

## Healthy Eating and its Barriers: Perceptions and Practices of adolescents in Ghana

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### Abstract

**Background:** Adolescents are not given much attention when it comes to feeding. However, their nutrient needs are high during this stage of life. It is important, therefore, that adolescents have reliable nutrition information that would enable them to develop healthy dietary practices. Studies of adolescents' perceptions on healthy foods and the factors that act as barriers to healthy eating are essential for developing interventions that would promote healthy eating habits among adolescents.

**Objectives:** The objective of this study was to investigate the perceptions of adolescents in Junior High Schools in Ghana regarding what "healthy" and "unhealthy" foods are, the importance of healthy eating and barriers to healthy eating.

**Methodology:** This survey was a cross-sectional study involving 820 adolescents who were sampled from six Junior High Schools. A questionnaire was administered to the students after permission had been obtained from the headteachers and their parents.

**Results:** The surveyed adolescents have some knowledge of what healthy foods are. Fruits as well as roasted and grilled food items were usually cited as healthy foods, while snack food items, fried food items, soft drinks and meat products were generally considered as unhealthy foods. Despite their knowledge of healthy foods, most of them found it difficult to obtain and eat healthy foods. Some barriers to consuming healthy foods include the limited availability of healthy foods in homes and schools, and the fact that healthy foods such as fruits and vegetables are expensive and usually not tasty.

**Conclusions:** These findings suggest that healthy eating messages propagated through the lessons taught in schools are reaching adolescents. However, it behooves health educators to plan and implement interventions that would help adolescents translate their knowledge into healthy practices. School authorities and parents should create an environment where healthy foods would be readily available on school premises and at home.

**KeyWords:** Adolescent nutrition, Healthy foods, Nutritional knowledge.

### Introduction

The adolescence phase in life is characterized by significant rapid changes in which lifestyle habits and attitudes are established, including dietary habits [1]. The rapid changes that accompany physical growth and psychosocial development often place adolescents as one of the nutritionally vulnerable groups that practice unhealthy dietary habits, making them unable to meet their recommended nutrient intake needs [2-5].

Adolescents are at risk for nutritional problems from both physiological and psychosocial positions. The dramatic increase in physical growth and development creates a high demand for nutrients and energy. Psychosocial changes, such as the adolescent's quest for independence and identity, desire for acceptance by peers, concern for appearance, preoccupation

with self-image and active lifestyle, can have a strong impact on nutrient intake and food choices. These changes contribute to the erratic and unhealthy dietary habits that are common during the adolescence stage of life [6-10].

Studies have usually found adolescents to have unhealthy dietary habits, thereby failing to meet their daily nutritional needs [8, 10-12]. Some surveys have found that adolescents often fail to meet dietary recommendations for overall nutritional status and for specific nutrient intakes. It has been reported in various studies that young people in colleges failed to meet the recommended intakes of fruits and vegetables [13-16]. Also, they frequently engaged in snacking habits and they often consumed fast foods and skipped meals [2,17,18]. Other common nutritional problems that confront adolescents include iron deficiency, inadequate intake of calcium to allow for maximal mineralization of bones, particularly during their early years, high intakes of sodium and dietary fat from processed food products, and high caloric intake from added

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sugars in meals [19-23].

It has been reported that most adolescents are becoming increasingly westernized and opt for convenience foods when eating out. Most adolescents prefer to eat with their peers in fast food restaurants; and therefore, they are the main consumer group that patronizes services in fast food restaurants [24].

In some cases they diet to extremes, adopting weight losing diets which reduce their total food intakes and specific nutrient intakes [4,5]. For example, it has been reported that, on average, adolescents consume diets that are inadequate in several vitamins and minerals, including folate, vitamins A and E, iron, zinc, magnesium and calcium. Diets consumed by many teens exceed current recommendations for total fat and saturated fat, cholesterol, sodium and sugar [25-28]. Some studies have reported that adolescents snack mostly on candies, ice creams, cookies, cakes, pastries, potato/plantain chips, soft drinks and processed fruit juice, making snacking a habit not the major problem, but rather the poor food choices that are made by adolescents. Among female adolescents, there is the concern to acquire a desirable slim body figure which leads some to practice unhealthy eating habits, altering their food intake in the attempt to lose weight and control their body weights [29].

It is important to bear in mind that, poor dietary habits that are formed during the adolescence stages of life have the potential to last a lifetime, and may have long-term implications for health [30]. On the other hand, healthy eating habits are also likely to be adhered to during the adulthood stages of life, if they are established at an early age in life [31]. In addition, some studies have indicated that the dietary habits formed during the early stages of life can predispose an individual to certain diet-related health conditions, such as cardiovascular diseases, obesity, type 2 diabetes, osteoporosis and other chronic diseases in later years of life [32-36].

In most developing countries, nutrition initiatives have been focusing on children and women, thus neglecting adolescents. Addressing the nutrition needs of adolescents could be an important step towards breaking the vicious circle of intergenerational malnutrition, chronic diseases and poverty.

In view of the above, it is important that adolescents have reliable nutrition information to enable them develop healthy dietary practices that would ensure an adequate intake of nutrients and energy which is critical for their optimal growth during this stage of life. Encouraging the cultivation of healthy eating practices is one of the most effective ways to influence overall health attitudes and wellbeing of the school community as a whole [37]. This is particularly important for adolescents who spend most of their time in school and, therefore, are likely to eat most of their daily foods in school. It has also been emphasized that, there is a need to identify opportunities to promote the nutritional status of adolescents [38, 39].

One intervention that has been identified to help improve the nutritional status of adolescents is conducting nutrition or dietary education programmes. Nutrition or Dietary education programmes can serve as a means to raise the knowledge and awareness levels of children and adolescents about why and how to eat appropriately and stay healthy, as eating and nutrition are basic

requisites for promoting good health [40]. There is evidence that the school environment represents a suitable setting for organizing such nutrition and dietary education programmes focused on children and adolescents, as they study nutrition and health-related subjects [1].

Before any well-focused nutrition education intervention programme can be developed and conducted for adolescents, it is important to have a thorough understanding of the perceptions of adolescents regarding what healthy and unhealthy foods are. It is also essential to have an idea about their usual eating habits in order to be able to effectively communicate healthy eating messages to them [31].

In addition, whereas this issue has been researched in the context of younger children, the perceptions of adolescents have not been duly investigated. It has been asserted that the perceptions of adolescents regarding healthy eating, and the social influences on their perceptions remain unclear, since not many studies have been conducted to investigate this issue [1, 31, 41]. What are adolescents' perceptions of healthy foods, unhealthy foods and healthy eating practices? What do adolescents understand by a balanced meal? Which socializing agents do adolescents perceive as effective in communicating healthy eating messages? Which factors prevent adolescents from practicing healthy eating habits? To obtain answers to these questions, fill the research gaps and particularly, to augment published studies in the area of nutrition among adolescent, this study was conducted to investigate Ghanaian adolescents' perceptions regarding healthy foods, unhealthy foods, a balanced diet and their food preferences.

## **Subjects and Methods**

### **Study Design and Sample**

The study was descriptive and exploratory in nature and was based on the quantitative method. The study was conducted in the Cape Coast Metropolis, in the Central Region of Ghana. Six Junior High Schools (JHS) (three private and three public schools) were selected for the study. At the time of data collection all students present on the school premises, who had obtained parental consent and who gave their own consent to participate in the study, completed the questionnaire which was administered.

### **Instrument**

The items on the questionnaire were modified forms of items used in similar studies undertaken by [2, 3, 42].

The first section (A) consisted of questions to assess the background characteristics of the respondents. Background characteristics included sex, age, type of school, living arrangement, and household size among other variables. Besides, each participant was required to provide information on whether they had been taught any lessons on nutrition. The second section (B) comprised questions which assessed the perceptions of students regarding what healthy foods, unhealthy foods and balanced meals are. Respondents were given a list of common food items that are usually consumed by adolescents in Ghana, particularly during school hours, and they were required to classify each as a healthy food or an unhealthy food. Respondents were also asked to indicate the number of times that each food item was eaten in the week prior to the study. Again, respondents were asked to indicate some barriers that prevented them from eating healthy foods.

## Data Collection

The questionnaire was pre-tested prior to final administration in the six schools. The survey instrument was pre-tested among 60 students in two other JHS schools not selected for the study; and it was modified for clarity on the basis of students' feedback. Prior to the administration of the questionnaire, permission was sought by sending letters to the heads of the selected schools. In addition, permission was sought from parents or responsible caregivers by sending them letters explaining the objectives, risks and benefits of the study. Information presented in the letters was to enable them make a well-informed decision as to whether to allow their children or wards to participate in the study. Parents or responsible caregivers who agreed to the participation of their adolescents signed an informed consent form attached to the letter and returned it to the school authority, which was subsequently returned to the researcher.

The questionnaire was administered by the researcher, with the help of final year student- teachers undergoing their off-campus teaching practice and some teachers in each of the 6 schools.

## Ethical Considerations

Permission was sought from the headteachers in all the selected schools prior to the administration of the questionnaire. Parental consent was also obtained for 820 students; constituting (76%) of all eligible students. Prior to obtaining participants' consent to take part in the study, information sheets explaining the purpose of the study and its protocol were distributed and explained to the students by the researcher.

## Data Analysis

Data collected was analyzed using the Statistical Package for Service Solution (SPSS) version 21.0. Descriptive statistics were run to summarize the data collected, and the results were displayed in frequencies and percentages for the variables being investigated.

## Results

### Background Characteristics of Study Participants

The background characteristics of the study participants are presented in Table 1.

**Table 1:** Background Information of Study Participants (n = 820)

Variable	Frequency (%)
<b>Type of School</b>	
Private	449(54.8)
Public	371(45.2)
<b>Form</b>	
JHS1	219(26.7)
JHS2	265(32.3)
JHS3	336(41.0)
<b>Sex</b>	
Males	485(59.1)
Females	335(40.9)
<b>Age Group (years)</b>	
11-13	396(48.3)
14 – 16	348(42.4)
>16	76(9.3)

<b>Eating Companions</b>	
With family members	176(21.5)
With peers or friends	54(6.6)
Eats alone often	590(72.0)
<b>Satisfied with body weight/Size and Shape</b>	
No, wants to be bigger	84(10.2)
Yes, satisfied	656(80.0)
No, wants to be smaller	80(9.8)
<b>Have been taught Nutrition in School</b>	
Yes	796(97.1)
No	24(2.9)
<b>Heard about Regenerative Health and Nutrition programme</b>	
Yes	283(34.5)
No	537(65.5)

The respondents comprised 449(54.8%) and 371(45.2%) students private schools and public schools respectively. of the 820 adolescents with ages ranging from 11 to 17 years, a greater proportion 485(59.1%) were males. A majority 590(72.0%) of the respondents indicated that they ate alone often. Whereas 176(21.5%) indicated that they ate often with their family members, 54(6.6%) reported that they ate often with their peers or friends. Regarding whether participants were satisfied with their body size or not, majority (80.0%) indicated that they were satisfied with their current body weight and size. Almost all (97.1%) of the respondents indicated that they had been taught topics on nutrition in school. A high proportion (65.5%) of the students indicated that they had not heard about the Regenerative Health and Nutrition (RHN) Programme - a prevention and health promotion programme initiated by the Ministry of Health (MOH) - which aims to improve the health status of Ghanaians, emphasizing healthy lifestyle practices, including what people should eat and drink.

### Study Participants' Knowledge about Balanced Diet

Responses given by the study participants in respect of their knowledge about what a balanced diet is and what healthy foods are is presented in Table 2.

**Table 2:** Study Participants' Knowledge about Balanced Diet and Healthy Foods (n = 820)

Item	Frequency (%)
<b>Do you know what a balanced diet is?</b>	
Yes	754(92.0)
No	29(3.5)
Some idea	37(4.5)
<b>What is a balanced diet/meal?(n=791)</b>	
Food containing all nutrients in right proportions	324(40.9)
Food that contains carbohydrate, protein and fats	241(30.5)
Food that promotes growth and prevents diseases	135(17.1)
Food that is rich in fruits and vegetables	91(11.5)
<b>Which group of food items constitutes a balanced meal?</b>	
Meal1	79(9.6)

Meal 2	412(50.2)
Meal 3	186(22.7)
Meal 4	143(17.5)
<b>What does a healthy meal mean to you?</b>	
A meal that contains less amounts of fats	285(34.8)
A meal that contains less quantities of sugar	169(20.6)
A meal that contains all nutrients present in a variety of foods items	74(9.0)
A meal with a lot of fruits and vegetables	292(35.6)

**Meal 1** (Fried yam, red pepper, black pepper, fried chicken and coca cola drink); **Meal 2** (Boiled rice, tomatoes stew, fried chicken, vegetables salad and an orange); **Meal 3** [Boiled yam, boiled casava palaver sauce (cocoyam leaves and melon seeds stew) fried fish, fanta ]; **Meal 4** (Kenkey, ground red pepper, black pepper, fried fish, yoghurt).

Most (92.0%) of the students indicated that they knew what a balanced diet is. A sizeable proportion (40.9%) of the respondents who indicated that they knew what a balanced diet is described it as food containing all nutrients in the right proportions. Almost a third (30.5%) described a balanced diet as food that contains carbohydrates, proteins and fats, whereas a small proportion (17.1%) described a balanced diet as food which promotes growth and prevents diseases. To assess whether the students really knew what a balanced diet is, four different kinds of imaginary meals with different components were presented to the respondents, and they were required to identify a balanced meal out of the four. Approximately half (50.3%) were able to correctly identify the balanced meal (Meal 2) from the four meals given.

### Study Participants' Perceptions about Healthy and Unhealthy Foods and Frequency of their Consumption

The students were required to indicate from a list of food items (usually eaten by adolescents, especially during school hours) whether they are healthy or unhealthy. The responses of the students are summarized in Table 3.

Regarding the food items under Group 1 consisting of different types of chips and bread, nearly three-quarters (71.1%) of the students thought that baked chips were healthy compared with the 52.2% who considered fried chips as healthy; and a little more than half of them (50.9%) who thought that sugar bread was healthy compared with the 49.5% for butter bread. In the case of food items under Group 2 comprising mainly meat and poultry products, a majority of the students indicated that sausage (51.0%), kebabs (53.4%) and fried turkey wings (56.6%) are unhealthy food items. Again, a higher proportion (60.0%) of the respondents indicated that grilled chicken is healthy compared with the 51.8% who rated fried chicken as such. Regarding food items in Group three, consisting of mainly pastries, majority (>50%) of the students thought that they were unhealthy foods, apart from plantain chips which 59.1% of the students considered as healthy. For the food items listed under Group four, made up mainly of starchy foods like plantain and yam prepared in different ways, majority of the students (60.5% for plantain and 58.0% for yam) thought that roasted foods were healthy but not fried foods. For food items listed under Group five, mainly confectioneries and drinks, such as candies, chocolates and carbonated soft drinks, a majority of the respondents (57.0% and 62.0% respectively) indicated that carbonated soft drinks and candies are unhealthy foods. On the

other hand, nearly 52% rated chocolate as a healthy food. In respect of the food items in Group six comprising fruits such as banana, oranges and pineapple, more than 90% of the respondents indicated that each is a healthy food. This suggests that almost all the students had the perception that fruits are healthy foods.

With regard to the frequency of intake of the food items, the responses given are summarized in Table 4. Most of the food items described as unhealthy by a majority of the students were consumed by them at least once in the week prior to the study. For example in the case of kebabs, sausages and fried turkey wings, 53.4%, 51.0% and 56.6% respectively of the students described them as unhealthy. However, a very high proportion (over 80%) of the students consumed kebabs once (28.0%), 2 to 3 times (30.0%) and 4 to 5 times (21.4%) in the week prior to the study. Only a few (12.8%) indicated that they never ate kebabs in the week prior to the study. Again a very large proportion (nearly 85%) of the students consumed sausages, once (25.2%), 2 to 3 times (22.0%) and 4 to 5 times (20.4%) in the week before the study. Only 15.4% reported that they did not eat any sausage in the week before the study. Similarly, as shown in Table 4, only 17.9% had not eaten any fried turkey wings in the week before the study.

**Table 3:** Adolescents Perceptions about Healthy and Unhealthy Foods (n=820).

Food items	Indicate whether the following are healthy or unhealthy	
	Healthy n (%)	Unhealthy n (%)
<b>Group 1</b>		
Baked chips	583(71.1)	237(28.9)
Fried chips	428(52.2)	392(47.8)
Butter bread	406(49.5)	414(50.5)
Sugar bread	417(50.9)	403(49.1)
<b>Group 2</b>		
Kebabs	382(46.6)	438(53.4)
Sausage	402(49.0)	418(51.0)
Fried turkey wings	356(43.4)	464(56.6)
Fried chicken	425(51.8)	395(48.2)
Grilled chicken	492(60.0)	328(40.0)
<b>Group 3</b>		
Meat pie	435(47.0)	435(53.0)
Pop corn	362(44.2)	458(55.8)
Plantain chips	485(59.1)	335(40.9)
Doughnut	389(47.4)	431(52.6)
Cake	382(46.6)	438(53.4)
<b>Group 4</b>		
Roasted plantain	496(60.5)	324(39.5)
Fried plantain	361(44.0)	459(56.0)
Fried yam	407(49.6)	413(50.4)
Roasted yam	475(58.0)	345(42.0)
<b>Group 5</b>		
Chocolate	424(51.7)	396(48.3)
Carbonated soft drink	352(43.0)	468(57.0)

Candies/Toffees	312(38.0)	508(62.0)
<b>Group 6</b>		
Banana	751(91.6)	69(8.4)
Orange	758(92.4)	62(7.6)
Apple	749(91.3)	71(8.7)
Pineapple	756(92.2)	64(7.8)
Water melon	763(93.0)	57(7.0)

Again, with pastries, apart from plantain chips, most of the students considered meat pie, popcorn, doughnuts and cake as unhealthy foods. However, all the students had eaten them in the week prior to the study, except 15.2%, 16.3%, 12.9% and 10.1% respectively. A comparison between fried yam and roasted yam reveals that the majority (58.0%) of the students thought that roasted yam was healthy while another majority (50.4%) of them regarded fried yam as unhealthy in Table 3. However, whereas most of the students had eaten fried yam either once (33.0%), 2 to 3 times (22.8%) and more than 3 times (27.4%) in the week before the study, in the case of roasted yam only a few had eaten it once (7.6%), 2 to 3 times (14.4%) and more than 3 times (27.4%) in the week before the study. Only 16.7% of the students had not eaten fried yam, yet compared with 56.5% who had not eaten roasted yam in the week before the study. In the case of confectioneries, most of the students (57.0% and 62.0%) indicated that carbonated soft drinks and candies respectively are unhealthy food items. However, majority of them had eaten a candy once (35.7%) or 2 to

3 times (23.3%) in the week prior to the study. Only a few (6.8%) indicated that they had not eaten any candy in the week before the study. Similarly, with carbonated soft drinks like fanta, coca cola and sprite, most of the students indicated that they had consumed a bottle/can of soft drink once (32.4%) or 2 to 3 times (27.2%) in the week before the study. Only a few (8.2%) did not consume any soft drink in the week before the study.

In the case of fruits, described as healthy by a majority (>90%) of the respondents, most of the students indicated that they did not eat any in the week prior to the study. For example with apples, whereas a few (14.1%) indicated that they consumed some once in the week before the study, the majority (55.2%) indicated that they did not eat any apple in the week before the study. Again with banana, whereas only 21.7% of the students indicated that they ate it once in the week prior to the study, 27.8% of them did not eat any banana during the week before the study. Similarly, whereas only 24.0% of the respondents indicated that they ate an orange once in the week before the study, 28.0% of them indicated that they did not eat any orange. Likewise, with water melon, whereas a few students (16.3%) indicated that they had eaten it once in the week before the study, a notable proportion (41.8%) of them indicated that they did not eat any.

It is clear then that generally, a considerable proportion of the study participants do not consume fruits often, although nearly all of them (>90%) regard fruits as healthy foods.

**Table 4:** Frequency of Consumption of Food Items (n=820)

Food items	How often did you eat each of the following in the past one week before this study?				
	1/week n (%)	2-3/week n (%)	4-5/week n (%)	6-7/week n (%)	Not eaten/week n (%)
Baked chips	208(25.3)	167(20.4)	40(4.9)	45(5.5)	360(43.9)
Fried chips	289(35.2)	230(28.0)	76(9.3)	39(4.8)	186(22.7)
Butter bread	185(22.6)	228(27.8)	138(16.8)	172(21.0)	97(11.8)
Sugar bread	272(33.2)	253(30.9)	118(14.4)	70(8.5)	107(13.0)
Kebabs	230(28.0)	246(30.0)	175(21.4)	64(7.8)	105(12.8)
Sausage	207(25.2)	180(22.0)	167(20.4)	139(17.0)	127(15.4)
Fried turkey wings	229(27.9)	283(34.5)	108(13.2)	53(6.5)	147(17.9)
Fried chicken	248(30.2)	214(26.1)	115(14.0)	106(12.9)	137(16.7)
Grilled chicken	126(15.4)	113(13.7)	108(13.2)	78(9.5)	395(48.2)
Meat pie	235(28.7)	229(27.9)	152(18.5)	79(9.6)	125(15.2)
Pop corn	306(37.3)	199(24.3)	123(15.0)	58(7.1)	134(16.3)
Plantain chips	316(38.5)	223(27.2)	110(13.4)	88(10.7)	83(10.1)
Roasted plantain	255(31.1)	220(26.8)	197(24.0)	55(6.7)	93(11.4)
Fried plantain	261(31.8)	218(26.6)	145(17.7)	83(10.1)	113(13.8)
Fried yam	271(33.0)	187(22.8)	120(14.6)	105(12.8)	137(16.7)
Roasted yam	62(7.6)	118(14.4)	84(10.2)	93(11.3)	463(56.5)
Chocolate	248(30.2)	200(24.4)	143(17.4)	107(13.0)	122(14.9)
Carbonated soft drink	266(32.4)	223(27.2)	140(17.1)	124(15.1)	67(8.2)
Candies/Toffees	293(35.7)	191(23.3)	142(17.4)	138(16.8)	56(6.8)
Doughnut	213(26.0)	199(24.3)	135(16.5)	167(20.3)	106(12.9)
Cake	258(31.5)	216(26.3)	142(17.3)	121(14.8)	83(10.1)
Banana	178(21.7)	162(19.8)	137(16.7)	115(14.0)	228(27.8)
Orange	196(24.0)	151(18.4)	126(15.3)	117(14.3)	230(28.0)
Apple	115(14.1)	102(12.4)	86(10.5)	64(7.8)	453(55.2)
Pineapple	97(11.8)	187(22.8)	158(19.3)	86(10.5)	292(35.6)
Water melon	134(16.3)	126(15.4)	121(14.8)	96(11.7)	343(41.8)

Reasons why some foods are described as healthy or unhealthy The study participants were asked to give reasons why they described some foods as healthy or unhealthy. Specifically, they were asked to describe in just one sentence what healthy foods are, in their view. With foods described as healthy, the reasons given by the students are summarized in Table 5.

**Table 5:** Main Reasons why selected Food items are described as Healthy Foods (n= 820)

Main reasons why selected foods are described as healthy foods	Frequency (%)
They are important for growth and development	226(27.6)
They contain little amount of sugar	182(22.2)
They contain less fat	196(23.9)
They do not cause obesity/overweight	104(12.7)
They contain vitamins and minerals	75(9.1)
No reason given	37(4.5)

To a little over a quarter (27.6%) of the students, healthy foods are important for growth and development. Nearly another quarter (23.9%) of them indicated that healthy foods contain less fat; and roughly another quarter (22.2%) thought healthy foods contain less sugar. To approximately an eighth (12.7%) of them, healthy foods do not cause obesity or overweight, and to nearly a tenth (9.1%) of them, healthy foods contain vitamins and minerals.

Reasons why some foods are described as unhealthy are presented in Table 6.

**Table 6:** Main Reasons why selected Food items are described as Unhealthy Foods (n=820)

Main reasons why selected foods are described as unhealthy Foods	Frequency (%)
They contain a lot of fat	308(37.6)
They cause obesity/ body fatness	215(26.2)
They contain a lot of sugar	127(15.5)
They contain small or no vitamins and minerals	106(12.9)
No reason given	64(7.8)

A notable proportion (37.6%) of the students indicated that unhealthy foods contain a lot of fat. Another, (26.2%) of them indicated that unhealthy foods cause obesity or body fatness; and another 15.5% had the view that unhealthy foods contain a lot of sugar.

### Respondents' opinions regarding barriers to healthy eating

Responses given by the study participants regarding barriers to healthy eating are summarized in Table 7.

**Table 7:** Respondents' Opinions regarding Barriers to healthy eating (n=820)

Barriers to healthy eating	Frequency (%)
<b>Confronted by some challenges/barriers in an attempt to eat healthy foods?</b>	
Yes	597(72.8)
No	223(27.2)
<b>Barriers to healthy eating</b>	
Limited availability of healthy foods in homes and schools	268(32.7)

Difficulties in resisting the desire to eat tasty unhealthy foods	173(21.1)
Healthy foods are not tasty and nice	142(17.3)
Peer pressure/Influence of peers	129(15.7)
High cost of most healthy foods like fruits	108(13.2)

A high proportion of the respondents (72.8%) indicated that they encountered some challenges or barriers in their attempt to eat healthy foods. About a third (32.7%) of the respondents indicated that they were prevented from eating healthy foods by the limited availability of healthy foods, particularly on the school premises. Nearly a quarter (21.1%) of them indicated difficulties in resisting the desire to eat tasty unhealthy foods as the challenge that prevented them from eating healthy foods. Again, to buttress the desire to eat tasty unhealthy foods, some 17.3% of the students indicated that healthy foods are not tasty and nice. Other barriers cited included peer pressure or the influence of friends (15.7%) and the high cost of most healthy foods like fruits (13.2%).

### Discussion

As with many behaviors, healthy eating habits are likely to take a foothold in adults if they are established at an early age [31]. Regrettably, the dietary intakes of adolescents are characterized by poor overall diet quality and overconsumption of energy-dense foods, low intake of fruits and vegetables, low consumption of whole grain and fiber and a high intake of salts and calories from sugar added to food products [19,20,41,43-46]. The above-mentioned typical dietary practices of adolescents are worrying because dietary practices developed during the childhood and adolescence stages of life is likely to last a lifetime and may have long-term consequences for health [30]. Poor diet quality, in addition to physical inactivity, can contribute to an increased risk of obesity, and consequently to risk factors for heart diseases and type 2 diabetes [34, 35]. Therefore, efforts to improve aspects of diet quality related to energy balance and obesity prevention are particularly important for adolescents.

This study was conducted to assess the dietary practices and food preferences of Junior High School (JHS) students.

The study shows that a large majority (97.1%) of the respondents have been taught lessons in nutrition. This result is consistent with previous findings that schools play an important role in health education and that the school environment represents a suitable setting for dietary education practices focused on children and adolescents, as they participate in lessons organized in various nutrition and health-related subjects [1,47].

A high proportion (>90%) of the students indicated that fruits were healthy food items. Similarly in another study among a youth group, most of the participants studied indicated that healthy foods are fruits and vegetables, because they do not have fat; and when consumed, vitamins and all the other nutrients are obtained from them, unlike meat [48]. In addition, for some 23.9% of the students, a meal that contains less fat is healthy while for some 22.2% a meal that contains less sugar is healthy.

In a study by Leme et al., similar explanations were given by the study participants as to what a healthy meal is. In the Leme et al. study, some of the adolescents studied (52.6%) described healthy eating as having a balanced and varied diet. Another 35.1% indicated that healthy eating is to eat fruits and vegetables, while for some 7.3%, healthy eating meant to control fat, sweets, pasta

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and salt [49].

The responses regarding what healthy and unhealthy foods are, and the assessment of their intakes revealed that in most cases students were consuming foods which, in their own opinion, were unhealthy; and they were not consuming foods which, in their view, were healthy. For example, whereas a majority (51.0%) of the students described sausages as unhealthy, only 15.4% of them indicated that they did not eat any sausages a week before the study was carried out. Similarly, whereas more than 90% of the respondents indicated that fruits such as oranges, bananas, pineapples, water melon and apples are healthy, 28.0%, 27.8%, 35.6%, 41.8% and 55.2% respectively indicated that they did not eat these fruits in the week before the study. The findings of this study are corroborated by those of other studies in which a majority of the youth studied considered locally grown foods, especially fruits and vegetables, as healthy [48, 50]. Similarly, Sedibe et al. reported that, even though a majority of the study participants described fruits and vegetables as healthy foods, their consumption was limited by their availability [48]. Likewise, in a related study, it was reported that adolescents frequently consumed a range of relatively unhealthy foods such as candies, cookies, chips, soft drinks and artificial fruit juices, even though they described these food items as unhealthy, mainly because they were food items readily available on their school premises [11, 51, 52]. These findings suggest that adolescents in Ghana, though primed with some educational information about dietary guidelines and healthy eating, were not able to practice healthy eating. The findings of this study and others indicate a gap between knowledge and practice of healthy eating among adolescents. The findings of this study support a longstanding finding in the study of food attitudes, perceptions and eating behaviours or practices, that knowledge about nutrition and food risks does not often translate into healthier eating behaviours [3, 40, 53-57]. Again, the findings of this study suggest that guidelines and educational messages being propagated to help achieve healthy eating are reaching adolescents, but interventions are needed to enable them translate their knowledge into healthy eating behaviors.

The question is what are the challenges or barriers to healthy eating among adolescents? A considerable proportion (32.7%) of the respondents indicated that one barrier to healthy eating is the limited availability of healthy foods in their homes and schools. This finding confirms what has consistently been reported that food availability has a great impact on adolescent food choices [41, 58]. The finding of this study also corroborates that of a similar study conducted in South Africa in which a majority of the studied adolescents cited limited access to and availability of healthy foods as strong barriers to healthy eating practices [48]. In another study among American adolescents aged between 9 and 18 years, the most prevalent barrier to healthy eating was the availability of healthy foods, especially in schools [59]. Other studies have also attested to the fact that the school environment can influence adolescents eating behaviour, directly through policies on the range and prices of foods available, and indirectly through peer concerns and pressures in relation to food consumption [60-62]. Similarly, another study in Canada found that, among a number of factors, the availability of foods in the physical environment stood out as a significant influence on healthy eating among both children and adolescents [63]. The findings of this study demonstrate that limited access and food availability are strong barriers to healthy eating practices among most adolescents. The findings indicate that the availability of less nutritious and healthy

foods in the immediate settings of adolescents, mainly the home and school, is generally associated with undesirable food choices and unhealthy dietary habits of adolescents. The unavailability of healthy and nutritious foods in homes of adolescents is also another contributing factor leading to the undesirable food choices made by adolescents. Pearson et al. found that the availability of energy-dense snack foods in homes of adolescents was positively related to the consumption of these foods among adolescent boys and girls [64]. Similarly, in another study assessing the experiences of overweight/obese adolescents in navigating their home food environment, participants described the availability of less healthful foods as barriers to healthful eating, highlighting the importance of targeting the home food environment to enable them make healthier food choices [65].

Some 21.1% of the respondents also indicated that they lacked the self-control or determination to fight back the desire to eat unhealthy foods which were tastier than healthy foods. Similarly, Power et al. found out that a potential barrier to healthy eating among American adolescents was the difficulty in resisting eating tasty junk foods [33]. Another study revealed that a major barrier to healthy eating identified by both adults and adolescents was a craving for unhealthy foods, such as chips and fatty foods or types of food with a lot of oil [50].

Another barrier indicated by some 13.2% of the respondents was the high cost of most healthy foods like fruits. In support of this finding, a majority of the study participants in a similar study reported that one major barrier to eating healthy meals was the high cost of healthy foods [50].

In another study, it was reported that most young people felt that they did not have the resources to eat a healthy diet, apart from limited choices and restricted access to healthy foods [48]. Similarly, lack of financial resources was identified as one major reason for consuming unhealthy foods in a study conducted by [31]. Likewise, Shepherd et al indicated that ease of access to relatively cheap unhealthy foods, such as fast foods packed with fats and sugars, was one barrier to healthy eating by adolescents [66].

Another barrier to healthy eating reported by 15.7% of the students was peer pressure. This finding of a negative peer influence on healthy eating is consistent with what has been observed in previous studies [67, 68]. The above finding indicates that dietary practices and behaviours acquired by adolescents are influenced by opportunities to eat with peers-away from home. Similarly, Chan et al. indicated that adolescents are more likely to practice healthy eating at home, while they are more likely to succumb to peer influences to consume unhealthy foods in social settings such as prevail during school hours [31].

## Conclusion

Generally most of the studied adolescents knew what healthy foods are. However, it was found that such knowledge is not always translated into their practices and behaviours, largely because of some barriers or challenges. The main barriers to the choice of healthy foods by the adolescents studied were related to the unavailability of healthy foods in settings where adolescents spend most of their time during the day, usually the home and school, inability to resist the desire for tasty unhealthy foods and the less tasty and unappealing nature of healthy foods. Other

barriers include the high cost of most healthy foods like fruits and the influence of peers. These findings show that dietary choices of adolescents are not only influenced by subjective factor related to knowledge and perceptions, but also by economic, social and sensory factors, as reported in other studies [38, 69].

### Recommendations

This study has revealed that there is a positive relationship between an adolescent's susceptibility to peer influence and the consumption of unhealthy food. As friends/peers are socializing agents that have the potential to influence individuals in cultivating unhealthy eating habits, there is a need to educate adolescents about how to cope with peer pressure in this regard.

Creating the desire to consume healthy foods, and empowering adolescents to make intelligent choices, would be in vain if options are not made readily available in the social settings of adolescents. To increase adolescents' ability to make healthy choices, school authorities should ensure the availability of a variety of fresh fruits and healthy snacks in school pantries, shops or canteens, in addition to less healthy options.

Perhaps it would be worthwhile linking up with producers of healthy foods like fruits and vegetables and allowing them to sell the harvested crops in schools rather than to middlemen to sell to consumers which, in most cases, increase the prices of these food items.

Again, in most schools, students engage in agricultural studies and are required to cultivate some crops on the school farms. Maybe, agricultural instructors would support and encourage their students to grow their own crops, mainly fruits and vegetables, and sell them in school canteens or pantries. This has been advocated in some developing countries in an initiative popularly referred to as Home-Grown Feeding Schemes (HGFS) or Home-grown School Feeding Programmes which aim at increasing school enrolment, while at the same time promoting local food production and the incorporation of agriculture into the school curricula.

Also, schools with boarding facilities should offer nutritionally adequate and healthy meals, served in dining halls or sold in school canteens to students, especially in junior and senior high schools.

To more fully reach out to adolescents in their own language, messages aimed at promoting healthy eating among them must be based on their understanding of dietary recommendations. It is also critical to involve adolescents in planning nutrition intervention programmes to create more effective interventions and more fully address their needs.

Nutrition or dietary education programmes should continue and be intensified to raise adolescents' awareness about the importance of making healthy dietary choices as a basic requirement for promoting optimum health. In addition, nutrition and health education programmes focusing on adolescents should be mounted as a matter of priority for all social sectors, particularly within the school setting, as they all have a role to play in teaching adolescents about nutrition and healthy lifestyle habits by setting good examples.

As the association between availability of various types of food in homes and their intake has been highlighted in a number of

studies including this one, parents of adolescents should ensure availability of particularly healthy food items in the home to influence foods consumed in this setting when adolescents are left to make their own decisions about what to eat and drink. Parental modelling has also been considered an important influence regarding children's and adolescent's dietary habits. Therefore parents should be encouraged to act as role-models by actively and consciously modelling healthy eating habits and choosing healthy foods in the presence of their children both at home and when out with their children. Thus, parents can play a fundamental role in the control of the choices of adolescents' foods when a conscious effort is made to purchase and make available mainly healthy foods at home.

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