

Children and Healthy Eating: How do they think about? Comparative Exploratory Research Study

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Abstract

Background In the worldwide, 10% of all children and 43 million children under 5 years are either overweight or obese (Livingstone, 2014). This Statistic indicates there is a 60 % increase in childhood obesity over two decades. Obesity is defined as “abnormal or excessive fat accumulation that might have a negative impact on health” [1].

Childhood obesity is one of the serious public health challenges in the 21st century because of its negative impacts on childhood mental and physical health (Livingstone, 2014). Obese children might complain of poor self confidence, sadness, teasing and bias by peers and negative views hold by public. Such psychological impact of childhood obesity might persist into adulthood. Also, the most serious complication of childhood obesity is type 2 diabetes which might result in obese middle age adults and early dementia. Once childhood obesity is recognized, fatness is extremely tricky to treat. Obesity is the result of a multifaceted communication of a number of factors; genetic, ecological (lifestyle and dietary), educational, socioeconomic and psychological factors.

Livingstone (2014) stated that childhood obesity is a real issue as approximately 30% of obese children and 70% of obese adolescents will go on to become obese adults. Girls are more likely to be affected than boys. Children with obesity should be treated before age of 3 year otherwise; obesity is more likely to persist into adulthood. Possibly by 2020, worldwide, 9% of all preschool children (approximately 60 million children) will be obese; if no significant intervention is done. On the other hand, according to the International Association for the study of obesity [2] the maximum Prevalence of childhood obesity is in the USA and this is followed by the UK and Australia [2].

Objective: This research study was designed to explore children’s (aged 9 - 10) beliefs about healthy eating and what they manage to eat healthily.

Design: This research was exploratory to the way that two different groups of children conceptualized healthy eating to compare between them. The 1st was at a primary school group and the 2nd was at a local Church collection. The same questionnaire comprised of 14 questions was administered to children in both cohorts with the twenty-six year 9 and 10 participants to explore how they perceived healthy eating. Total number of children (aged 9 - 10) was 26, 19 at primary school group and 7 at local Church cohort. All together were from the same ethnicity (whitish-British), age, gender and low-middle socioeconomic states and dissimilar rank of parents’ education.

Results: Findings from primary school age group were somewhat concerning of such a school which has been already committed to a healthy eating policy. Even though kids at primary school age group were more expected to make healthy food choices than those

of the local Church group, (77.3% vs. 47.1%) seventy one percent of them preferred unhealthy foods. Also, 26.3% of children at the primary school vs. 28.5% of those in the local Church group considered that pasta is made from cheese and 14.2% of children at local Church cohort believed that pasta is made from meat. Children at primary school cohort (10.5%) supposed that egg is made from Cow and they believed that Crisps is made from plastics (5.2%). All children in both cohorts had a different gender food preference for the same quality of food they preferred. In addition, one hundred percent of children in the local Church group vs. 36.8% of those at primary school cohort had knowledge of healthy eating from their parents.

Although findings from such a small sample are not generalizable, results suggest that children had differences in their understanding of healthy eating in both cohorts and redirection of policy and practice in the school is required.

Conclusions

Because of each cohort findings were analyzed, presented and discussed separately, and because of that each cohort had different context and background, therefore, each group needs a distinct conclusion.

Conclusion of study of primary school cohort

The main confusing questions for children in this group were Q2, Q4, Q5, Q12, Q13 and Q14. Although the school had a healthy eating policy, maximum percentage of children (42.1%) stated that they had knowledge of healthy eating from food labels and only 36.8% had their knowledge from schools and teachers. The highest proportion 26% of children depends on choice/availability when choosing food and no role of parents in sending healthy eating messages was evident. Seventy one percent of children in primary school cohort preferred unhealthy food, although they knew that their food was unhealthy. This indicates that redirection of policy and practice in the school is obligatory particularly in such discipline which has been already committed to a healthy eating policy [3].

Besides, kids of primary school (26.3%) thought that pasta is made from cheese, 10.5% perceived that egg is made from Cow and 5.2% believed that Crisps is made from plastics. These findings proved that children in the primary school cohort need to be further educated about food origin. Such curriculum might be useful for the school, as the BNF's Healthy Eating Week program which aims "to start the process of re-engaging children with the origins of food, nutrition and cooking, so that they grow up with a fuller understanding of how food reaches them and what a healthy diet and lifestyle consist of" [4].

Despite of that all options given for having breakfast were healthy, twenty one percent of children in this group thought that their breakfast was unhealthy (Q13). However, free school breakfast programs could be added to the school health policy to educate and teach children about healthy breakfast. In addition, children viewed a lack of knowledge of making healthy choices. Twenty four percent thought that fresh vs fried fruits and vegetables, six percent believed that food low vs high in fat, twelve percent supposed that food low vs sugar, twenty four percent thought that food low vs high in salt, twelve percent perceived that boiled v's fried potatoes and eighteen percent brown vs white bread were healthy choices.

Such results revealed that there is much for physical educators to attend to pedagogically and personally in relation to health and physical education in schools [5]. These findings point to a need to provide children with strategies for making sense of both the opposite and normative information about healthy eating and particular healthy practices.

Furthermore, this study revealed that the children's preferences of food depend on several factors such as taste, parents, schools and teachers. Parents' support is necessary to the achievement of any intervention aimed at the prevention and management of overweight or obesity in young children [6].

Conclusion of survey of local Church group

Most of the children’s parents in this group were educated with high qualification; therefore this might be the reason that children were very good at answering questions Q1, Q2, Q3, Q7, and Q8.

However, certain issues were concerning particularly Q9, Q10, Q12, and Q14 in this group need addressing to perhaps avoid childhood obesity. In the local Church group fifty seven percent realized that fresh fruit and vegetables are healthy sources as being essential vitamins and minerals (Q9). This percentage considered low as compared to such a very small sample of children (seven in number). A high proportion of children (28%) in this cohort used to drink water with diet and thought this was a healthy. Only 57% viewed that water is an important part of a healthy diet because it is nutritious and anti-toxic. Also, 42.7% of children revealed partial understanding of food origin (Q12).

Also, children faced big challenge to make healthy choices among certain foods such as fresh vs fried fruits (57%) and vegetables, food low and high in fat (57%), sugar (57%) and salt (57%), and boiled and fried potatoes (42.8%). All these findings revealed that there were areas of partial understanding or misconception of children in this group that is essential to be addressed and tackled to help to avoid childhood obesity.

Keywords: Kids; Insights; Healthy Eating; Childhood Fatness; Questionnaire; Local Church Discipline; Primary School Cohort; Exploratory Comparative Research Study; Two Case Studies

Background

A number of recent national policy documents [7,8] have stated the increasing prevalence and the risks of childhood obesity.

According to Paquette [8] perceptions of healthy eating are defined as “the public’s (children, adolescents and adults) and health professional understandings, meanings, views, attitudes and beliefs about healthy eating, eating for health and healthy foods”. The public’s perceptions of healthy eating deemed to be heavily influenced by dietary guidance, which recommend fruit and vegetables, meat, limitation of fat, salt and sugar, variety, moderation, fresh and balanced food [8-10]. Healthy eating is defined as “the consumption of a wide variety of fresh fruit, vegetables, legumes, whole grain cereal food and protein-rich food” [11].

Healthy eating is significant for children’s growth and development and to achieve their best educational potential [12]. Furthermore, food preference and eating habits established in childhood often persist into adulthood; children are appropriate target group to positively influence dietary habits [13,14]. Food favourite is a very important predictor of children’s food intake [15,16]. For instance, children have an uncertain lower preference for vegetables than fruit [15,17].

The sample of questionnaire administered to both groups in this study is shown in the chart below



Methods

Consent was obtained from children their parents and their teachers when this data was collected and entered into the dataset. This is an exploratory comparative research study carried at Oxford city in the United Kingdom for the era from Sept. 2013 to Sept 2014.

A total of 46 copies of questionnaires (Graph 10 were administered, 36 questionnaires were administered (only 19 were returned) to children in the primary school by one teacher. The questionnaire for the primary school group was administered in 19th of July and collected 5 days later. Also, 10 questionnaires were administered on Sunday 28th of July to the local Church group by one member of Brooke’s staff (only 7 were returned) and collected on Monday 29th of July 2013. A total of 26 copies of completed questionnaire were collected with a response rate of 92.3 % for all groups.

One teacher working in the same participating school distributed the student questionnaire to year 5 and year 6 children (aged 9 - 10). In June, 2013. Some of the children’s parents were available and they indicated willingness for their children to participate in this study. The students were asked to complete the self-administered questionnaire in a school during a classroom session. A quite two small samples were collected, just twenty six, from two different resources. One case was from a local primary school and another sample was from a local Church group. Concerning primary school cohort, no time limit was given; the children spent about 10 - 15 minutes to complete answering the survey. The teacher had to clarify a few questions and answer responses; but no direction was given in response. The number of children was 19 in this local school, year 5 and 6 pupils in the class (aged 9 – 10). Most of the children (18) were either at level 4 or 5 of the national curriculum and one child was at level 3.

The second cohort that responded to the questionnaires was children in a local Church group in which ten questionnaires were administered at the end of meeting, which is regular once weekly meeting. Such sample was regarded as a purposive sample as needed responses are required for this study. A member of Brooke’s staff first introduced himself to the children and their teacher in the Church. He tried to explain the aim of this research study for the children and their teacher who were happy and welcomed the notion of the survey. The member of Brooke’s staff administered 10 questionnaires to the children and he was in attendance when the children filled out the questionnaires, but did not interpret the questions for the children, who were motivated and focussed, although one child did not complete the whole exercise. Seven questionnaires were returned. Of these, two questionnaires were finished by children whose parents read with them and helped them to reply the questions. One parent declined to let his child join the group and answer the questions, but gave no reason for his decision.

Data were analysed and reported in percentages, means, and histograms, wherever appropriate. Moreover, the sample bases for each question might vary due to the missing answers.

Results

Table 1 show the number and percentage of children correctly answered the question regarding “What does healthy eating mean to you?” (Q1). Among the local Church group (6 responses and one missing answer), among children in the local Church, 85.7% of them replied correctly to the question while it was 94.7% for the primary school cohort (one missing answer among 19). The mean and SD (standard deviation) for both case studies were 6.5, 0.70 and 18.5, 0.70 correspondingly.

	Number of correct answers	No. of children	%	Mean
Local Church Group	6	7	85.7%	6.5
Primary School Group	18	19	94.7%	18.5

Table 1: Number and percentage of children correctly answered the question regarding “what does healthy eating mean to you?” (Q1) Both groups.

Query 2 was “How do you know what healthy eating is?”

Parents of children in the local Church group, who totally and accurately answered this question, were considered as the main source of knowledge for them of healthy eating as opposed to those in of primary school cohort (36.8%). Also, 71.4% of children at local Church cohort stated that they had knowledge from their schools and teachers as compared to 36.8% at the primary school cohort. On the other hand, the maximum percentage of children (42.1%) at primary school group considered having facts of healthy eating from food labels and packaging as compared to zero percent at the local Church group. Although Television adverts were the lowest proportion among the given options, the percentage was higher in children in local Church group (14.2%) than those in primary school cohort (5.2%).

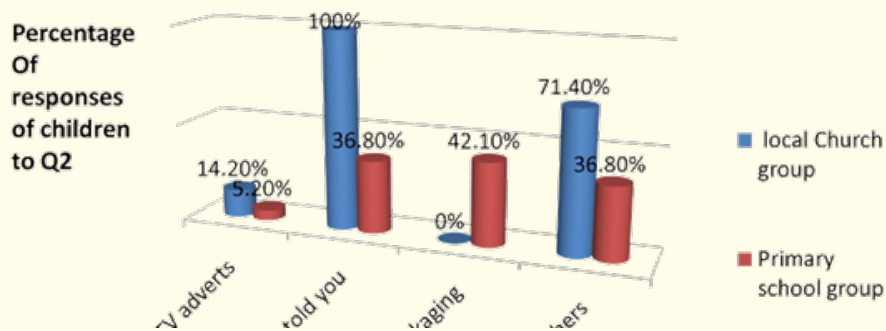


Figure 1: Sources of knowledge for children about healthy eating (Q2) both groups (Accumulative totals).

Question 3 was “which of the options below is the healthiest snack box content?”

As illustrated in Table 2 below, perception of the healthiest snack box contents as fresh fruits and vegetables, pure water, cheese, egg and brown bread in both groups was very good. Among children in local Church cohort, the correct answer was (85.7%) and in the primary school group, 94.7% perfectly answered this query. Besides, the mean for children in local Church cohort was 6.5 and the mean was 18.5 for kids in primary school discipline.

	Number of correct answers	No. of children	%	Mean
Local Church Group	6	7	85.7%	6.5
Primary School Group	18	19	94.7%	18.5

Table 2: Number and percentage of children correctly answered the question regarding “the most healthy snack box contents” (Q3) Both groups.

Question 4 was “When choosing what to eat, how do you decide?”

The taste was considered as the main concern of children at local Church group (85.7%) when choosing food, despite the fact that choice/availability was the priority of children at primary school cohort (26%). Also, twenty six percent of children at primary school cohort concerned the appearance of food when choosing what to eat as compared to (0%) at the local Church group. Furthermore, 28.5% of children at local Church cohort vs. 15.7% of children at primary school cohort assured that their choices for food was according to their parents recommendations. However, the cost was not a matter for children in both groups when they decided to eat (Figure 2).

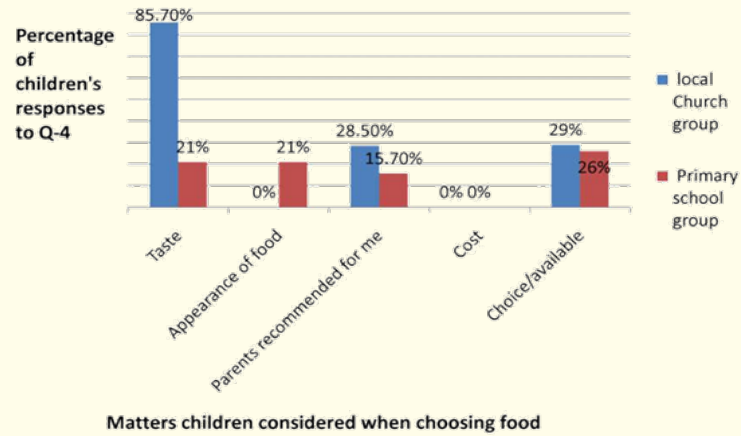


Figure 2: Matters children considered when choosing food (Q4). Both groups (Accumulative totals).

Question 5 comprised of two parts; the first component (Q5.1) was what your ve preferred foods to eat are? Plus the second division was (Q5.2); do you think each of these foods is healthy?

In local Church group, findings showed a marked gender difference regarding the children’s favourite food choices, in which, seventy five percent of the girls had more preference than boys (25%). in opposition, children in the primary school cohort, Boys forty seven per cent had more favourite for these foods than girls (26%). In this group, we had two missing answers (one boy and one girl). Moreover, fifty seven percent of children in the local Church group as compared to forty two percent of primary school cohort considered each of these foods as healthy. Whereas, seventy one percent of the children of the primary school group considered their favourite foods as unhealthy in comparison to 0% of those at local Church cohort (Figure 3a and 3b).

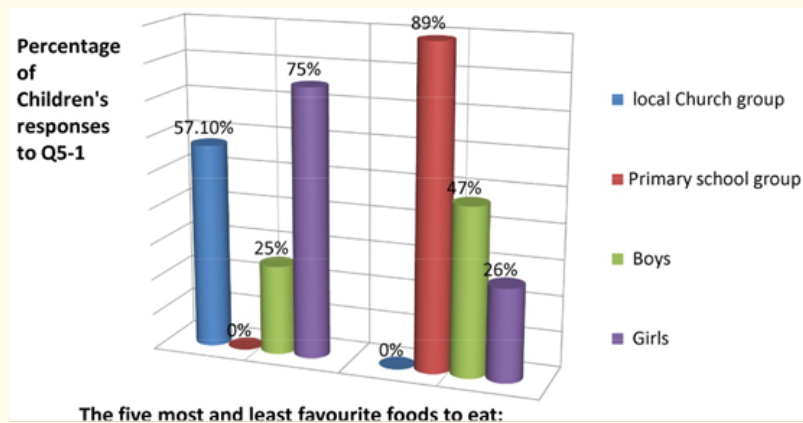


Figure 3a: Comparison of both groups view and gender differences of favourite foods (Q5-1).

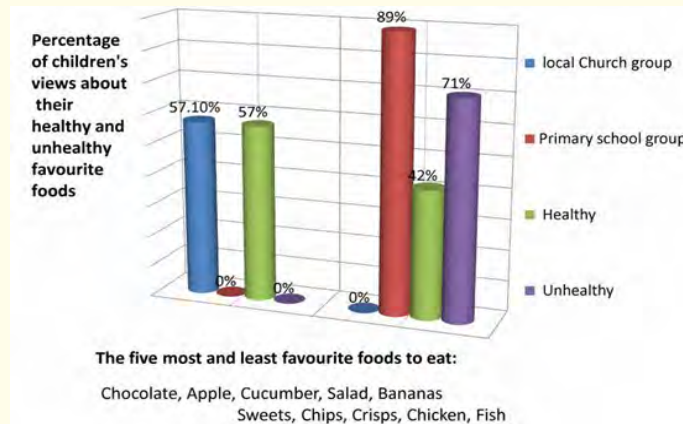


Figure 3b: Comparison of both groups views of healthy and unhealthy favourite foods (Q5-2).

Question 6 was “what do you think 5 a day is?”

Among children in the local Church group (57.1%) realized that “5 a day” means ve portions of fruits and vegetables as compared to 89.4% of children in the primary school group. Also, 14.2% of children in the local Church group as opposed to 5% in the primary school cohort perceived that “5 a day” means ve portions of fruits and ve portions of vegetables. The option that 5 a day mean ve portions of fruits and one portion of vegetables had zero responses for both groups, while, five percent of children in the primary school and no one (0%) in the same group considered that 5 a day mean five portions of fruits and two portions of vegetables (Figure 4).

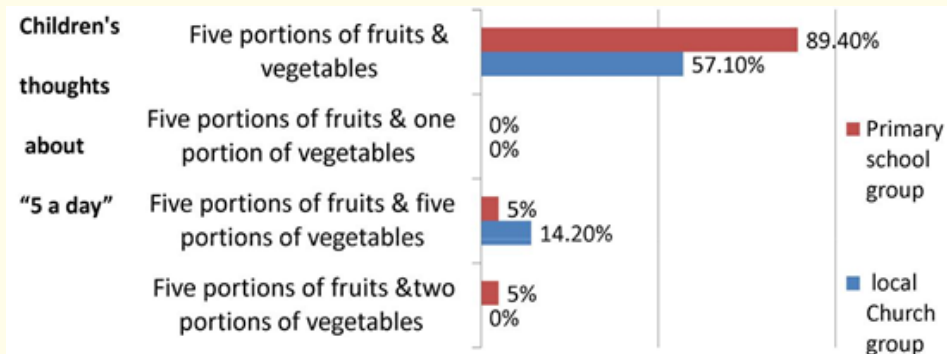


Figure 4.

Query 7 was “why do you think calcium in an important part of your diet?”

Results for both groups revealed good perception about calcium as a crucial element to build healthy bones and teeth. 85.7% of children at local Church group and 94.7% of primary school cohort correctly answered this question. The mean for both groups were 6.5 and 18.5 correspondingly (Table 3).

	Number of correct answers	No. of children	%	Mean
Local Church Group	6	7	85.7%	6.5
Primary School Group	18	19	94.7%	18.5

Table 3: Number and percentage of children correctly answered the question regarding “why do you think calcium is an important part of your diet?” (Q7) Both groups.

Question 8 was “why do you think fish is part of a healthy diet?”

78.9% of children at primary school cohort and 42.8% at local Church group correctly answered this question (option d). Concerning local Church cohort, 42.8% is rather low as compared to 85.7% of their information about calcium. While, twenty one percent of children in the local Church group as compared to 42.8% of primary school cohort fixed that their parents suggested fish for them as a healthy diet (Figure 5).

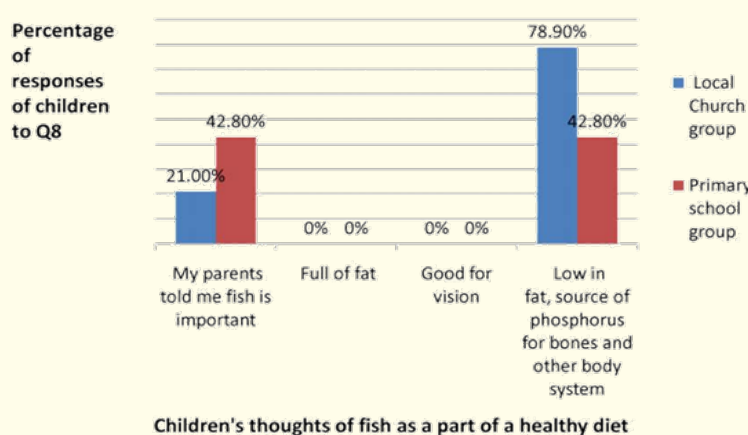


Figure 5: Children’s view about fish as a part of a healthy diet (Q8) primary school group.

Question 9 was “why do you believe fresh fruits and vegetables are an important part of a healthy diet?”

About children at local Church group, the true answer was 57.1%, while 94.7% of primary school cohort correctly answered this question. The mean for both local Church group and primary school cohort was 5.5 and 18.5 correspondingly (Table 4).

	Number of correct answers	No. of children	%	Mean
Local Church Group	4	7	57.1%	5.5
Primary School Group	18	19	94.7%	18.5

Table 4: Number and percentage of children correctly answered the question regarding “why do you think fresh fruits and vegetables are healthy diet?” (Q9) Both groups.

Question 10 was “Why do you think water is an important part of a healthy diet?”

Among children in the local Church cohort, 28.5% of them used to drink water with the diet as opposed to five percent in the primary school group. Kids at local Church group, 28.5% of them, thought that 60% of the body fluids are composed of water as compared to thirty one percent at primary school group. In addition, 57.1% of children at local Church group supposed that water gives nutrients to the body cells and flush toxins through the body as compared to 68.4% at primary school cohort. However, all groups of children did not understand that water is good for hair growth (Figure 6).

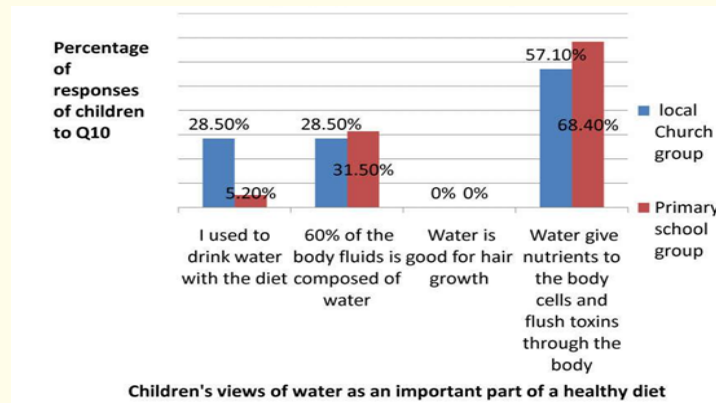


Figure 6: Children’s thoughts of water as an important part of a healthy diet (Q10) both groups (Accumulative totals).

Question 11 was “How do you know if a person is healthy?”

As regards to children in the local Church group, seventy one percent of them and 5.2% of children at primary school cohort considered that a healthy person looks fit, fast and skinny. whilst, fifty seven percent of children in local Church group and only 5.2% of children at primary school group, thought that a healthy person looks healthy not big and fat. Besides, twenty nine percent of children in the local Church group as compared to forty two percent of children at primary school cohort viewed that a healthy person has good shape, no signs of diseases, infections or obesity. Also, children in the both groups relatively decided with their perceptive that a healthy person is not overweight, do exercise and do not smoke with fifty seven percent and fifty eight percent in the first and second case studies correspondingly (Figure 7).

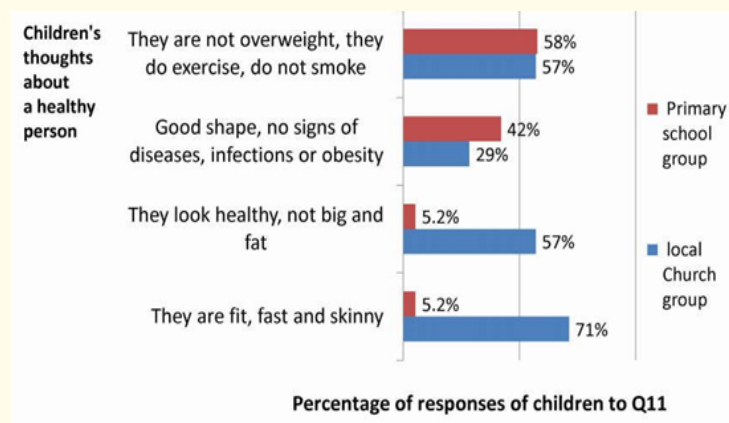


Figure 7: Comparison of both groups view of healthy person (Q11) accumulative totals.

Query 12 was “What do you think these foods are made from?”

Children at local Church group, 28.5% of them, considered pasta is made from cheese and 14.2% believed that pasta is made from meat. Others, 85.7% correctly answered that cheese is made from milk, 85.7% eggs from chicken, 85.7% burgers from beef, 42.8% pasta from cereal, 71.4% crisps from potatoes, and 71.4% yoghurt from milk (Table 5).

	Local church group			Primary school group		
	Milk	Plants	Butterflies	Milk	Plants	Butterflies
a. Cheese	85.7%			94.7%		
	Sheep	Chicken	Cow	Sheep	Chicken	Cow
b. Eggs		85.7%			82.3%	10.5%
	Monkey	Rabbit	Beef	Monkey	Rabbit	Beef
c. Burgers			85.7%			84.2%
	Meat	Cereal	Cheese	Meat	Cereal	Cheese
d. Pasta	14.2%	32.8%	28.5%		47.3%	26.3%
	Potatoes	Plastic	Sheep	Potatoes	Plastic	Sheep
e. Crisps	71.4%			78.9%	5.2%	
	Turkeys	Ducks	Milk	Turkeys	Ducks	Milk
f. Yoghurt			71.4%			73.6%

Table 5: Children’s views of food origin (Q12) both groups.

Besides, as illustrated in Table 5, 10.5% of kids at primary school cohort supposed that eggs are made from Cow, 26.3% thought that pasta is made from cheese, and 5.2% stated that crisps are made from plastic. Others, 94.7% perfectly answered that cheese is made from milk, 82.3% eggs from chicken, 84.2% burgers from beef, 47.3% pasta from cereal, 78.9% crisps from potatoes, and 73.6% yoghurt from milk.

Query 13 consist of two components, the rst (Q13.1) was “Have you had your breakfast today?” The second branch of this query (Q13.2) was to find out whether the children think that their breakfast was healthy or not.

Children at local Church group, seventy one percent of them, stated that they had breakfast on the day of research study in contrast to eighty nine percent of kids at primary school cohort. Also, twenty nine percent of children at local Church group did not answer to this question as opposed to five percent of children at primary school group (Figure 8a and 8b).

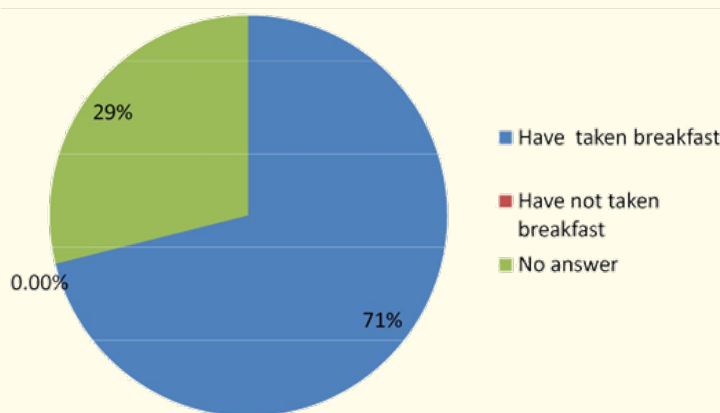


Figure 8a.

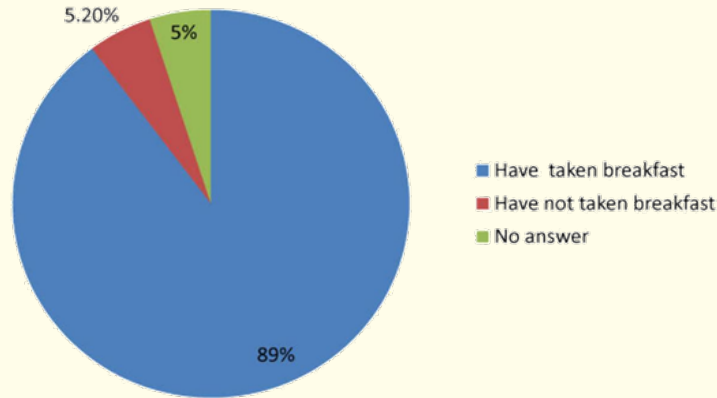


Figure 8b: Children's breakfast eating status on the day of research (Q13.1) primary school group.

Besides, 5.2% of children at primary school cohort did not take their breakfast on the day of research study (Figure 8b).

Query 14 composed of 8 questions (a to h), each question had two options, one is healthy and one is unhealthy.

As shown below in (Figure 9a and 9b), Kids in both groups were given four pair of foods or drinks and asked to select the comparatively healthier choices among each pair. Children at local Church groups had lack of information concerning healthy food choices (mean number of correct answers was 1.5 out of 4). However, 47.1% of them identified precisely the relatively healthier choices among the four pairs of foods or drinks. Two children (29%) chose both fresh and fried fruits and vegetables as healthy foods; one child (14%) considered both food low and high in fat as healthy, two (29%) stated that both food low and high in salt is healthy, one (fourteen percent) chose both boiled and fried potatoes as healthy foods, and the same percent of kids considered both brown and white bread are healthy choices.

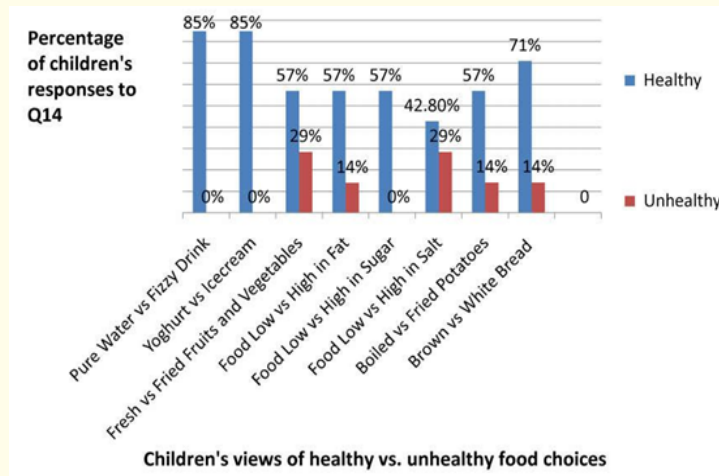


Figure 9a: Proportion of children correctly answered the questions regarding knowledge of healthier food choices (Q14 a to h) local church group.

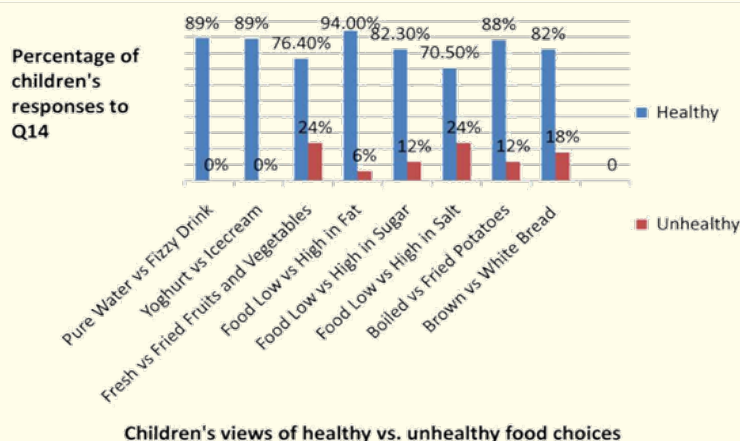


Figure 9b: Proportion of children correctly answered the questions regarding knowledge of healthier food choices (Q14 a to h). Primary School Group.

In addition, as stated below in (Table 6,7) in this study, both groups had a noticeable sex distinction concerning healthy food choices. Also, fifty three percent of boys at primary school group were more likely to make healthier choices than girls (forty seven percent). On the other hand, fifty seven percent of girls at local Church group were higher than boys (forty three percent) in making healthier choices.

	Number of correct answers	No. of children	%	Mean
Local Church Group	6	7	85.7%	6.5
Primary School Group	18	19	94.7%	18.5

Table 6: Number and percentage of children correctly answered the question regarding “what does healthy eating mean to you?” (Q1) Both groups.

	Boys %	Girls %
Local Church Group	43	57
Primary School Group	53	47

Table 7.

Discussion

Findings from the current study showed lots of misconceptions of children’s views of healthy eating; the following themes of perceptions need to be further investigated: most importantly, 1. Matters children considered when choosing what to eat, 2. Sex food favourites, 3. Kids’ thoughts about a healthy individual, 4. Children’s insights on Food source, 5. Children’s habits of taking breakfast, 6. Children’s thoughts concerning healthier food choices, and 7. Source of knowledge for children about healthy eating.

Matters for consideration in choosing food by children (Q4)

As I mentioned already, for this question, all responses of children both cohorts were presented as accumulative totals. As shown in (Figure 2), children at local Church group, 85.7% of them, considered the taste as a priority when choosing food as opposite to twenty six percent at primary school cohort. In the primary school group, twenty one percent of kids concerned the look of food when selecting food, whereas no one the local Church cohort considered the appearance when choosing food. Also, among the local Church group 28.5% stated that their parents suggested food for them as contrasting to 15.7% of the primary school cohort. However, this study stated that the cost was not a matter for children when they decided to eat in both groups.

Besides taste, in both groups, a remarkable result in our study was the clear influence of the parent on children's decisions when choosing food. Concerning kids in local Church group, 28.5% of them, assured that their selection for food was according to their parents recommendation as compared to 15.7% of children at primary school cohort. As I mentioned already, in the concrete operational stage, children are less egocentric, and the instrumental rewarding appears to fit their cognitive capacities, although we did not measure the cognitive development. Also, children have a better understanding of value, and they can see another's perspective, they are more independent and self confident than younger age children [18-20]. Therefore, it is relevant to explore the reasons beyond the influence of parents on children's decisions, in this particular age group, when choosing food in both cohorts.

Gender food favourites (Q5)

Children in both groups had common most and least five favourite foods. Most favourite foods were Chocolate, Apple, Cucumber, Salad and Bananas, while the least favourite foods were Sweets, Chips, Crisps, Chicken and Fish. As shown in Figure 3a, the findings revealed clear sexual characteristics about children's five preferred food selections. That is, seventy five percent of girls at local Church group had more preference than boys (twenty five percent). In opposition, forty seven percent of boys at the primary school cohort had more preference for these foods as contrasting to twenty six percent of girls.

Additionally, as shown in (Figure 3b), fifty seven percent of children in the local Church cohort, considered each of these foods as healthy as opposed to forty two percent of kids at primary school cohort. In spite of seventy one percent of children at the primary school cohort suggested their five favourites as unhealthy; they considered such foods as their preferred foods.

Kids In local Church groups considered the following as their preferred foods: Pizza, Crisps, Chicken, Chocolate, Sweets, Cake but not Fruit cake, Orange juice, Bananas, Biscuits, Kiwi, Beef, Cucumber, Apple and Pepper. Two boys and 2 girls among seven children considered each of these foods as healthy, while, three children did not answer this query (Q 5.2).

Children at the primary school cohort stated foods such as bananas, Salad, Apple, Pasta, Pizza, pork noodles, Ice cream, Strawberries and Chocolate, Potatoes, Carrot, Sausage, Meat, Hotdogs, Fish, Chips, Olives, Rose berries, Cheese and Sweets as their favourite foods. In this group, we had two missing answers. Among 19 children in the primary school group, two children did not answer this question (Q 5.2), 5 children regarded these foods as healthy and 12 children considered these foods as unhealthy. In addition, boys as compared to girls, in both groups, had a bigger favourite for pork, beef and fish. While, girls favoured fruit and vegetables, sweets and comfort foods such as ice-cream and chocolate more than boys in both groups.

However, each group of children had a different gender preference for the same quality of food they favoured. Girls at local Church group, seventy five percent of them had more preference for their five favourite foods than boys 25% as opposed to forty seven percent of boys and twenty six percent of girls at primary school group.

Children's awareness regarding a healthy person (Q11)

As stated in (Figure 7) below, seventy one percent of children in local Church group thought that a healthy person looks fit, fast and skinny as opposed to only 5.2% of kids at the primary school cohort. Whereas, fifty seven percent of children in the local Church group thought that a healthy person looks healthy not big and fat as compared to 5.2% of the primary school cohort. Also, twenty nine percent of children in the local Church group perceived that a healthy person has fine contour, no signs of diseases, infections or fatness in contrast to forty two percent at primary school group. Furthermore, children in the both groups relatively agree with that a healthy person is not overweight, do exercise and do not smoke with 57% and 58% in the first and second cohorts correspondingly.

In both groups, children perceived that hereditary factors might play a confusing role in the possibilities a orded to people to become slim or thin [21].

As revealed in Chart 7, children's responses correspond to a conflation of fitness with non-fatness, health with size, shape, and weight. These findings also were indications that one's capacity to run, jointly with what they eat, may be responsible for the way they look and consequently their health. This concept that health can, in a sense, be read off the body is well re-evaluated in physical education literature [22-25]. However, this preoccupation with appearance as an indicator of health is largely regarded as the preserve of adults. The findings also indicate that children (aged 9-10) are ready and willing to draw these kinds of links between health and corporeal indicators as an important insight particularly for physical educators [5].

Kid's insights about food source (Q12)

As stated in (Table 5), among kids at local Church cohort, 28.5 of them supposed that pasta is made from cheese and 14.2% thought that pasta is made from meat. These results indicate a partial understanding of children in this group about food origin. On the other hand, 85.7% correctly answered that cheese is made from milk, 85.7% eggs from chicken, 85.7% burgers from beef, 42.8% pasta from cereal, 71.4% crisps from potatoes, and 71.4% yoghurt from milk.

Besides, 10.5% of children in primary school group assured that eggs are made from Cow, 26.3% thought that pasta is made from cheese, and 5.2% viewed that crisps are made from plastic. These results again revealed children's confusion in this small sample of children which indicate a partial understanding of children about food origin. Though, 94.7% correctly answered that cheese is made from milk, 82.3% eggs from chicken, 84.2% burgers from beef, 47.3% pasta from cereal, 78.9% crisps from potatoes, and 73.6% yoghurt from milk (Table 5).

Consequently, the data suggest that children in both groups need to be further educated and informed about healthy eating and food source. The aim must be to "start the process of re-engaging children with the origins of food, nutrition and cooking, so that they grow up with a fuller understanding of how food reaches them and what a healthy diet and lifestyle consist of" [4]. Also, it is necessary for children to visit farms to be physically active as part of a healthy lifestyle in addition to healthy eating.

Children's behaviour of eating breakfast (Q13)

As shown in Chart 8a and 8b, seventy one percent of children in local Church group had breakfast on the day of survey as opposed to 89% in primary school cohort (Q13.1).

Also, Chart 9 exposed that kids (42.8%) consumed cereal as the highest among food items in the local Church group and forty seven percent among children in the primary school group on the day of the research study. This is, as mentioned already, useful for children to have a lower body mass index (BMI) and lower cholesterol than those who eat non-cereal breakfast foods. This is because breakfast cereal is lower in fat and higher in fibre than non-breakfast cereal and can be protective against childhood obesity [26,27], although not

all cereal is healthy because it might contain high sugar. Also the relevance of milk, egg, bread and orange juice as a healthy breakfast, and to further explore why some of the children in both cohorts had certain foods in their breakfast such as yoghurt, fruit, water, hot dogs, and fresh fruits and do they think each of these are healthy?

In addition, Table 6 illustrate that 57.1% of boys and 14.2% of girls considered their own breakfast as healthy, and no one stated unhealthy breakfast in local Church group. While, in primary school group, one boy (5.2%) stated that his breakfast as mostly healthy breakfast, 31.5% girls and 26.3% boys thought it was healthy. Only 2 boys (10.5%) and 2 girls (10.5%) supposed their breakfast as unhealthy breakfast.

On the other hand, seventy one percent of children at local Church group and eighty nine percent in the primary school group stated that they had a healthy breakfast.

Children's understandings of healthier food options (Q14)

Figure 10a and 10b showed that kids in local Church cohort had lack of information about healthy food choices (mean number of right answers was (1.5 out of 4). Among the four pairs of foods or drinks, 47.1% of children identified perfectly the healthier selections. Whereas, among primary school group, children (77.3%) had good knowledge about healthy food choices (mean number of right answers was 3 out of 4).

Therefore, children of the primary school group were more likely to make healthier choices than those of the local Church group (77.3% vs 47.1%).

Nevertheless, a marked sex differences about healthy choices in both groups were explored in this study. In primary school group, fifty three percent of boys were more likely to make healthier choices than girls (47%). Conversely, fifty seven percent of girls were higher than boys (43%) in making healthier food choices (Table 7).

However, some children dislike some types of foods, and might consider it unfavoured food, when they know that the food is unhealthy, for example, sweets as they know it can cause tooth aches or they dislike fish as it contains lots of bones [28].

Source of knowledge for children about healthy eating (Q2)

The maximum percentage of children 100% at local Church group considered their parents as the main source of knowledge of healthy eating and 71.4% thought that schools and teachers were the second origin. Whereas, in the primary school only 36.8% of children had their knowledge of healthy eating from their parents and also 36.8% had from their schools and teachers. On the contrary, the maximum percentage of kids (42.1%) at primary school children's group considered having information of healthy eating from food labels and packaging whereas no one suggested this source among the local Church cohort. Also, as shown in (Figure 1), Television adverts were the lowest percentage (14.2%) among kids of local Church group, while it was (5.2%) in primary school group.

These findings support the notion of influence of parents by sending healthy eating messages to their children [8]. The reason might be because of that most of children in the local Church group had qualified and educated parents.

Conclusions

Conclusion of study of primary school cohort

The main confusing questions for children in this group were Q2, Q4, Q5, Q12, Q13 and Q14. Although the school had a healthy eating policy, maximum percentage of children (42.1%) stated that they had knowledge of healthy eating from food labels, the schools and

teachers provided 36.8% of kids with such information. The highest proportion 26% of children depends on choice/availability when choosing food and no role of parents in sending healthy eating messages was evident. Seventy one percent of kids in primary school preferred unhealthy food, which indicate that they had a lack of information on healthy eating. Thus, redirection of policy and practice in the school is compulsory. These findings were alarming of a school which has been already committed to a healthy eating policy and had a good sense of a healthy lifestyle [3].

In addition, 26.3% considered that pasta is made from cheese, 10.5% supposed that egg is made from Caw and 5.2% believed that Crisps is made from plastics. These findings proved that children in the primary school cohort had a partial understanding of knowledge of food origin. Consequently, as BBC NEWS, 2013 suggested “commencing the procedure of re-engaging children with the origins of food, nutrition and cooking, so that they grow up with a fuller understanding of how food reaches them and what a healthy diet and lifestyle consist of”.

Twenty one percent of children in this group thought that their breakfast was unhealthy (Q13). This means they had misconceptions of which food is healthy or unhealthy. Here, re arrangement of school policy to educate children about healthy eating is mandatory. In addition, children viewed a lack of knowledge of making healthy choices. Twenty one percent thought that fresh vs fried fruits and vegetables, six percent believed that food low vs high in fat, twelve percent believed that food low vs sugar, twenty four percent thought that food low vs high in salt, 12% perceived that boiled v’s fried potatoes and 18% brown vs white bread were healthy choices.

The above analysis of children’s responses in the primary school group, and as suggested by Burrows [5] recommends that there is much for physical educators to attend to pedagogically and personally in relation to health and physical education in schools. These findings point to a need to provide kids with plans for creation sense of both the opposing and normative information they are offered with. They also need the cognitive apparatus to weigh up the implications for themselves and others of accepting meticulous health practices and the origins.

Besides, in the primary school group, kids showed variation in gender food preferences. This school that plans similar menus for both genders may consider food preferences by gender and have choices that convince both sexes. Thus, the implications of food quality on the preferences and consumption of children in the school setting must be widely considered.

Additionally, the children, as explored in this study, depend on different factors to select and prefer certain kinds of food such as taste, parents, schools and teachers. Thus as Jackson, *et al* [6] suggested that the inclusion of parents is necessary in any plan aim to educate and learn children about healthy eating and obesity. As a result, in order to promote healthy food to children the food manufacture should produce healthier foods with good taste and an attractive presentation which is child-friendly. Also, kids might be interested about healthier food selections if they had knowledge of nutritional value of food. Parents and teachers must consider this. Also, it is very essential to promote the intake of fruits and vegetables, at home and school, as snacks because they do satisfy the appetite and they are nutritious.

Therefore, school data necessitate further efforts to be undertaken to promote children’s awareness of healthy eating campaigns, support of the healthy eating promotion in school, and participation in any healthy eating activity organized by their school could have positive impacts on children’s views about their healthy eating knowledge and eating habits.

Furthermore, the participating school can get benefit from a Balanced Breakfast Model (Chapter 2.5.4) to promote eating a healthy breakfast for their children. Hence, as Caine-Bish and Scheule [29] suggested, the food service staff should consider “What will kids eat?” while evaluating existing policies and services.

Conclusion of survey of local Church group

Children were very good at answering queries Q1, Q2, Q3, Q7, and Q8 in this group. This is might be due to their parents were highly educated and qualified.

However, certain issues were concerning particularly Q9, Q10, Q12, and Q14 in this group need addressing to perhaps avoid childhood obesity. Fifty seven percent of children in this group supposed that fresh fruit and vegetables are healthy because they are sources of essential vitamins and minerals (Q9). This percentage was low as compared to such a very small sample of children (only 7 in number). A high proportion of children (28%) in this cohort used to drink water with diet and thought this was a healthy. Only 57% viewed that water is an important part of a healthy diet because it is nutritious and antitoxic. Also, 42.7% of children revealed par al understanding of food origin (Q12).

Moreover, children had difficulty to make healthy choices among certain foods such as fresh vs. fried fruits (57%) and vegetables, food low and high in fat (fifty seven percent), sugar (fifty seven percent) and salt (fifty seven percent), and boiled and fried potatoes (42.8%). All these findings revealed that there were areas of partial understanding or misconception of children in this group that is essential to be addressed and tackled to help to avoid childhood obesity [30-33].

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