differences between the groups before the intervention. DiD analysis, on the other hand, could better control for these baseline differences by comparing the changes in outcomes over time between the intervention and comparison groups. This approach provides a more accurate estimation of the intervention's effect by isolating the impact of the SFC from other time -related changes. The reliance on self-reported data through semi-structured questionnaires is another limitation. Self-reported data are subject to biases such as social desirability bias, where participants may provide answers they believe are socially acceptable rather than their true behaviors or attitudes. This could lead to an overestimation of the positive impact of SFCs on nutritional behavior. The follow-up period of three months is relatively short to assess the long-term sustainability of changes in nutritional behavior. Nutritional habits and behaviors often require longer periods to stabilize and become permanent. Future research should consider longer follow-up periods to evaluate the enduring impact of SFCs on adolescents' nutritional behavior.

References

1. Khan DSA, Das JK, Zareen S, Lassi ZS. Nutritional Status and Dietary Intake of School-Age Children and Early Adolescents : Systematic Review in a Developing Country and Lessons for the Global Perspective. 2022;8 (February).
2. Kabir A, Miah S, Islam A. Factors influencing eating behavior and dietary intake among resident students in a public university in Bangladesh : A qualitative study. 2018;1–17.
3. Ragelienė T, Grønhøj A. The influence of peers′ and siblings′ on children's and adolescents′ healthy eating behavior. A systematic literature review. Appetite [Internet]. 2020;148:104592. Available from: https://doi.org/10.1016/j.appet.2020.104592
4. Stok FM, Vet E De, Ridder DTD De, Wit JBF De, Stok FM, Vet E De, et al. The potential of peer social norms to shape food intake in adolescents and young adults : a systematic review of effects and moderators. 2016;7199. Available from: https://doi.org/10.1080/17437199.2016.1155161
5. Salvy SJ, de la Haye K, Bowker JC, Hermans RCJ. Influence of peers and friends on children's and adolescents' eating and activity behaviors. Physiol Behav [Internet]. 2012;106(3):369–78. Available from: http://dx.doi.org/10.1016/j.physbeh.2012.03.022
6. Ene-Obong H, Ibeanu V, Onuoha N, Ejekwu A. Prevalence of overweight, obesity, and thinness among urban school-aged children and adolescents in southern Nigeria. Food Nutr Bull. 2012;33(4):242–50.
7. Myszkowska-ryciak J, Harton A, Lange E, Laskowski W. Nutritional Behaviors of Polish Adolescents : Results of the Wise Nutrition — Healthy Generation Project. 2019;1–16.
8. Wojtyła-buciora P, Stawińska-witoszyńska B, Klimberg A, Wojtyła A, Goździewska M, Wojtyła K, et al. Nutrition-related health behaviours and prevalence of overweight and obesity among Polish children and adolescents. 2015;20 (2):332–40.
9. Ojofeitimi EO, Olugbenga-Bello AI, Adekanle DA, Adeomi AA. Pattern and determinants of obesity among adolescent females in private and public schools in the Olorunda Local Government area of Osun State, Nigeria: A comparative study. J Public Health Africa. 2011;2(1):45–9.
10. Szabo K, Piko BF, Fitzpatrick KM. Adolescents' attitudes towards healthy eating: The role of self-control, motives and self-risk perception. Appetite [Internet]. 2019;143 (February):104416. Available from: https://doi.org/10.1016/j.appet.2019.104416
11. Zambuko CL, Gericke G, Muchiri J. Effects of school-based nutrition education on nutrition knowledge, self-efficacy and food choice intentions of learners from two primary schools in resource limited settings of Pretoria. J Consum Sci. 2020;48:82–95.
12. Jalambo MO, Sharif R, Naser IA, Karim NA. Improvement in Knowledge , Attitude and Practice of Iron Deficiency Anaemia among Iron-Deficient Female Adolescents after Nutritional Educational Intervention. 2017;9(7):15–23.
13. Id F, Natacha M, Bertolin T, Gubert MB, Freitas E. Effects of a nutritional intervention using pictorial representations for promoting knowledge and practices of healthy eating among Brazilian adolescents. 2019;1–12.
14. Balogun M, Odugbemi TO. Original Article A comparative

study of nutritional status of adolescents from selected private and public boarding secondary schools in Ibadan , South Western Nigeria. 2017;14(January).

15. Pianta RC, Ansari A. Does Attendance in Private Schools Predict Student Outcomes at Age 15? Evidence From a Longitudinal Study. Educ Res [Internet]. 2018;47(7):419–34. Available from: https://doi.org/10.3102/0013189X18785632
16. Arasegowda R, Rani NA, Mukherjee P, Nusrath A. Assessment of dietary trends and its impact on academic performance among young adult medical students of a tertiary care teaching hospital. 2020;(January 2016).
17. Intan S, Sharif Z, Chin YS, Nasir M, Taib M, Chan YM, et al. Effectiveness of a school-based intervention on knowledge , attitude and practice on healthy lifestyle and body composition in Malaysian adolescents. 2020;1–12.
18. Christensen CB, Mikkelsen BE, Toft U. The effect of introducing a free breakfast club on eating habits among students at vocational schools. 2019;1–8.
19. Ogunsile S, Ogundele B. The Effectiveness of Song-Based Nutrition Education Among Adolescents. J Nutr Educ Behav [Internet]. 2016;48(7):S79–80. Available from: http://dx.doi.org/10.1016/j.jneb.2016.04.212
20. No FS, Children B, Acid F. Somalia/Somaliland. 2018;(8).
21. Kebede Y, Abebe L, Alemayehu G, Sudhakar M, Birhanu Z. Effectiveness of peer - learning assisted primary school students educating the rural community on insecticide - treated nets utilization in Jimma - zone Ethiopia. Malar J [Internet]. 2020;1–13. Available from: https://doi.org/10.1186/s12936-020-03401-7
22. Statistics D. Demographic Statistics. Nature. 1936;138(3502):1007–1007.
23. UNICEF. Nutrition, for every child UNICEF nutrition strategy 2020–2030. UNICEF Publ. 2020;1–98.
24. Minich DM. A review of the science of colorful, plant-based food and practical strategies for “eating the rainbow.” J Nutr Metab. 2019;2019.
25. Aduroja AE. Dietary Knowledge and Attitudes of In-School Adolescents in Private Secondary Schools in Ifako -Ijaye Local Government, Lagos, Nigeria. IjisrtCom [Internet]. 2021;6(5):1144–9. Available from: https://www.ijisrt.com/assets/upload/files/IJISRT21MAY1065.pdf
26. Thomas O, Abike BO. Nutrition Knowledge, Dietary Diversity and Nutritional Status of Adolescents in Three Selected Local Government Areas of Ibadan Municipality, Nigeria. Biomed J Sci Tech Res. 2021;37(3):29417–26.
27. Fatikhani DA, Setiawan A. The relationship between the level of knowledge regarding fast food and the dietary habits among adolescents in Jakarta, Indonesia. Enferm Clin [Internet]. 2019;29:172–5. Available from: https://doi.org/10.1016/j.enfcli.2019.04.025
28. Kostanjevec S, Jerman J, Koch V. The effects of nutrition education on 6 th graders knowledge of nutrition in nine-year primary schools in Slovenia. Eurasia J Math Sci Technol Educ. 2011;7(4):243–52.
29. Ezezika O, Oh J, Edeagu N, Boyo W. Gamification of nutrition : A preliminary study on the impact of gamification on nutrition knowledge , attitude , and behaviour of adolescents in Nigeria. 2018;
30. Ogunsile SE, Ogundele BO. Effect of game-enhanced nutrition education on knowledge, attitude and practice of healthy eating among adolescents in Ibadan, Nigeria. Int J Heal Promot Educ. 2016;54(5):207–16.
31. Egg S, Wakolbinger M, Reisser A, Schätzer M, Wild B, Rust P. Relationship between nutrition knowledge, education and other determinants of food intake and lifestyle habits among adolescents from urban and rural secondary schools in Tyrol, Western Austria. Public Health Nutr. 2020;23(17):3136–47.
32. Scaglioni S, Cosmi V De, Ciappolino V, Brambilla P, Agostoni C. Factors Influencing Children ’ s Eating Behaviours. 2018;1–17.
33. Sireesha G, Bindu V. Teenage girls’ knowledge attitude and practices on nutrition. Int J Home Sci. 2017;3(2):491–4.
34. Moitra P, Madan J, Verma P. Impact of a behaviourally focused nutrition education intervention on attitudes and practices related to eating habits and activity levels in Indian adolescents. Public Health Nutr. 2021;24(9):2715–26.
35. France L. Healthy diet & CVD : recommendation for practioners. 2017;(December).
36. Adriaanse MA, Kroese FM, Gillebaart M, De Ridder DTD. Effortless inhibition: Habit mediates the relation between self-control and unhealthy snack consumption. Front Psychol. 2014;5(MAY):1–7.
37. Jayaveloo S, Daud NM, Rahman HA. Breakfast consumption patterns, knowledge, attitude, practice and barriers among malaysian university students. Malaysian Appl Biol. 2021;50(1):205–16.

38. Wieland ML, Biggs BK, Brockman TA, Johnson A, Meiers SJ, Sim LA, et al. Club Fit: Development of a Physical Activity and Healthy Eating Intervention at a Boys & Girls Club After School Program. J Prim Prev. 2020;41(2):153–70.
39. Muzaffar H, Nikolaus C, Ogolsky BG, Lane A, Liguori C, Nickols-Richardson SM. Promoting cooking, nutrition, and physical activity in afterschool settings. Am J Health Behav. 2019;43(6):1050–63.
40. Fitzgerald A, Fitzgerald A, Heary C, Kelly C, Nixon E, Shevlin M. Self-Efficacy for Healthy Eating and Peer Support for Unhealthy Eating Are Associated with Adolescents ' Food Intake Patterns . Self-efficacy for healthy eating and peer support for unhealthy eating are associated with adolescents ' food intake patterns q. Appetite [Internet]. 2012;63(December):48–58. Available from: http://dx.doi.org/10.1016/j.appet.2012.12.011
41. Chagas CMDS, Melo GRS, Botelho RBA, Toral N. Effects of the Rango Cards game intervention on food consumption, nutritional knowledge and self-efficacy in the adoption of healthy eating practices of high school students: A cluster randomised controlled trial. Public Health Nutr. 2020;23(13):2424–33.
42. Bhatt R, Madan J, Moitra P. Determinants of food choice in a school environment. Indian J Public Heal Res Dev. 2019;10(9):302–7.
43. Clark EM, Quigg R, Wong JE, Richards R, Black KE, Skidmore PML. Is the food environment surrounding schools associated with the diet quality of adolescents in Otago, New Zealand? Heal Place [Internet]. 2014;30:78–85. Available from: http://dx.doi.org/10.1016/j.healthplace.2014.08.008
44. Barufaldi LA, De Azevedo Abreu G, Oliveira JS, Dos Santos DF, Fujimori E, Vasconcelos SML, et al. ERICA: Prevalence of healthy eating habits among Brazilian adolescents. Rev Saude Publica. 2016;50(suppl 1):1s-9s.
45. Omage K, Omuemu VO. Assessment of dietary pattern and nutritional status of undergraduate students in a private university in southern Nigeria. Food Sci Nutr. 2018;6(7):1890–7.
46. Larson NI, Miller JM, Watts AW, Story MT, Neumark-Sztainer DR. Adolescent snacking behaviors are associated with dietary intake and weight status. J Nutr. 2016;146(7):1348–55.
47. Broek N Van Den, Larsen JK, Verhagen M, Burk WJ, Vink JM. Is Adolescents ' Food Intake Associated with Exposure to the Food Intake of Their Mothers and Best Friends ? 2020;
48. Agofure O, Odjimogho S, Okandeji-barry O, Moses V. Dietary pattern and nutritional status of female adolescents in Amai Secondary School , Delta State , Nigeria. 2021;
49. Christian P, Smith ER. Adolescent Undernutrition : Global Burden , Physiology , and Nutritional Risks. 2018;(May).
50. Olowookere, E.I. & Umukoro, O.S. Role of childhood experiences and socialization in human resource development: implications for economic growth and sustainability in Nigeria. In: Tilton-Weaver, L., Akinbode, G., Akinwale, G., Bada, B., Ndu, C. (eds) Issues of Child Development in Nigeria. Markabliss Press: Lagos; 2022

Appendix I

Description of topics, objectives, and activities that makes up the content of the School Food Club Curriculum used at each meeting of the nutrition intervention

S/N	OBJECTIVE	CONTENTS	METHODS	RESOURCES	EVALUATION
First week	Explain the meaning of Healthy eating	Definition of healthy eating Identification of the constituents of a healthy diet Differentiation between healthy and unhealthy diets Comparison between whole foods, minimally processed, and highly processed foods	Use of flip-chart to teach about healthy eating Interactive discussion on the concept of healthy eating Use of IEC materials to identify constituents of healthy eating Hands-on demonstration to differentiate between healthy and unhealthy diet Hands-on demonstration to identify whole foods, minimally processed foods, and highly processed foods.	Flip charts, models, Postals, and food models for demonstration, discussion	Question and answer pre and post discussion Return demonstration
Second week	Discuss the benefits of healthy food	Discuss the benefits of healthy eating Mention examples of Healthy foods Identify the disadvantages of eating an unhealthy diet Highlight processed Food Components to Avoid	Interactive discussion on the benefit of healthy eating Use of food models to demonstrate locally available healthy foods Use of IEC materials to discuss the disadvantages of an unhealthy diet Use of IEC materials to identify the processed food components to limit and avoid	Flip charts, Postals, and food cards for demonstration	Questions and answers, pre- and post-discussion Return demonstration of locally available healthy foods
Third week	Understanding of Dietary Diversity	Definition of dietary diversity Explanation of the concept of MyPlate Description of how dietary diversity can be achieved with MyPlate	Interactive discussion on the definition of dietary diversity Hands-on demonstration of the concept of MyPlate using MyPlate cards Discussion of how dietary diversity is achieved with MyPlate	Postal, MyPlate cards game IEC materials	Question and answer pre- and post-discussion, Return- demonstration

Content of School Food Club Curriculum (Continued)

S/N	OBJECTIVE	CONTENTS	METHODS	RESOURCES	EVALUATION
Fourth week	Identification of determinants of food choice	Explain the determinants of food choice Understand how nutrient quality can determine food choice Identify how nutrition fact label helps to make healthy food choices Define how to increase access to healthy food	Interactive discussion on determinants of food choice Interactive discussion on nutrient quality in determining food choice Role play on the use of nutrition fact label Interactive discussion on how to increase access to healthy food	Postal, Flip charts, Food models for role play	Questions and answers pre- and post-discussion Return demonstration
Fifth week	Discuss the best meal timing	Define meal timing and the best meal timing Understand the advantages of proper meal times	Interactive discussion on best meal timing Interactive discussion on the advantages of proper meal timing	Postal Flip charts.	Questions and answers pre and post-discussion
Sixth week	Demonstrate personal hygiene and its benefits	Meaning of personal hygiene Explain ways to ensure proper personal hygiene Demonstrate proper hand-washing steps Identify the frequency of hand washing	Interactive discussion on the meaning and importance of personal hygiene Interactive discussion on proper steps to hand washing Hands-on demonstration on proper steps of hand washing	Postal, hands-on demonstration with soap and running water	Questions and answers pre and post discussion Return-demonstration
Seventh week	Describe deworming and its benefits	Definition of deworming Explain the benefits of deworming How you become infected How often to deworm	Interactive discussions on the definition of deworming and |how we become infected and how often to deworm	Teaching Interactive discussion Role-play Postal, flip-chart	Question and answer pre and post-discussion
Eight week	**RECAP/ EVALUATION**	Evaluation			