CONTENTS OF LUNCH BOXES OF PRIMARY SCHOOL PUPILS IN IBADAN NORTH EAST LOCAL GOVERNMENT AREA OF OYO STATE

BY

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ABSTRACT

Content of lunch boxes of primary school pupils is a major contributing factor to malnutrition which is an increasing problem in Nigeria. Daily packed lunch box provides valuable content to a child's nutritional requirement. Despite the fact that children often skip meals thereby increasing their susceptibility to malnutrition, usage and content of their lunch packs have not been fully investigated. Although, researches have been carried out on nutritional content of lunch boxes of primary school children in developed countries, few have been done in developing countries. This study was designed to investigate the content of lunch boxes of primary school children in Ibadan North East Local Government Area of Oyo state.

This study was carried out using a descriptive cross-sectional design. A three-stage sampling method was employed using a sample of 298 pupils. A validated semi-structured questionnaire was used for data collection from private and public primary school pupils in the LGA which addressed the following: socio-demographic characteristics, availability of packed lunch and lunch boxes, content of foods packed in the lunch boxes, sources of mid-day meals for pupils without lunch boxes and perception of pupils about packed lunch. The data were analyzed using descriptive and inferential statistics such as chi-square, regression analysis at p=0.05.

Respondents 'mean age was 9.4 ± 2.0 years, with highest respondents from primary 5 (31.95%) Majority (80.2%) of the respondents had a lunch box on visit to their schools and 53.4% of them had snack in their lunch box on observation. Respondents made use of lunch box/bag (56.1%), lunch basket (29.5%) and party/polythene bag (14.2%). Contents of the lunch boxes of respondents includes water (94.6%), grains (76.2%), meat or poultry or fish (59.4%), pastries (45.6%), legumes (27.2%), sweetened drinks (22.2%), vegetables (21.0%), root and tubers (18.8%), sugar, syrups and sweet (13.8%). Sources of mid-day meal for pupils without lunch boxes were food canteen (39.3%), tuck shop (36.2%) and food vendors (21.1%) while 5.3%do not have a mid-day meal at all. Food usually bought by respondents included pastries (30.4%), rice (35.7%), sweetened drinks (53.6%), milk and related products (25.0%). Almost half of the respondent (48.7%) had a positive perception towards lunch boxes. The

result showed that private schools pupils were 1.9 times more likely to have pastries and sweetened drinks compared to those in public schools (OR-1.914).

A large number of the respondents had lunch boxes, grains and water were found in majority of the boxes. It was also observed that pupils without packed lunch consumed more of pastries and sweetened drinks. Multiple interventions such as training, public enlightenment and policy intervention are to be targeted at the pupils, parent and teachers to address the perception of the pupils and improve the contents of lunch boxes.

Keywords: Packed lunch, lunch box, children, food content, school pupils
Word count: 463

DEDICATION

This work is dedicated to God Almighty for the grace to start and complete this research.

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CERTIFICATION

I certify that this project was carried out by Odunayo Olufunke AKANO in the department of health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan, Oyo State. Nigeria.

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LIST OF ABBREVIATIONS

PEM	-	Protein energy malnutrition
UNICEF	-	The United Nations International Children's Fund
FMO	-	Federal Ministry of Health
CVD	-	Cardivascular disease
BMI	-	Body Mass Index
SC	-	Social cognitive theory
SLT	-	Social learning theory
RDA	–	Recommended dietary allowance

OPERATIONAL DEFINITION OF TERMS

Lunch boxes: A container in which to carry a packed meal.

Packed lunch: A lunch prepared at home and carried to be eaten elsewhere, such as school, workplace, or an outing.

Primary school: A school in which children receive primary or elementary education from the age of about seven to twelve.

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Schools have been recognized as an essential environment for improving healthy eating behaviour through development of school policies, developing food knowledge and skills and providing access to healthy foods (Ontario Society of Nutrition Professionals, 2004 and Healthy Kids Panel,2013). The structure of the school day, including the length and timing of breaks, has also been identified as a potential influencer of food intake at school. Building healthy eating habits early in childhood can protect against the risk of obesity and development of chronic diseases later in life (Biro and Wien, 2010; Lobstein, Baur, and Uauy, 2004 and Mikkilä, Räsänen, Raitakari, Pietinen and Viikari, 2007).

The role of food to human development both physically and mentally cannot be over emphasized. Under-nutrition, especially Protein Energy Malnutrition (PEM) in young children continues to be a dangerous health problem in Nigeria. Evidence has shown that 4% of the total children born in developing countries die of malnutrition before they are five years old (Ijarotimi and Ijadunola, 2007). The most affected are usually the children of the non-knowledge able parents in low socio-economic brackets that have low purchasing power in the economy (Adekunle, 2005).

More so, as a result of the low purchasing power of the parents, it causes malnutrition which continues to be a major public health issue in developing countries especially a country like Nigeria with over 160 million people with a prevalence of stunting 37%, underweight 29% and wasting 18% (UNICEF, 2015). Malnutrition is an underlying factor for many diseases that claimed the lives of under-5 children leaving the incidence rate of under-5 child mortality at 104 per 1000 children (World Bank, 2016).

In order to ensure that children are well fed and avoid malnutrition, parents often pack lunches for their wards to school. The content of lunch box has a great impact in the child's

nutritional requirements for a day. According to Mintel (Mintel International Group Ltd, 2004), 5.5 billion lunches are packed for children each year in the UK. On average around 45% of school pupils take a packed lunch from home (Gregory, 2000). With concerns over the nutritional content of school meals currently high on the political agenda, packed lunches are viewed by many parents as a healthier alternative. However, the School Lunch Box Surveys in 2003 and 2004, commissioned by the Food standards Agency (Jefferson and Cow rough, 2004) showed that many children were not bringing packed lunches to school which met the prevailing standards at the time. The 2004 survey found that a serving of fruit was contained in just 52% of lunch boxes belonging to primary school children in schools around the country who took part in the survey. In contrast, 69% of lunch boxes included a packet of crisps and 58% included a chocolate bar or biscuit.

Studies from the U.K., U.S.A., Denmark, New Zealand and Canada have demonstrated that children's home-packed lunches need improvement in terms of nutrients and food items. In 2001, government mandated food-based guidelines for meals provided by schools were implemented in U.K. primary and secondary schools (Stevens and Nelson, 2011; Gatenby, 2008 and Harrison, Jennings, Jones, Welch, van-Sluijs, Griffin et al., 2013). Nutrient standards for school meals, produced by the Caroline Walker Trust working group, existed up until this time, but were not statutory (Gatenby, 2008).

1.2 Statement of problem

In 2011, the American Dietetic Association recommended children enrolled in four to seven hour day-care programs consume at least one third of their daily nutrition requirements during the program (Erinosho, Dixon, Young, Brotman and Hayman, 2013). According to the Department of Education's 2008 school census, over 127,000 children in Northern Ireland (42% of pupils present) took a packed lunch to school (Department of Education, 2008). An all-island study (2005) looking at the nutritional balance of over 2,500 school children's packed lunches found that 9 out of every 10 lunch boxes (92%) contained foods high in fat and sugar (www.safefood.eu).

About half of all packed lunches (47%) had no portions of fruit and vegetable and over two thirds of lunch boxes (71%) did not meet the compulsory school meals standards for Northern

Ireland. Similar research conducted by the Food Standards Agency in 2004 also indicated that children who take a packed lunch to school are eating far too much fat, saturated fat, salt and sugar in one meal (Food Standards Agency, 2004).

The survey also showed that under a fifth of lunch boxes (16%) did not contain any starchy food such as sandwiches, pasta or rice, and that just under half the lunch boxes surveyed (48%) did not contain a portion of fruit or chopped vegetables. Three out of four lunch boxes (74%) also failed to meet the nutritional standards set in 2001 for England's schools meals (Food Standards Agency, 2004).

Improving children's diets is a basic part of current public health policy. Over 70% of under-five mortality arises from preventable infective causes, with malnutrition being a contributory factor to more than 45% of such deaths (You, Bastian, Wu and Wardlaw, 2013). Chronic under-nutrition in older children is linked to slower cognitive development, poor school attendance, high school withdrawal rate, and serious health impairments later in life that reduce the quality of life of individuals (Srivastava et al., 2012; Olusanya, 2010) Overweight and obesity have also been linked to increased risk of cardiovascular and pulmonary diseases (Tauman and Gozal, 2006).

Furthermore, the midday meal doesn't just contribute to a child's daily nutrient requirement but also help to address hunger during the school period, increase attentiveness, facilitate learning process and prevent the child from leaving the school in search of food. (Akanbi, 2011). It has been observed that healthier and well-nourished children have the ability to withstand the stress from school, learn more and contribute more to the society when they become adult

Although efforts at reducing malnutrition in developing countries are most times focused on under-5 children, available data shows that school age children also suffer from malnutrition as they are exposed to risk factors of malnutrition. (UNICEF, 2002; WFP, 2009; FMOH, 2006; Ejekwu, Ene-Obong and Oguizu, 2012 and Olanipekun, Obatolu, Fasoyiro and Ogunba, 2015). Children often leave the home very early, with little or no breakfast most times and they spend long hours in school ranging from eight to ten hours thereby missing lunch at

home. Therefore, only one meal is most times guaranteed except on weekends and holidays. Moreover, there is extra demand on the children to perform chores or walk long distances to school which creates a need for energy that is much greater than that of younger children. (PCD, 1999).

A lot of studies have been carried out in developed countries on nutritional content of lunch boxes of primary school children (Evans, Greenwood, Thomas *et al*., 2010); a similar study was also carried out in Nnewi in Anambra state among primary school pupils on nutritional content of lunch packs of primary school children (Ugochuckwu, Onubogu, Edokwe and Okeke, 2014) but none has been done on primary school pupils in South western Nigeria on content of lunch boxes.

1.3 Justification of the study

Many studies have been carried out in developed countries on nutritional contents of lunch boxes of primary school pupils (Evans, Greenwood, Thomas et al.,2010):a similar study was carried out in Nnewi in Anambra State among primary school pupils on Nutritional contents of lunch packs of primary school pupils (Ugochukwu, Onubogu, Edokwe and Okeke,2014)but few studies has been carried out on content of lunch boxes among primary school pupils in South western Nigeria on Contents of lunch boxes.

The study population was chosen as these children are in their formative years and they still solely rely on their parents for what they choose to eat and parents are obliged to prepare food for them to take to school. They are school aged children who need healthy diet for the maximum development of their cognitive capacities in order to become healthy and productive adults in the society.

Therefore, there is every need to investigate on the usage and content of foods packed in lunch boxes and factors that influence the content of the lunch boxes among pupils. This will help in carrying out intervention among parents and children on the contents of lunch boxes, importance and their effects on the child's health. It will also help inform policy makers in setting standards for foods sold in schools and brought to school by pupils thereby addressing the upward surge in the prevalence of malnutrition in the country.

1.4 Research Questions

This study will answer the following research questions:

i. What is the prevalence of primary school pupils who bring lunch boxes to school in Ibadan North East local government area of Oyo state?
ii. What are the sources of mid-day meal for pupils who do not bring lunch boxes to school in Ibadan North East local government area of Oyo state?
iii. What is the content in the lunch boxes of primary school pupils in Ibadan North East local government area of Oyo state?
iv. What is the perception of primary school pupils in Ibadan North East Local Government about lunch boxes and packed lunch?

1.5 Objectives of the Study

1.5.1 General Objective

To investigate the content of lunch boxes of primary school children in Ibadan North East Local Government Area of Oyo state.

1.5.2 Specific Objectives

The study was guided by the following objectives:

1. To assess the prevalence of primary school pupils who bring lunch boxes to school in Ibadan North East local government area of Oyo state
2. To identify the sources of mid-daymeal for pupils who do not bring lunch boxes to school in Ibadan North East local government area of Oyo state
3. To examine the content of the lunch boxes of primary school pupils in Ibadan North East local government area of Oyo state
4. To assess the perception of primary school pupils in Ibadan North East local government area of Oyo state about packed lunch

1.6 Research Hypotheses

The following hypotheses were tested:

(H_{O1}): There is no significant association between respondents' school type and prevalence of lunch box.

(H_{O2}): There is no significant association between respondents' class and prevalence of lunch box.

(H_{O3}): There is no significant association between respondents' school type and their perception towards lunch box

(H_{O4}): There is no significant association between respondents' school type and prevalence of grains in their lunch box.

(H_{O5}): There is no significant association between respondents' school type and prevalence of sweetened drinks in their lunch boxes

(H_{O6}): There is no significant association between respondents' school type and prevalence of pastries in their lunch boxes.

CHAPTER TWO

LITERATURE REVIEW

2.1 Concepts clarification

A lunch box is a container used to carry packed fruits or food or food items to school (Nahida *and* Khan, 2016). A lunch box provides a crucial contribution towards a child's nutritional requirements for a day. According to the Department of Education's 2008 school census, over 127,000 children in Northern Ireland (42% of pupils present) took a packed lunch to school (Department of Education, 2008). An all-island study (2005) looking at the nutritional balance of over 2,500 school children's packed lunches found that 9 out of every 10 lunch boxes (92%) contained foods high in fat and sugar (Safe food).

A healthier lunch box should be based on theeat well plate food groups (eatwell.gov.uk), which promote balance and variety in the diet. Parents and pupils should try to include something from each of the eat well food groups in the lunch box and ensure that this includes a drink.

Fruits and vegetables which have bright and colourful colours as well as different tastes and textures should be encouraged. There are ways to make contents of lunch boxes attractive. For example giving children food and fruits for each season, making food look good and combining food of different colours to make them attractive.

A healthy lunch box should contain the following:

- *A good portion of starchy food, for example whole meal roll or bread, wraps, pitta pocket, pasta or rice salad;*
- *Plenty of fruit and vegetables, for example an apple, satsuma, handful of cherry tomatoes or carrot sticks, mini-can of fruit chunks in natural juice or a small box of raisins;*

semi-skimmed milk or a portion of dairy food, for example individual cheese portion or pot of yogurt;

- *A portion of lean meat, fish, eggs or beans, for example ham, chicken, beef, tuna, egg or hummus and*

- *A drink, for example unsweetened fruit juice, semi-skimmed milk or water (nutrition.org.uk).*

Nutritional standards for schools discourages high fats and sugar containing food and should be discouraged at lunch times for children (Department of Education, 2008). Any lunch box guidance or policy should reflect this. Treats can be included at lunch time; however, plain or lower sugar varieties should be encouraged.

Packed lunchbox is a lunch prepared at home and carried to be eaten in school, workplace or at an outing also known as bag lunch. The food is often packaged in plastic or aluminium and carried with a lunch box or bag (Gorvett, 2019).

2.2 Prevalence of Lunch boxes in Primary schools

In a cluster randomized controlled trial of a smart lunch box designed to improve the contents of children's packed lunches in the United Kingdom conducted among 1294 children, aged 8–9 years, in eighty-nine schools by (Evans *et al.,*2008) revealed that almost half school pupils take a packed lunch from home. In a cross sectional study conducted by (Smithers, Gregory, Bates, Prentice, Jackson & Wenlock, 2000) on The National Diet and Nutrition Survey among children and young People Aged 4 to 18 Years in London revealed that approximately 50% of the respondents have packed lunch boxes.

Despite the availability of school provided meals in the UK, approximately 60% of students bring a home-packed lunch to school. Pearce et al. (2009), has collected data in primary schools following the implementation of the new food- based and nutrient-based standards. Weighed food records, conducted by trained fieldworkers, were used to assess dietary intake of 10,002 students, from 136 primary schools, ages 4-12 years; 6,580 of whom received a school lunch and 3,422 who brought a home-packed lunch (Pearce et al., 2009).

According to Briefel, Crepinsek, Cabili, Wilson and Gleason (2009) in a cross sectional study conducted on School food environments and practices affect dietary behaviors of US public school children revealed that Forty-one percent of U.S. schoolchildren bring lunch to school on any given day and 45% bring snacks.

In a study carried out on "What's in Children's Backpacks: Foods Brought from Home" by Hubbard *et al.*, (2015), a total of 626 pupils participated, Almost half of them brought food from home among which majority brought lunches with a snack while very few of them brought food without a snack.

Ogbimi and Ogunba, (2011) in a cross sectional study on nutritional quality of the lunches of children in day care in Osun state of Nigeria among 180 mothers showed that majority of their children ate breakfast at home before going to school while few did not ,It also revealed that majority of the children went to school with mid-day meal while some had only snack(biscuits and pastry), very few had fruits and a small number do not take lunch packs to school at all. The women in this study seem to have little or no knowledge of the importance and the application of the Basic Four-Food plan in the preparation of nutritious snacks/lunches and diets for preschoolers and other family members. This was shown in the energy and sugar –snacks packed in children lunches by women. It is therefore important to know that all the adequate nutrients must be represented in the children diet (Ogbimi and Ogunba, 2011).

It is, therefore, recommended that mothers should be exposed and educated on adequate diet for children (Ogbimi and Ogunba, 2011). Ibeanu, Okechukwu and Eme-Okafor, (2017) in a cross sectional study on Nutritional Adequacy of Home-packed School Lunch in Nsukka, South East Nigeria found that majority ate breakfast at home, majority also had home –packed meals, very few had money to buy meals from hawkers while a small number went to school with nothing.

2.3 Content of Lunch boxes

A study assessing home-packed lunch contents of 626 grade three and four American students was published (Hubbard et al., 2014). The participating children were asked to empty their home-packed lunch items onto grid paper and divide them into two piles based on when they planned to eat them (Hubbard et al., 2014). The left side of the grid paper was items the child planned to eat as a snack during the day, and the right side was for items the child planned to consume at lunch (Hubbard et al., 2014). Food inventory checklists were used concomitantly

with digital images to capture additional descriptive information regarding the food and beverage items while on site (Hubbard et al., 2014).

Foods were categorized into beverages, sandwiches, snack foods, fruits (excluding juice), desserts, leftovers, dairy foods, and vegetables (Hubbard et al., 2014). Snack items brought from home by students intending to buy lunch at school were the only items included in analysis for those participants (Hubbard et al., 2014). Sandwiches (59%), snack foods (42%), fruit (34%), and desserts (28%) were brought and identified as lunch items by a larger proportion of students (Hubbard et al., 2014). However, 24% of students did not have a main entrée item (i.e., sandwich or leftover) in their lunch, which resulted in very few of these students having a source of protein at lunch (Hubbard et al., 2014). Only 8% of lunches had at least one green/orange/red vegetable, and 3% had a starchy/other vegetable (i.e. potato, cucumber or celery) (Hubbard et al., 2014). A large number of lunches (73%) included a beverage, usually water (28%), or a sugar-sweetened beverage (24%) (Hubbard et al., 2014). Only 3% of lunches included milk, while 11% of students indicated they intended to buy milk from school during the lunch break (Hubbard et al., 2014). The median number of snacks brought by students was two, which consisted of a food item and a beverage item (Hubbard et al., 2014).

The most commonly observed snack foods were those categorized as snack foods (62%), desserts (35%) or sugar-sweetened beverage (SSB) (35%), while fewer children labeled fruits (30%), dairy foods (10%) and vegetables (3%) as snack items (Hubbard et al., 2014). Lunch items were compared to the NSLP food standards, while snack items were compared to USDA Child and Adult Care Food Program (CACFP) requirements (Hubbard et al., 2014). Children received a point each time one of their food or beverage items met a requirement in the appropriate food standard recommendations. Only 27% of lunches met three out of five NSLP food standards, and 4.2% of snacks met two out of four CACFP standards (Hubbard et al., 2014). However, the results of this study must be interpreted with caution as children may have classified foods differently than their parent intended, and self-report was relied upon for the details of fluid in refillable water bottles and intentions to purchase milk at school (Hubbard et al., 2014).

A study conducted in Denmark explored packed lunch contents and consumption, the main focus being to assess recall accuracy of 11-year-old children when using varying retrospective dietary assessment methods (Lyng, Fagt, Davidsen, Hoppe, Holstein and Tetens, 2013). Digital images were used as the reference to verify the accuracy of three self-reported methods of assessing dietary intake (Lyng et al., 2013). The results indicated that girls consumed significantly more food items than boys (5.4 items vs. 4.6 items, $p=0.05$, respectively) when dietary intake was assessed using digital images (Lyng et al., 2013). However, the portion size and type of those food items was not disclosed (Lyng et al., 2013). The type and quantity of foods consumed could change the interpretation of this finding, as girls may be consuming significantly greater fruit and vegetable items instead of sweet and savoury snack items, or smaller portions of a variety of items.

A group in New Zealand has also evaluated the quality of home-packed lunches brought by 927 students, ages 5-11 years, utilizing digital images and assessment of food waste bins (Dresler-Hawke, Whitehead and Coad, 2009). The types of food items packed and left uneaten in home-packed lunches were presented; however, mean portions packed and consumed were not disclosed (Dresler-Hawke, Whitehead and Coad, 2009). A sandwich was the most common food item as it was present in 71% of home-packed lunches (Dresler-Hawke, Whitehead and Coad, 2009). Only 16% of home-packed lunches contained a grain/multigrain bread, while 52% have white bread (Dresler-Hawke, Whitehead and Coad, 2009). A high percentage of students had a fruit or vegetable packed in their lunch (70%), yet, 32.4% of home-packed lunches did not meet the 2004 UK Food Standards Agency recommendation of two servings of fruit or vegetables in home-packed lunches (Dresler-Hawke, Whitehead and Coad, 2009).

A cake, biscuit or muffin was present in 45% of children's home-packed lunches; 45% had a granola type bar, 57% had potato chips, and 15% had a confectionery item (Dresler-Hawke, Whitehead and Coad, 2009). Three servings of biscuits, cakes, buns, chocolate or candy appeared in most home-packed lunches (Dresler-Hawke, Whitehead and Coad, 2009). Food waste data illustrated sandwiches, fruit and vegetables, and dairy items were more likely to be

left uneaten than snack and confectionery items high in fat, sodium and sugar (80% vs. 20%) (Dresler-Hawke, Whitehead and Coad, 2009).

In a cross sectional study conducted in São Paulo, Brazil on Contents of students lunchboxes in private schools by Tatiana *et al*., (2011)) revealed positive aspects, such as the frequency of cereals, milk and dairy foods, as well as negative aspects related to the proportion of children who took artificial juices and other beverages, cakes, biscuits and cereal bars with filling and/or icing to school. Cereals and milk and dairy foods were among the three groups most frequently found in the lunchboxes (82% and 65%, respectively). On the other hand, fruits and natural juices ranked sixth among all groups (33%). The group "Artificial juices and other beverages" was one of the most frequently found in the lunch boxes (67%). The groups "Cake, biscuits and cereal bars with filling and/or icing" (51%), "Cold cuts and sausages" (35%), and "Oils and fats" (23%) were also present in large amounts.

Tatiana *et al*., (2011) further revealed that in terms of gender, there was a higher proportion of girls who had healthy food in their lunchboxes: fruits, natural juices, and vegetables. A study on the daily consumption of fruits and vegetables involving school children from Guatemala also has shown that girls consumed a larger amount of these foods (Montenegro-Bethancourt, Doak and Solomon's, 2009).

In another studies carried have also found a predominance of cereals in students' lunch boxes (Mesquita, Pinto and Sarmento, 2006; Sanigorski, Bell, Kremer and Swinburn, 2005) which corroborates the findings of Tatiana et al., (2011). In a study carried out by Campos and Zuanon (2004) on school lunch and health promotion involving preschool students from a private school of Araraquara, state of São Paulo, demonstrated that sandwich cookies were the most common food (33%) in the students' lunch boxes.

According to Mesquita, Pinto and Sarmento, (2006) in a study involving third and fourth graders from a private school of the Federal District, Brazil, showed 28% of the cereal group, 25% of the fruit and natural juice group, and 5% of the dairy product group in the lunch boxes of the children.

In a cross sectional study carried out by Sanigorski, Bell, Kremer and Swinburn, (2005) in Australia among children ages five to twelve years found that the group of breads was the most frequent (80%), whereas fruits were present in 68% of the lunchboxes, yogurt in 7%, and milk in only 3%.

Children have an innate taste preference for sweetness and seem predisposed to foods with high caloric density, which provide greater satiety and are usually tasteful. Therefore, children choose foods high in carbohydrates, sugars, fats, and salt, rather than fruits and vegetables (Quaioti and Almeida, 2006). Such habits seem to persist in adolescence. A study involving adolescents from public schools of Piracicaba, state of São Paulo, found a high intake of sweets: 78% of the sample exceeded the maximum amount recommended according to the Dietary Guidelines for Americans, with a mean daily consumption of 230mL of soft drinks and 550mL of sweetened beverages (Carmo, Toral, Silva and Slater, 2006).

In a study conducted by Rees, Richards & Gregory, (2008) reported that in the UK, very few packed lunches contained vegetables, and fruit intake was particularly low for those having a school meal. Moreover, Evans *et al*. (2010a) reported that few packed lunches met the school meal standards.

2.4 Benefits of lunch boxes

Healthful diets contain the amounts of essential nutrients and energy needed to prevent nutritional deficiencies and excesses. It helps children grow, develop and perform well in school. It provides carbohydrates, protein and fat in the right proportion and reduces the major risk factors for chronic diseases, such as obesity, high blood pressure and high blood cholesterol. (Palo Alto Medical Foundation, 2015).

Gregory, Rees and Richards (2008), reveals Children taking a packed lunch to school were consuming approximately double the amount of sugar and 50% more sodium and saturated fat in their midday meal compared with those having a school lunch. However packed lunches were providing children with more calcium, iron and fruits.

Harper, Nelson and Wood (2009), found packed lunches were less likely to accord with food-based or nutrient-based standards than school lunches. Higher levels of Na, NMES, fat and

percentage energy from saturated fat emphasize the difficulties associated with optimizing nutrient intakes from packed lunches.

In a cross sectional study on Comparison of Nutrients Content between Mid-Day Meal and Lunch Box and their contribution towards the Daily Nutrient Intakes of 11-14 Years Old Female Students of Government and Private School by Nahida *et al.*, (2016) revealed that lunches are nutritionally superior to mid-day meal, they were higher in fat and energy content compared to Recommended Daily Allowance (RDA). Otherwise lunches having lower nutrient intake of protein, vitamin A, vitamin C, folate and calcium. Iron and Calcium consumption is closer to RDA. Positive aspects of homemade lunches included the observations that they had the highest mean vitamin A and fruit and vegetable content.

The study found mid-day meal is nutritionally inferior to lunches in overall consumption of nutrients in whole day compare to private school, although energy content was higher than RDA among Govt. School. Otherwise mid-day meal is having lower nutrient intake of protein, fat, iron, vitamin A, vitamin C, folate and calcium. Positive aspect of mid-day meal is that it's providing minimum amount of nutrient intake from RDA in their meals (Nahida et al., 2016).

2.5 Dietary lifestyles and its effect

About 60% of children who died from common diseases like malaria and diarrhoea would not have died if they were not undernourished in the first place (WHO, 2016). In 2001, 54% of all childhood mortality was attributable, directly or indirectly, to malnutrition. The children who die represent only a small part of the total disease burden due to malnutrition (Saleem and Hamza, 2005). Worldwide, more than 80% of deaths associated with childhood under nutrition involve mild or moderate under nutrition, though immediate cause of death may be other conditions (Ogbonna et al, 2003; Levinson and Bassett, 2007; Weisstaub, et al 2014).

It has been proven that the foods consumed, particularly vegetables, are very important for overall health. Consumption of vegetables prevents conditions, such as cardiovascular diseases, stroke, hypertension, diabetes, obesity, and certain types of cancer, leading to enhanced human longevity (Zhang et al., 2011;Apped et al., 1997, World Cancer Research Fund & American Institute for Cancer Research, 2007; Carter et al., 2010).

The 2004 Canadian Community Health Survey (CCHS), cycle 2.2, indicated that diets of Canadian children, aged 4 to 8 years, are inadequate in vitamin D, calcium, potassium, and fiber, while intake of sodium exceeds the DRI UL (1900mg /d). The diets of Canadian adolescents, aged 9 to 13 years, showed a similar dietary pattern, except they were also inadequate in vitamin A, phosphorus, and magnesium, while excess energy came from saturated fat each day (~10% of total energy) (Health Canada, 2012a). In addition, 20% of 2 to 8 year olds, and 30% of 9 to 13 year olds had energy intakes that exceeded their needs, as identified by achieving a classification of overweight or obese using measured data (Health Canada, 2012a and Health Canada, 2012b).

Achieving adequate calcium intake is particularly important for children and adolescents, as calcium is necessary for optimizing the development of peak bone mass, which plays a role in reducing the risk of future health risks including fractures and osteoporosis (Greer and Krebs, 2006). Vitamin D is also required in sufficient levels to support active absorption of calcium in the small intestine (Greer and Krebs, 2006). Food and supplement sources are not the only method of obtaining adequate vitamin D; however, ultraviolet (UV) radiation emitted during the Canadian winter months is not sufficient to support synthesis of vitamin D through skin exposure (Health Canada, 2012 and Hanley, Cranney, Jones, Whiting, Leslie, Cole, et al., 2010). In addition, dietary sodium promotes renal excretion of calcium, as both micronutrients share the same renal transport system (Greer and Krebs, 2006). Thus, high consumption of sodium, as seen in Canadian children and adolescents, could negatively impact calcium absorption; nevertheless, American and Canadian calcium guidelines do not differ for varying levels of sodium intake (Greer and Krebs, 2006 and Health Canada, 2010).

Excess sodium intake has been associated with elevated blood pressure and, thus, is a risk factor for cardiovascular disease (CVD) (Taylor, Ashton, Moxham, Hooper and Ebrahim, 2011; Appel, Frohlich, Hall, Pearson, Sacco, Seals et al, 2011; Whelton, Appel, Sacco, Anderson, Antman, Campbell et al., 2012 and He, Marrero and Macgregor, 2008). He, Marrero and Macgregor (2008) reviewed the National Diet and Nutrition Survey for young people, which collected data from 4-18 year olds in Great Britain during 1997. A significant association was found between salt intake and systolic blood pressure, even when age, sex,

body mass index (BMI), and dietary potassium intake were taken into account (He, Marrero and Macgregor, 2008). An increase of one gram per day of salt intake was associated with a 0.4mm HG increase in systolic blood pressure (He, Marrero and Macgregor, 2008)

Dennison, Rockwell and Baker, (1998) using 7-day written food records, reported that inadequate intakes of vitamin A, vitamin C, and dietary fibre, and high consumption of total fat and saturated fat was related to low daily intake of vegetables and fruit in 2 and 5 year old children.

2.6 Theoretical Framework

There are so many commonly used theoretical models in health promotion. These include but not limited to; the health belief model, trans-theoretical model, social cognitive theory, theory of reasoned actions, theory of planned behaviour and the PRECEDE- PROCEED model (Glanz, Rimer and Lewis, 2002). Each of these models identifies behavioral influences and factors relevant to issue targeted by health promotion programmes. The social cognitive theory will be employed in this study. The social cognitive theory was developed in 1963 by Bandura to address the lack of direction and adequacy of public health promotion to sufficiently plan before implementing an intervention. (Glanz et al, 2005).

Social Cognitive Theory (SCT)

Social Cognitive Theory (SCT) describes a dynamic, ongoing process in which personal factors, environmental factors, and human behaviour exert influence upon each other. According to SCT, three main factors affect the likelihood that a person will change a health behaviour: (1) self-efficacy, (2) goals, and (3) outcome expectancies. If individuals have a sense of personal agency or self- efficacy, they can change behaviours even when faced with obstacles. If they do not feel that they can exercise control over their health behaviour, they are not motivated to act, or to persist through challenges (IOM).

As a person adopts new behaviours, this causes changes in both the environment and in the person. Behaviour is not simply a product of the environment and the person, and environment is not simply a product of the person and behaviour.

SCT evolved from research on Social Learning Theory (SLT), which asserts that people learn not only from their own experiences, but by observing the actions of others and the benefits of those actions. Bandura updated SLT, adding the construct of self-efficacy and renaming it SCT. (Though SCT is the dominant version in current practice, it is still sometimes called SLT.) SCT integrates concepts and processes from cognitive, behaviorist, and emotional models of behaviour change, so it includes many constructs. It has been used successfully as the underlying theory for behaviour change in areas ranging from dietary change (Baranowski*et al*., 1993) to pain control (Loris, Sobel, Stewart *et al*., 1999).

APPLICATION OF THE THEORY

Numerous studies have employed social cognitive theory in the changing of behaviours and have supported the impact of this theory in making significant effect on health behaviours. It has been used to carry out an intervention on Efficacy of the lunch box to increase parents ' packing of healthy bag lunches for young children (Roberts-gray *et al.*, 2016), address use of helmet among motorcycle riders, drinking of alcohol among women, use of filter to prevent the intake of Guinea worm in Guinea worm endemic areas, promotion of exclusive breastfeeding among nursing mothers among others.

Using the constructs of the theory, it will be applied to this current research as follows:

Environment: these are factors that are physically external to the person and include opportunities for social support. These include the school the child attends, where the parents work, economic condition of that geographical region, political factors and the advertisement shown on the Television. The environment influences the parents on food to be packed for their children. The parents decide on what to prepare for their child while putting the nature of their work, the school the child attends and their economic condition.

Observational learning/ Modeling: this is the behavioral acquisition that occurs by watching the actions and outcomes of others. Children tend to learn from their parents and peers and the decisions and behaviour they exhibit stems from what they watch these people do. Parents, siblings, friends, classmates and neighbours could all serve as models to learn from; hence, they can influence the child's preference for food packed in the lunch box.

Behaviour: Knowledge and skill to perform a given behaviour i.e. one must know what to do and to do it. Healthy eating is the behaviour being addressed here , the parent must know which food is healthy and how to prepare it in a way that leaves the food healthy.

Value expectancies: these are values anticipated for after taking a particular action. The value expectances of healthy eating are: it ends hunger, addresses malnutrition, saves money and also increases the wellbeing of the child.

Individual: this has to do with person's personal and cognitive characteristics. In this research, we will consider the age of the child and that of the parents, the parents economic status, parents' level of education and the child's adventurous spirit in wanting to try out new things.

The parents consider their economic status in deciding what is packed in their children lunch boxes.

Self-efficacy: this is a person's confidence in performing a particular behaviour. In this research, it has to do with the parents' confidence to give healthy foods to their children and avoiding junks no matter what the child prefers. It also refers to the child's capability to eat healthy meals and refuse junks no matter the pressure from the classmates or the parents.

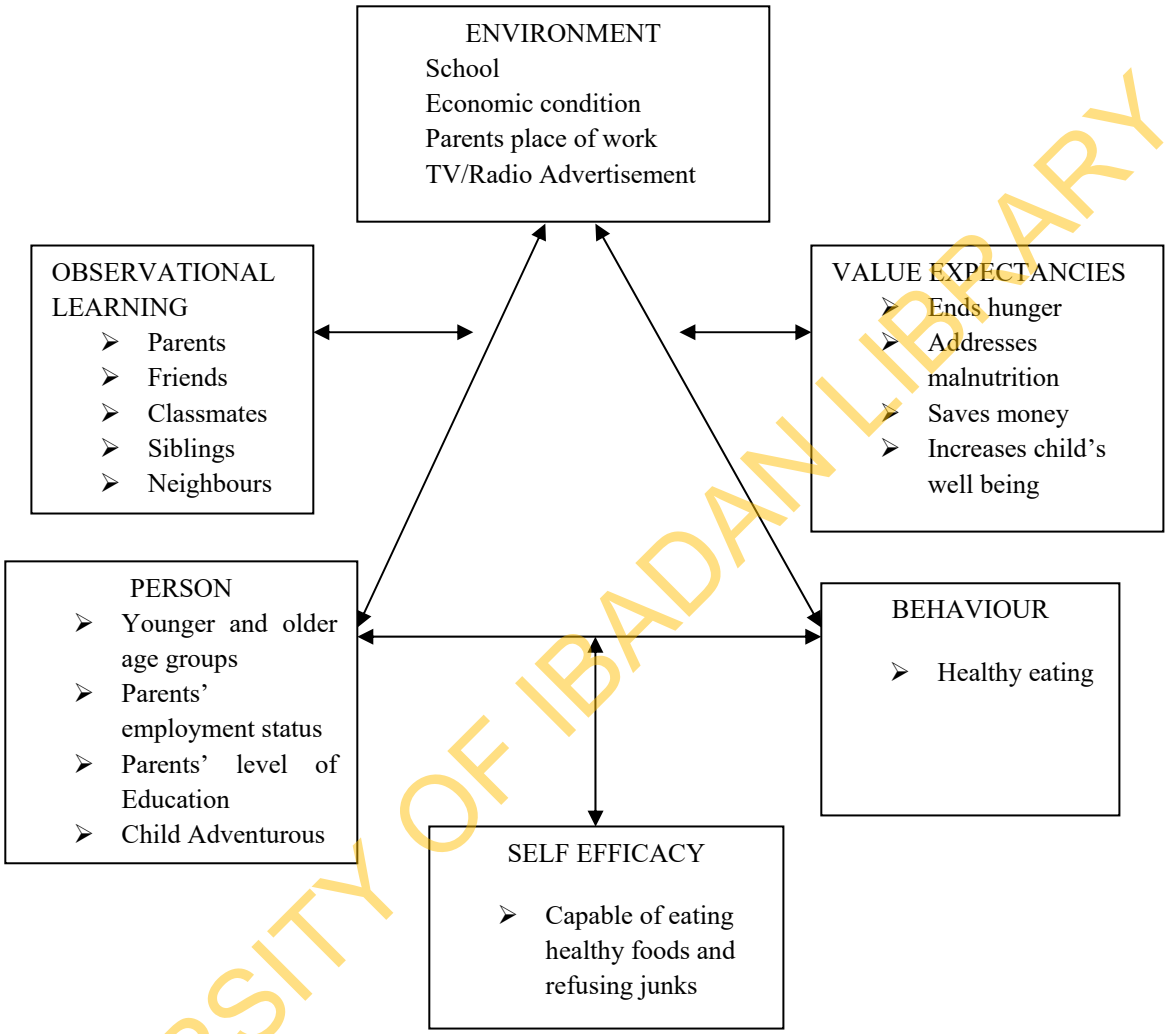

Figure 2.1 Conceptual framework .

CHAPTER THREE

METHODOLOGY

3.1 Study design

A descriptive cross-sectional survey using semi-structured, interviewer administered questionnaires was employed. 1

3.2 Study area

The study was carried out among pupils of primary schools in Ibadan North-East local government area of Oyo state Nigeria. The headquarter is one of the most urban local government in Oyo State.

Being one of the largest local governments in the state with a high population of 330,399 at the 2006 census.

It consists of multi-ethnic nationalities but predominantly Yoruba, carrying out this study at this location will ensure that the results and recommendations from the study be adopted by policy makers, Ministry of Health and Ministry of Education in the state and the country at large.

3.3 Study population

The study population consists of both public and private school pupils of Ibadan North East local government area of Oyo state.

3.4 Inclusion criteria

All pupils in primary one to six in private and public primary schools whose parents give assent and themselves give consent for the study were included in the study.

3.5 Exclusion criteria

All pupils in primary one to six and their parents in private and public primary schools who do not consent and those who do not satisfy the inclusion criteria were excluded from this study.

3.6 Sample size

Sample proportion for this study was calculated using Cochran's formula (1963) with the prevalence of primary school pupils with lunch boxes to be 77.8% according to a study among primary school children in Nnewi, Ananmbra state, Nigeria on nutritional contents of lunch packs by (Ugochukwu, Onubogu, Edokwe and Okeke, 2014) which was as follows:

$$n = \frac{Z\alpha^2 \, p \, (1-p)}{d^2}$$

Where: Z= 1.96 p= 0.778

n= Sample size

d= Degree of accuracy set at 0.05 (precision set at 5% significant)

$$n = \frac{1.96^2 \times 0.778 \times 0.222}{0.05^2} = 265.4$$

n is approximately 265

A non-response rate of 10% of 384 using $q = \frac{1}{1- f}$

Where f = estimated non response rate = 1.11

Therefore, 1.11 was multiplied by the sample size calculated to make the sample size 295 in order to address issues of incomplete response.

The sample size for the pupils is 295.

3.7 Sampling technique

A multistage (three stages) sampling technique was used to select the sample population from Ibadan North-East local government area:

Stage 1: Selection of Schools

There are 73 public primary schools and 211 private primary schools in Ibadan North East LGA. There are twelve (12) wards in the local government area and they were clustered into four units. Three (3) private owned schools and a public primary school from each cluster were proportionately selected for the study. A total of 4 public and 12 private primary schools were selected by cluster sampling for the study. This was done to have a better representation of the study population. The ratio of public to private owned primary school in the local government was almost 1:3 thereby having a proper representation.

Stage 2: Selection of number of respondents in each school

Proportionate sampling was used to select total number of respondent from each school. In order to determine the number of respondents that would be selected from each school, the number of primary (1 to 6) pupils in each school was divided by the total number of pupils in primary (1 to 6) in all the 16 schools, multiplied by the sample size (n).

Table 3.1: Selection of number of respondents in each school

Schools	No of pupils in each school	No of respondents from each school
01	250	25
02	295	34
03	344	41
04	306	35
05	78	9
06	124	15
07	84	10
08	79	9
09	106	12
10	115	13
11	163	19
12	146	17
13	174	20
14	109	13
15	101	12
16	120	14
Total	2594	298

Random sampling technique was used to select the respondents in the classes using the class register. The minimum sample size was 295 and eventually data were collected from 298 during the process of data collection.

Table 3.2: Stage 3 Selection of number of respondents in each class

Class	Total No of pupils per class	No of respondents in each class
Primary 1	475	15
Primary 2	465	25
Primary 3	440	32
Primary 4	439	64
Primary 5	390	95
Primary 6	385	67
	2594	298

3.8 Instrument for data collection

Quantitative method was used for data collection. Thisinvolve the use of interviewer administered questionnaire. The questionnaire was developed using information obtained from literatures on contents for lunch boxes among children. The instruments had five (5) sections. The first section was designed to collect data on socio-demographics of the respondents. The section two was on availability of packed lunch and lunch boxes, section three examined the content of foods packed in the pupils' lunch boxes and section four identified the sources of mid-day meal for pupils without lunch boxes while the last section highlighted the perception of pupils about packed lunch.

3.9 Validation of instrument

In order to establish validity of the instrument-relevant literatures was reviewed. It was also subjected to scrutiny by my supervisor and experts in nutrition and dietetics to validate the instrument and these individuals edited and made useful corrections and suggestions before the actual administration of the questionnaire to the study participants.

3.10 Reliability of instrument

Reliability of an instrument is a measure of the consistency in which the instrument will measure what it is supposed to measure (Mugenda, 2000). An instrument is reliable if it gives similar results after several administrations under similar conditions.

In establishing the reliability of the instrument, the instrument was pre-tested. The Pre-test technique is a process whereby the researcher shall administer the constructed questionnaire to 10% of the total study sample size in another representative population but the filled questionnaire for the pre-test shall not be used in the final analysis of the work. The pre-test of this study was carried out among thirty (30) pupils in Ibadan North Local government which is a similar population group. A Cronbach Alpha measurement and reliability co-efficient was carried out on the pre-test questionnaires to know how reliable the instrument is. A co-efficient of 0.753 was gotten.

3.11 Data collection procedure

For the study, serially numbered interviewer administered questionnaire was used. The data was collected by me with the assistance of three (3) research assistants who were trained prior to the time of data collection. The benefits of participating in the study were explained to the research participants. Permission was obtained from the school heads and assents from the parents of the pupils. The informed consent forms (attached to the questionnaires) were distributed to the potential participants after adequate information about the study were explained to them. After the questionnaires have been completed, the questionnaire was checked for completeness and errors before leaving the field.

3.12 Data management and analysis

Serial numbers were written on the copies of the questionnaire for easy entry and recall. A coding guide was developed along with the data collection tool in order to facilitate its analysis. Questionnaires were also reviewed to ensure consistency and completeness. Cleaning, recording and coding of data for analysis was also done. Using the coding guide, the data collected were carefully entered into the statistical software and analyzed using descriptive statistics such as mean, standard deviation and frequency tables and inferential statistics such as Chi-square to test for the hypotheses and regression analysis to test for the association between the variables. The results obtained from the Statistical Package for Social Science (SPSS version 21) analysis were summarized and presented in tables and charts.

Chi square test statistic was conducted to investigate the relationship between prevalence of pupils with lunch boxes and the type of school and relationship between nutritional content of lunch boxes and the type of school.

3.13 Ethical consideration

Ethical approval was obtained from the Oyo state Ministry of Health research ethical committee before going to the field for data collection. Also, written informed consent was attached to the questionnaire. To ensure confidentiality of research participants, identifiers such as names and other information that can reveal the identity of research participants were not included in the research instruments. The nature of the study, benefits and objectives was

explained to the respondents and they were assured that the information given would be treated with utmost confidentiality. Respondents were also intimated about the opportunity to withdraw their consent freely at any point during the study. Confidentiality of each participant was maximally maintained during and after the collection of their information. Information gathered from the respondents was stored in the computer for analysis by me while copies of the filled instruments were kept for maximum safety.

3.14 Study limitation

A limitation for this study is that the content of the lunch boxes of the pupils cannot be ascertained to always be what the researcher reported as the researcher was able to visit and check the lunch box once.

CHAPTER FOUR

RESULTS

4.1 Socio-demographic characteristics of respondents

Table 4.1 presents the socio-demographic characteristics of the respondents. Overall, a total of 298 primary school pupils participated in this study. There were 50.7% males and 49.3% females who participated in the study. The respondents' ages ranged from 5-15 with a mean of 9.36 ± 2.04. Majority (56.4%) of the respondents were within 9-11 years age group, followed by those in the 5-8 age group, (30.2%). The results showed that 31.9% of the respondents were in Primary 5 while 22.5% in Primary 6. About half (49.3%) the respondents were from public schools and 50.7% were from private schools. Majority (93%) of the respondents were Yoruba while about two-third (66.8%) were Christians (See table 4.1 for more details).

Table 4.1Respondents' Socio-Demographic Characteristics

N=298

Demographic Characteristics	No	%
Gender		
Male	151	50.7
Female	147	49.3
Respondent's age*		
5-8	90	30.2
9-11	168	56.4
12-15	40	13.4
Class		
Primary 1	15	5.0
Primary 2	25	8.4
Primary 3	32	10.7
Primary 4	64	21.5
Primary 5	95	31.9
Primary 6	67	22.5
Religion		
Christianity	199	66.8
Islam	99	33.2
Ethnicity		
Yoruba	277	93.0
Igbo	16	5.4
*Others	5	1.6
Type of School		
Private	151	50.7
Public	147	49.3

*$\bar{x}$ = 9.36 ± 2.04

4.2 Availability of Packed Lunch and Lunch Box

Table 4.2 shows the availability of packed lunch and lunch box. Majority (80.2%) of the respondents had a lunch box on visit to their schools and all the respondents with lunch box had food in the box. Of those that had food in their lunch box, 95.4% was homemade food. Majority (71.0%) of the respondents reported that the food is still warm/hot whenever they want to eat it. Slightly above half (53.4%) of the respondents had snack in their lunch box on observation (See more in table 4.2).

Fig. 4.1 depicts respondents' type of lunch box. More than half (56.1%) of the respondents had a lunch box/bag, 29.5% had a lunch basket while 14.2% had a party/polythene bag (see fig. 4.1 for more details). The type of respondents' lunch container is showed in fig. 4.2. Slightly above half (51%) had a metal food flask, 24.7% had plastic cooler, 20.9% had a plastic bowl and 3.3% had take-away bowls (see fig. 4.2 for more details).

Table 4.2: Availability of Packed Lunch and Lunch Box

N = 298

Observation	Yes (%)	No (%)
Availability of lunch box on visit to school	239 (80.2)	59 (19.8)
Availability of food in the lunch box	239 (80.2)	59 (19.8)
Whether food is homemade or bought (n= 239)	228 (95.4)	11 (4.6)
Whether food still is warm/hot whenever respondent want to eat (n=238)	169 (71.0)	69 (29.0)
Availability of snack in the lunch box (n=239)	127 (53.4)	112 (46.6)

n = 239

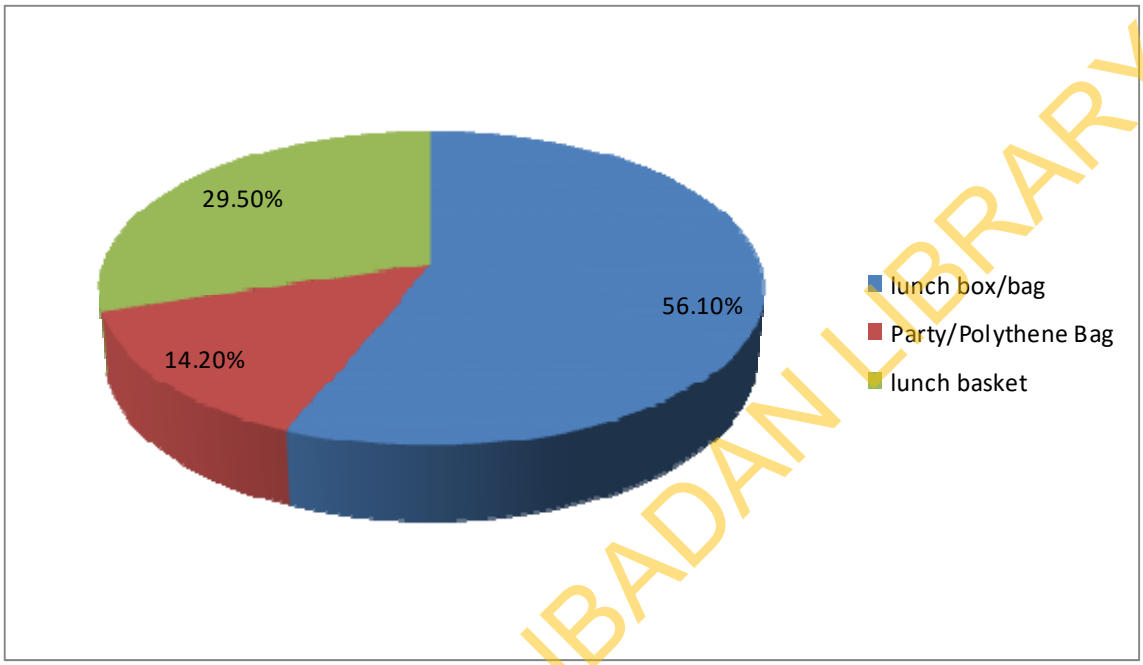

Fig. 4.1: Respondents' type of lunch box

n = 239

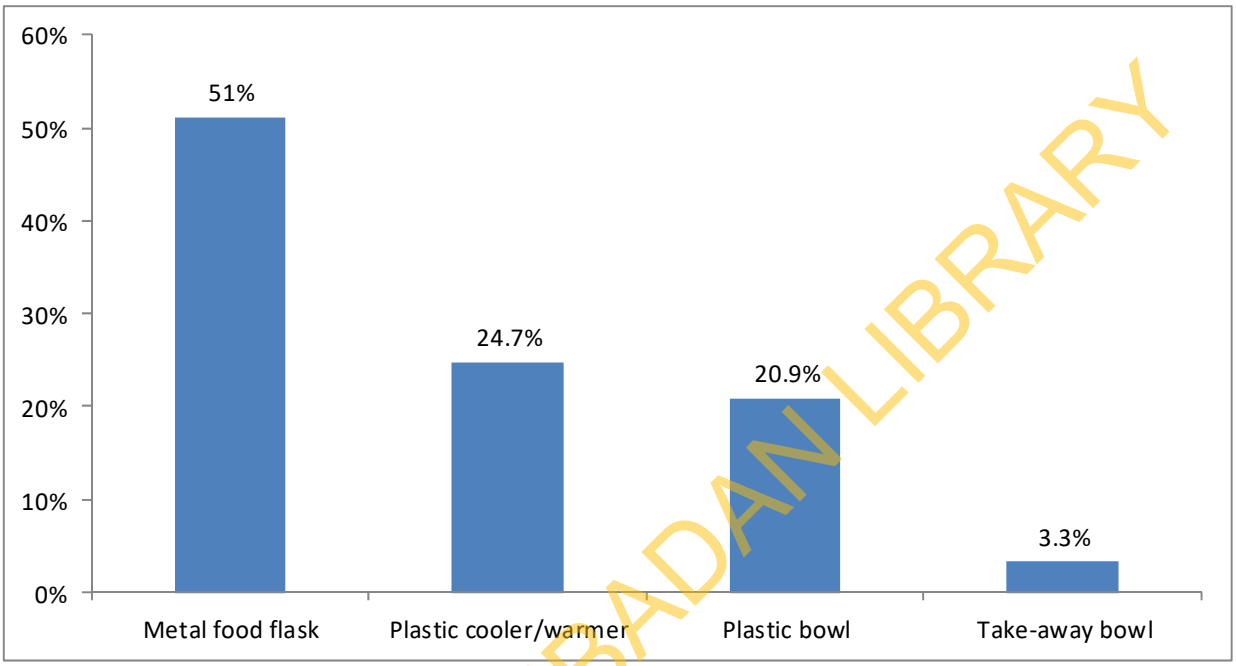

Fig. 4.2: Respondents' type of lunch container

4.3 Contents of food in lunch boxes

Content of respondents' lunch box/packed lunch are shown in table 4.3. Almost all (94.6%) of the respondents had water. Other contents of their lunch box/packed lunch are as follows: grains (76.2%), meat, poultry, fish (59.4%), pastries (45.6%), legumes (27.2%), sweetened drinks (22.2%), vegetables (21.0%), root and tubers (18.8%), sugar, syrups and sweet (13.8%) (See more details in table 4.3).

Table 4.3 Food groups (content) in lunch box/packed lunch

n = 239

Food groups (content) in lunch box/packed lunch	Responses	
	Yes (%)	**No (%)**
Cereals e g coco pops ,cornflakes	15 (6.3)	224 (93.7)
Meat, poultry, fish	142 (59.4)	97 (40.6)
Fruits	10 (4.2)	229 (95.8)
Roots and tubers e.g. yam	45 (18.8)	194 (81.2)
Sugar, syrups and sweet	33 (13.8)	206 (86.2)
Legumes e g. beans	65 (27.2)	174 (72.8)
Pastries	109 (45.6)	130 (54.4)
Sweetened beverages	12 (5.0)	227 (95.0)
Milk and related products	14 (5.9)	225 (94.1)
Sweetened drinks	53 (22.2)	186 (77.8)
Water	226 (94.6)	13 (5.4)
Vegetables	50 (21.0)	188 (79.0)
Grains	182 (76.2)	57 (23.8)

4.4 Sources of mid-day meal for pupils without lunch boxes

Table 4.4 highlights Sources of mid-day meal for pupils without lunch boxes. Less than half (39.3%) of them makes use of the food canteen, 36.2% go to the tuck shop, 21.1% patronizes food vendors around school while 5.3% do not have a mid-day meal (See more details in table 4.4). The type of food respondents' bought on the day the study was carried out and food they usually buy is shown in fig. 4.4. About 43.6% bought pastries while 30.4% usually buy pastries. Also, 32.7% bought rice while 35.7% usually buy rice (See more details in fig. 4.4). Fig. 4.5 shows the type of drink respondents' bought on the day the study was carried out and drink they usually buy. Almost half (43.9%) bought sweetened drinks while 53.6% usually buy sweetened drinks. About 29.8% bought milk and related products while 25% usually buys them (See more details in fig. 4.5).

Table 4.4Sources of mid-day meal for pupils without lunch boxes

Sources of mid-day meal for pupils without lunch boxes	Responses	
	Yes (%)	No (%)
School canteen (n=56)	22 (39.3)	34 (60.7)
Tuck shop (n=58)	21 (36.2)	37 (63.8)
Food vendors around school (n=57)	12 (21.1)	45 (78.9)
No mid-day meal (n=57)	3 (5.3)	54 (94.7)

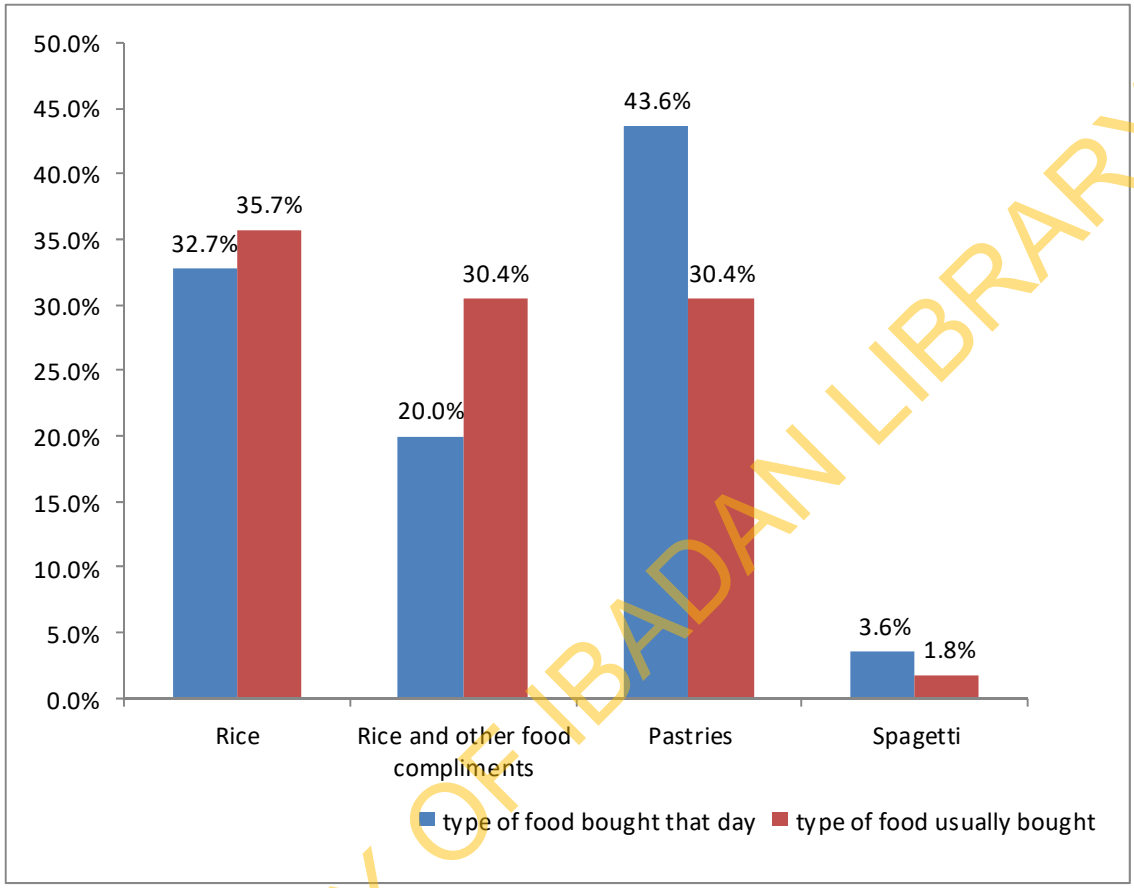

Fig. 4.3 Type of food respondents' bought on the day the study was carried out and food they usual buy

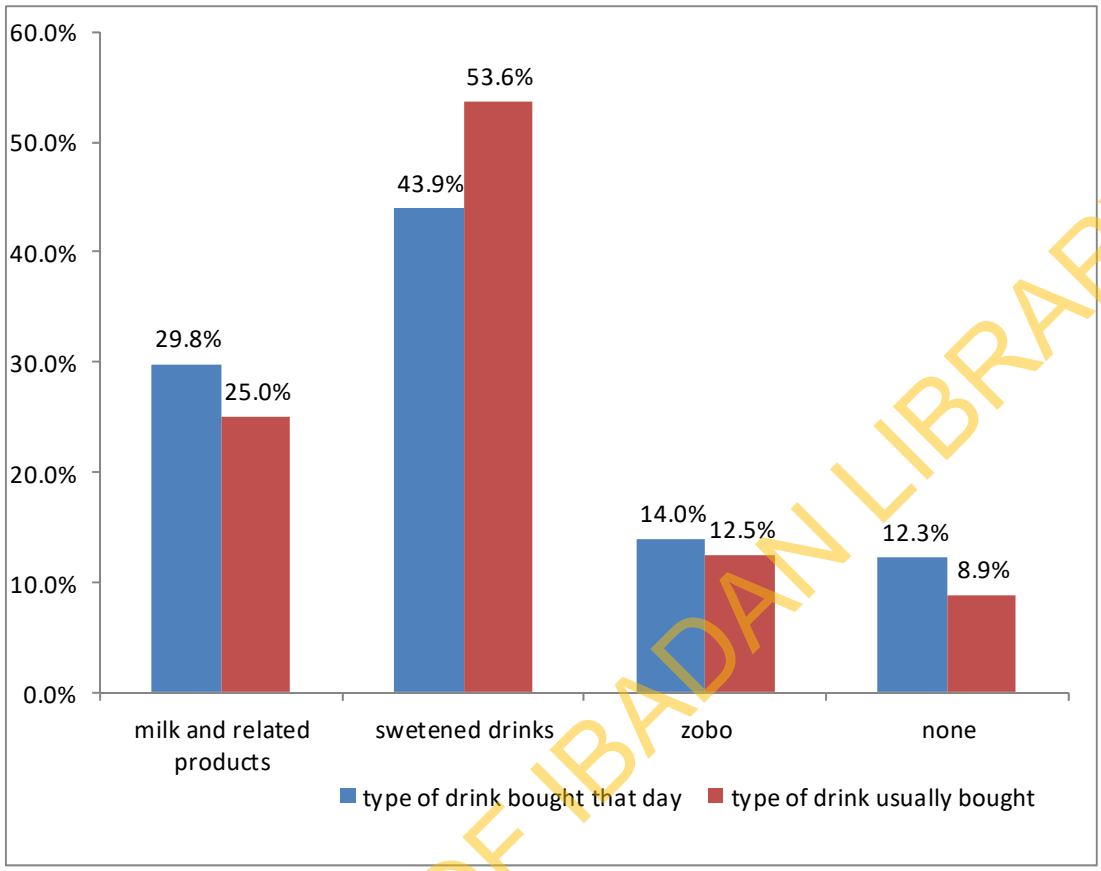

Fig.4.4 Type of drink respondents' bought on the day the study was carried out and drink they usually buy.

4.5 Perception of pupils about packed lunch

Table 4.5 presents the perception of respondents' about packed lunch. The perception of 43.6% of the respondents was that lunch box is an extra weight to carry while 28.6% was of the view that it is not necessary to have a lunch box for school. More than half (55.4%) were against the view that packed lunch usually gets cold before it is eaten. About 39.3% were of the perception that they prefer to take money to school to packed lunch while 24.3% thinks they are too old to be carrying lunch box to school. Also, 57.8% are of the view that the food in their lunch box is usually what they like to eat (See details in table 4.5)

Table 4.5Perception of respondents' about packed lunch

Perception of respondents' about packed lunch	Responses		
	Agree (%)	Undecided (%)	Disagree (%)
Lunch box is an extra weight to carry (n=296)	129 (43.6)	30 (10.1)	137 (46.3)
Packed lunch usually gets cold before it is eaten (n=294)	105 (35.7)	26 (8.8)	163 (55.4)
I don't think it is necessary to have a lunch box for school (n=294)	84 (28.6)	25 (8.5)	185 (62.9)
I prefer to take money to school to packed lunch (n=295)	116 (39.3)	22 (7.5)	157 (53.2)
I am too old to be carrying lunch box to school (n=296)	72 (24.3)	35 (11.8)	189 (63.9)
The food in my lunch box are usually preserved and warm till it is eaten (n=295)	162 (54.9)	46 (15.6)	87 (29.5)
The food in my lunch box is usually what I like to eat (n=296)	171 (57.8)	37 (12.5%)	88 (29.7)

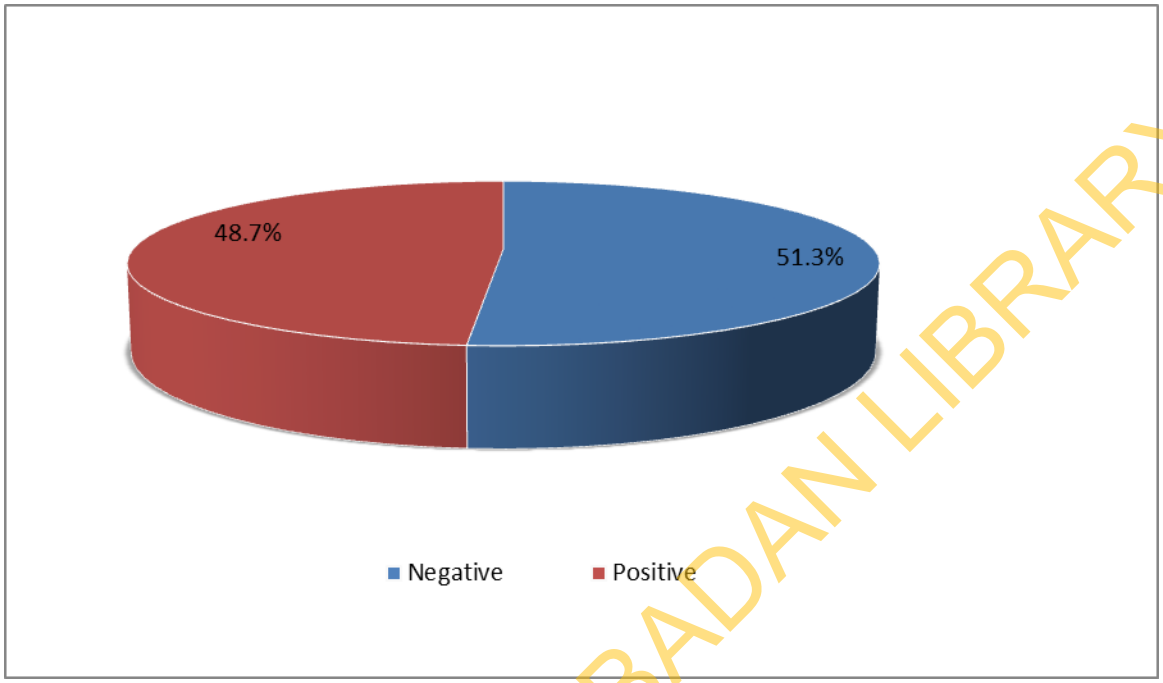

Fig. 4.5: Respondents' Overall Perception towards lunch box

Mean Perception Score = 3.9 ± 2.4

4.6 Test of Hypotheses

Hypothesis 1

Table 4.6 shows the result of the testing of the null hypothesis which states that "there is no significant association between respondents' school type and prevalence of lunch box". The result showed that there was a statistically significant association between respondents' school type and prevalence of lunch box as the p value is less than 0.05. Hence, the null hypothesis (Ho) is rejected.

Hypothesis 2

Table 4.7 shows the result of the testing of the null hypothesis which states that "there is no significant association between respondents' class and usage of lunch box". The result showed that there was a significant association between respondents' class and prevalence of lunch box as the p value is less than 0.05. Hence, the null hypothesis (Ho) is rejected.

Hypothesis 3

Table 4.8 shows the result of the testing of the null hypothesis which states that "there is no significant association between respondents' school type and their perception towards lunch box". The result showed that there was a significant association between respondents' school type and their perception towards lunch box. (X^2= 5.955, df = 1, p-value = 0.015). Hence, the null hypothesis (Ho) is rejected.

Hypothesis 4

Table 4.9 shows the result of the testing of the null hypothesis which states that "there is no significant association between respondents' school type and prevalence of grain in their lunch boxes". The result showed that there was no significant association between respondents' school type and prevalence of grain in their lunch boxes. (X^2= 3.435, df = 1, p-value = 0.064). Hence, the null hypothesis (Ho) is not rejected.

Hypothesis 5

Table 4.10 shows the result of the testing of the null hypothesis which states that "there is no significant association between respondents' school type and prevalence of sweetened drinks in their lunch boxes". The result showed that there was a significant association between respondents' school type and prevalence of sweetened drinks in their lunch boxes. (X^2= 4.196, df = 1, p-value = 0.041). Hence, the null hypothesis (Ho) is rejected.

Hypothesis 6

Table 4.11 shows the result of the testing of the null hypothesis which states that "there is no significant association between respondents' school type and prevalence of pastries in their lunch boxes". The result showed that there was a significant association between respondents' school type and prevalence of pastries in their lunch boxes (X^2= 5.717, df = 1, p-value = 0.017). Hence, the null hypothesis (Ho) is rejected.

Table 4.6: Association between respondents' school type and prevalence of lunch box

Type of School	Prevalence of lunch box		df	p-value
	Yes (%)	No (%)		
			1	0.000^
Private	147 (97.4)	4 (2.6)		
Public	92 (62.6)	55 (37.4)		

(p<0.05)

^Fisher's Exact Test

Table 4.7: Association between respondents' class and prevalence of lunch box

Class	Prevalence of lunch box		df	p-value
	Yes (%)	No (%)		
Primary 1-3	70 (97.2)	2 (2.8)	1	0.000^
Primary 4-6	169 (74.6)	57 (25.2)		

(p<0.05)

^Fisher's Exact Test

Table 4.8: Association between respondents' school type and perception towards lunch box: necessity of having a lunch box for school

Type of Perception	School Type		Chi-square	df	p-value
	Private (%)	Public (%)	5.955	1	0.015*
Negative	67(43.8)	86(56.2)			
Positive	84(57.9)	61(42.1)			

***(p<0.05)**

Perception Score = 3.9 ±2.4

Perception scale <4 as negative perception

7points ≥4 as positive perception

Table 4.9: Association between respondents' school type and prevalence of grain in their lunch boxes

Type of School	Prevalence of grains in respondents' lunch boxes		Chi-square	df	p-value
	Yes (%)	No (%)			
Private	106 (72.1)	41 (27.9)	3.435	1	0.064
Public	76 (82.6)	16 (17.4)			

(p<0.05)

Table 4.10: Association between respondents' school type and prevalence of sweetened drinks in their lunch boxes

Type of School	Prevalence of sweetened drinks in lunch boxes		Chi-square	df	p-value
	Yes (%)	No (%)			
Private	39 (26.5)	108 (73.5)	4.196	1	0.041*
Public	14 (15.2)	78 (84.8)			

***(p<0.05)**

Table 4.11: Association between respondents' school type and prevalence of pastries in their lunch boxes

Type of School	Prevalence of pastries in lunch boxes		Chi-square	df	p-value
	Yes (%)	No (%)			
			5.717	1	0.017*
Private	76 (51.7)	71 (48.3)			
Public	33 (35.9)	59 (64.1)			

***(p<0.05)**

Logistic Regression for Significant Associations

Table 4.11 shows the binomial logistic regression analysis which showed that there was a significant association between respondents' school type and prevalence of pastries in their lunch boxes From this analysis, respondents in private schools are 1.9 times more likely to have pastries in their lunch boxes than respondents in public schools (OR=1.914, 95% CI: 1.121-3.268).

Table 4.12 shows the logistic regression analyses which establish that there was a significant association between respondents' school type and prevalence of sweetened drinks in their lunch boxes. From this analysis, respondents in private schools are 2 times more likely to have sweetened drinks in their lunch boxes than respondents in public schools (OR=2.012, 95% CI: 1.023-3.958).

Table 4.12: Logistic regression analysis respondents' school type and prevalence of pastries in their lunch boxes

School Type	OR	95% CI ORdf		p-value
Private	1.914	1.121-3.268	1	0.017*
Public**				

**Reference category

*Significant (P<0.05)

Table 4.13 Logistic regression analysis between respondents' school type and prevalence of sweetened drinks in their lunch boxes

School Type	OR	95% CI OR	df	p-value
Private	2.012	1.023-3.958	1	0.043*
Public**				

**Reference category

*Significant (P<0.05)

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATION

5.1 Socio-demographic characteristics of respondents

The respondents mean age was 9.4 ± 2.0 years with many of them aged 9-11 years. Another study carried out among this population group similarly reported a mean age of 9.7 ± 2.7 years (Ugochuwu et al., 2014). The numbers of male and female respondents were almost equal. This was done purposively at the designed stage of the methodology to avoid a skewed proportion of any of the gender. Respondents were selected from primary 1 to 6 to ensure a full representation of the pupils across the classes. Most of the respondents were Yoruba and many were Christians. The proportion of respondents recruited in the study from public and private school were almost equal.

Socio-demographic characteristics such as age, class and school type revealed in this study are very important in the design and implementation of educational programs targeted at the population group. It should therefore be taken into consideration in the design, implementation and evaluation stage of health promotion and educational activities aimed at improving the content and increasing the adoption of packed lunch among primary school pupils.

5.2 Availability of Packed Lunch and Lunch Box

The result shows that majority of (80.2%) the respondents had a lunch box on visit to their schools. Similar result was reported in cross-sectional studies in Nigeria (Ogbimi & Ogunba, 2011; Ibeanu et al., 2017). However, Olusanya J.O. (2010) reported a higher percentage of studies without packed lunch in a study in Osun state. It was also revealed that a lower percentage of pupils in developed countries take packed lunch to school. Previous studies in the kingdom reported that approximately half of the respondents had packed lunch (Evans et al., 2008; Smithers et al., 2000). A lower percentage of 41% was reported from a cross-sectional study conducted in United States (Briefel et al., 2009).

Almost all the lunch boxes had homemade food. This reveals that pupils take meals from home rather than buying food from public vendors. It was also noted that about half of the pupils had snacks in their lunch boxes. Ogbimi & Ogunba, (2011) reported that majority (72%) of the children in day care in Osun state took snacks to school. Lunch items of a large proportion of American students include snacks and pastries (Hubbard et al., 2014). Similar result was reported in New Zealand by Dresler-Hawke et al., 2009. Results from previous studies and this study therefore establish that pupils have snack in their lunch boxes for mid-day meal.

The availability of lunch box was found to be significantly influenced by school type and class. Pupils in private schools and those in primary 1-3 were more likely to have a lunch box. Olusanya J.O. (2010) similarly reported that more pupils in public did not have a packed lunch and neither did they bring money to school for lunch compared with their counterparts in private schools.

The most common type of lunch box used by respondents were lunch boxes/bags while some used a lunch basket and few party/polythene bag. The type of lunch box respondents' carries to school is a possible factor that could encourage them in taking the lunch box to school asides from the safety of the food in it. A pupil with proper lunch box/bag in a preferred design is more likely to have a better perception of carrying it to school compared the use of a polythene/party bag.

The type of lunch container used helps to preserve the food and keep it warm till it is eaten. About half had a metal food flask while others had plastic cooler and bowl with varying thermal capacity in keeping the food warm and intact. Few (3.3%) had take-away bowls which expose the food to a higher probability of pouring or getting cold before lunch break period.

5.3 Contents of food in lunch boxes

Almost all the respondents' had water in their lunch boxes. This is a positive trend as it is essential for children to have access to portable drinking water. Asides water, the result showed that grains were found in majority of the lunch boxes and about half of them had

pastries in the box. The respondents' lunch boxes also contained other food groups such as proteins (fish, meat, legumes), vegetables, root and tubers. The results revealed that some of the pupils had sweetened drinks (22.2%), sugar, syrups and sweet (13.8%) packed in their lunch boxes. Previous studies has reported various lunch boxes content similar to those reported in this study, however with varying percentages. Hubbard et al, (2014) in the study to assess home packed meal among students in America reported the content as follows: Sandwiches (59%), snack foods (42%), fruit (34%), and desserts (28%). Dresler-Hawke et al., (2009) similarly reported sandwich (71%), grain bread (16%), white bread (52%), fruits or vegetables (70%). Studies in Brazil revealed that cereals, milk and dairy foods were among the three groups most frequently found in the lunchboxes (Tatiana et al., 2011). Group of breads was the most frequent (80%), whereas fruits were present in 68% of the lunchboxes in a cross-sectional study in Austrialia (Sanigorski et al., 2005).

It was noted in the results that few of the pupils had fruits (4.2%) and vegetables (21%) in their lunch pack. A study carried out in Anambra state revealed that only 12.4% of the pupils that came to school with lunch packs had balanced meal and only 12.4% with fruits and or vegetables (Ugochuwu et al., 2014). An Osun state study reported that only 12% of pre-school children had fruits in their lunch packs while 22.3 had balanced meals (Ogbimi & Ogunba, 2011)

5.4 Sources of mid-day meal for pupils without lunch boxes

About 19.8% of the pupils who do not have lunch boxes patronizes the food canteen (39.3%), tuck shop (36.2%) and food vendors around the school (21.1%). Ibeanu et al., (2017) similarly reported that about 15% of pupils bought food from hawkers around the school compound. This implies that schools' food canteen, tuck shops and food vendors around school compounds significantly contribute to the feeding of the primary school pupils. Pupils without lunch boxes are more likely to have more unhealthy diet as about 43.6% of them bought pastries and others bought mainly carbohydrates. Moreover, more than half of them usually buy sweetened drink which is two times the frequency of the sweetened drinks of pupils with lunch boxes.

5.5 Perception of pupils about packed lunch

Respondents had some perceptions that were risky and needs to be addressed; for instance, about 43.6% of them feel lunch box is any extra weight and some were even of the view that it is not necessary to have a lunch box for school. These perceptions can influence the pupils against taking lunch box to school and preferring to patronize food vendors and tuck shops for unhealthy diets. This was reflected in the view of 39.3% of them who reportedly stated that they would prefer to take money to school. This might be because of the fact that the food of some of them gets cold before it is eaten or they don't feel like eating the food in their lunch box. It was also noted that some of the pupils feels they are too old to be carrying lunch box to school. Attention therefore needs to be paid to educating these young pupils so that they can have more favourable perceptions as regards packed lunch.

5.6Implications of the findings for Health Promotion and Education

Findings from this study have health promotion and education implications; therefore, multiple interventions are needed to be directed at the use of lunch boxes in schools. Health education is any planned combination of learning experiences designed to predispose, enable and reinforce voluntary actions, conducive to health in individuals, groups or communities (Green and Kreuter, 1991). Health promotion is the process of enabling people to increase control over their health and its determinant through the combination of educational environmental supports for actions and conditions of living conducive to health (WHO, 1986). The implication of health promotion and education concepts in this study involves the provision of factual information and enabling environment regarding lunch box/packed lunch in schools. Health promotion strategies that can be used to achieve this include public enlightenment, training, and policy intervention.

Public Enlightenment

Public enlightenment refers to organized communication activities designed to raise awareness, induce behavior change and improve quality outcomes for individuals and populations (Seymour, 2017). Awareness about importance of packed lunch can be done in Parent Teachers Association (PTA) meeting where parents, caregivers and teachers will be available. These stakeholders need to be adequately enlightened with factual information on

the health benefits and other implication of meals of the pupils take to school. Teachers also have pivotal roles in encouraging the pupils in taking their meals and in taking note of those who have a challenge with feeding in order to seek solutions to the challenge. Behavioural Change Communication (BCC) materials could also be placed at strategic points within the school with messages that encourages pupils to have packed lunch. These messages could also be passed through songs and rhymes the pupils sing and recite.

Training

Training is an education strategy which facilitates the acquisition of knowledge and skills. Workers in school food canteen and other food vendors in and around primary schools should be trained on adequate dietary needs of children and how they can adapt it to their business. For instance, they could make food in servings that would contain different classes of food at a price affordable to students instead of selling food which is mainly carbohydrates. Training can also be done on other healthy practices such as hygiene in order to keep the foods safe for consumption for pupils who do not have packed lunch from home. The food vendor needs training as they are one of the stakeholders especially for pupils who do not take packed lunch to school.

Policy Intervention

Policy made by government and school management can go a long way in improving the nutritional content of lunch boxes of pupils in primary schools. The policy should be made to suit the environment and maximize foods that are readily available in their right proportions. Policy should be made to reduce or restrict sales of sweetened drinks, highly processed foods and other unhealthy food substances in school environment. Content of food and drinks sold in schools should be assessed and certified healthy for the age group. Availability of fruits should also be factor in the policy.

5.7 Conclusion

This research explored the nutritional content of lunch boxes of primary school children in Ibadan North East LGA. The results indicated that the prevalence of packed lunch/lunch boxes is high although the percentage is higher in private school compared to public schools. Findings from this study also revealed that sources of food of pupils who do not bring lunch

box to school include school food canteen, tuck shops and food vendors around the school. The perception of some of the pupils about packed lunch is unfavourable and requires intervention activities. Health Education and Promotion strategies should be employed to further increase the prevalence and improve the nutritional contents of lunch boxes of primary school children in this area.

5.8 Recommendations

The following recommendations are made based on the findings of the study:

1. Educational interventions should be carried out among parents, caregivers and teachers of primary school pupils to enlighten them on the importance of lunch box and its contents;
2. Behavioural Change Communication materials should be developed and placed in schools to show pupils the importance of a healthy mid-day meal and encourage them to come to school with packed lunch;
3. Food vendors in and around schools should be trained on healthy recipe as they are source of mid-day meal for pupils without lunch boxes;
4. Healthy feeding policy should be and effected in schools to ensure that lunch boxes contain fruits and other healthy foods;
5. Policies should be made to ensure that tuck shops in school provide healthy snack and drinks for pupils.

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APPENDICES

APPENDIX 1

QUESTIONNAIRE

PREVALENCE AND CONTENTS OF LUNCH BOXES OF PRIMARY SCHOOL PUPILS IN IBADAN NORTH EAST LOCAL GOVERNMENT AREA OF OYO STATE.

Dear Respondent,

Good day Ma/Sir, my name is……. I am a postgraduate student of the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan. The aim of the study is to investigate the Prevalence and Contents of lunch boxes of primary school pupils in Ibadan North East local government area of Oyo state". This study will yield information that may be used in developing health intervention programs especially those related to healthy eating among children. There is no right or wrong answer to the questions asked or the statements made, what is desired of you is your truthful and honest responses. Please note that the completion of this questionnaire is entirely voluntary. All information gathered as a result of your participation in this study will be treated with utmost confidentiality and will be used strictly for research purposes only.

Thank you.

I have read and understood the consent form and voluntarily agree/disagree to participate in the study by ticking [√] in the appropriate box below:

1. Agree [ ] 2. Disagree [ ]

SECTION A: SOCIO-DEMOGRAPHIC INFORMATION

Please tick (√) any of the responses that apply to you in the options provided or complete the blank spaces provided as applicable.

1. Gender: 1. Male [ ] 2. Female [ ]
2. Age: _____
3. Class: _____
4. Religion: 1. Christianity [ ] 2. Islam [ ] 3. Traditional [ ] 4. Others (specify)_____
5. Ethnic group: 1. Yoruba [ ] 2. Hausa [ ] 3. Igbo [ ] 4. Others (specify)_____
6. Type of School: 1. Private [ ] 2. Public [ ]

SECTION B: VIEWS AND IDEAS OF PUPILS ABOUT PACKED LUNCH AND LUNCH BOXES

What is the difference between packed lunch and lunch box? ----------

SECTION C: AVAILABILTY OF PACKED LUNCH AND LUNCH BOX

I. OBSERVATION ONE

a. Availability of lunch box on visit to school. 1 [Yes] 2 [No]

b .What type of lunch box? ----------.

c. Is there food in the lunch box? 1 [Yes] 2 [No]

d. Is the food homemade or bought? (Ask Child).----------.

e. Is the food still warm/hot whenever you want to eat it? (Ask Child) 1 [Yes] 2 [No]

f. Is there a snack in the lunch box? 1 [Yes] 2[No]

II. OBSERVATION TWO

a. Availability of packed lunch on visit to school. 1[Yes] 2[No]

b. What type of container? ----------

7. How often do you bring lunch box to school? (i)Daily (ii) once in a week

(iii) Three times week (iv.)More than 3 times in a week

SECTION D: CONTENTS OF FOOD IN LUNCH BOXES

S/N	FOOD GROUPS(CONTENT) IN LUNCH BOX/PACKED LUNCH	YES	NO
8	Cereals e g coco pops ,cornflakes		
9	Meat, poultry, fish		
10	Fruits.		
11	Roots and tubers e.g. yam		
12	Sugar, syrups and sweet e.g. chocolates, Stick sweets etc.		
13	Legumes e g. beans		
14	Pastries e.g. meat pie ,puff puff ,biscuits etc.		
15	Sweetened beverages e ,g milo		
16	Milk and related products e.g. Hollandia etc.		
17	Sweetened drinks e.g. Happy hour, ribena etc.		

18	Water		
19	Vegetables		
20	Grains e g rice, Spaghetti, noodles.		

SECTION E: SOURCES OF MID-DAY MEAL FOR PUPILS WITHOUT LUNCH BOXES

Please tick (√) any of the available options in the lunch box of the respondents in the options provided

S/N	STATEMENT	YES	NO
21	School canteen		
22	Tuck shop		
23	Food vendors around school		
24	No mid-day meal		

25. What type of food did you buy today? Specify.----------

26. What type of food do you usually buy? Specify----------

27. What type of drink did you buy today? Specify.----------

28. What type of drink do you usually buy? Specify----------

SECTION E: PERCEPTION OF PUPILS ABOUT PACKED LUNCH

Please tick (√) any of the responses that apply to you in the options provided or complete the blank spaces provided as applicable.

S/N	Statements	Agree	Undecided	Disagree
29	Lunch box is an extra weight to carry.			
30	Packed lunch usually gets cold before it is eaten.			
31	I don't think it is necessary to have a lunch box for school			
32	I prefer to take money to school to packed lunch.			
33	I am too old to be carrying lunch box to school.			
34	The food in my lunch box are usually preserved and warm till it is eaten			
35	The food in my lunch box is usually what I like to eat.			

Thanks for your participation..

APPENDIX II

IWE-IBEERE NI YORUBA

Olukopa,

Eku ise Ma / Sir, orukọ mi ni ..... Ọmọ- ile-iwe ti Eka Ilera ti igbega ati eko, sakaani ti ilera gbogbogbo, fasiti ti ilu Ibadan. Idi ti iwadi yi ni lati ṣawari "ayanfe awọn obi ati awọn ọmọde lori osuwan ounje ọsan ni Ipinle Ijoba Ibadan North East, Ni Ibadan, Ipinle Oyo " Iwadi yii yoo funni ni alaye ti a le lo ni idagbasoke awọn eto ilera paapaa julo awọn ti o ni ibatan si ounje asara lore larin awọn ọmọde. Ko sipe ogba tabi o ogba ninu idahun si awọn ibeere ti a bini tabi awọn gbólóhùn ti a lo, ohun ti a fẹ fun o ni otitọ ati idahun ododo. Jọwọ ṣe akiyesi pe ipari ti iwe ibeere yi jẹ atinuwa. Gbogbo alaye ti o wa ni abajade ti ifowosi rẹ ninu iwadi yii ni ao ṣe itọju re ati pe a yoo lo fun awọn idi iwadi nikan.

Adupe.

Moti ka ati wipe fọọmu ifowosowopo yi yemi, oti inu mi wa / ko ti inu miwa lati kopa ninu iwadi nipase fifi ami sinu[√]apoti ti o wa ni isalẹ:

1. Gba [ ] 2. Mio Gba [ ]

IPIN A: ALAYE TI AGBEGBE-ARA-ẸNI

Jowo fi ami si (√) eyikeyi awọn idahun ti o kan si ọ ninu awọn aṣayan ti a pese tabi pari awọn aaye alafo ti a pese.

1. Imọ akọ tabi abo: 1. Okunrin [ ] 2. Obirin [ ]
2. Ọjọ ori: _____
3. Kilasi: _____
4. Ẹsin: 1. Oni gbagbo [] 2. Musulumi [] 3. Ibile [4] 4. Awọn ẹlomiiran (pato) _____
5. Ẹya: 1. Yorùbá [] 2. Hausa [] 3. Igbo [] 4. Awọn ẹlomiiran (pato) _____
6. Iru ile-iwe: 1. Ti aladanii [] 2. Ti ijoba []

IPIN B: ISIRO ITANBA TI AWỌN ỌMỌLEEWE TI O NI OSUWAN OUNJE OSAN

7. Riri osuwan ounje osan ni ojo akoko si Ile-iwe: 1 Bẹẹni [] 2. Beeko []

IPIN C: IBITI AN TIRI OUNJE OSAN TI AWỌN ỌMỌLEEWE TI O NI OSUWAN OUNJE OSAN

Jowo fi ami si (√) eyikeyi awọn aṣayan ti o wa ni osuwan ounje ọsan ti awọn olukopa ni awọn aṣayan ti a pese

S / N	ASAYAN	BẸẸNI	BEEKO
8	Ounje Ile-iwe		
9	Sobi iṣọrọ		
10	Awọn alagbata ounjẹ ni ile-iwe		
11	Ko si ounjẹ osan		
12	Awọn ẹlomiran (Jọwọ ṣafikun):		

IPIN D : IRUFE OUNJE NINU OSUWAN OUNJE OSAN

S / N	AWON EGBE OUNJE (IRUFE) OSUWAN OUNJE OSAN	BẸẸNI	BEEKO
13	Siri ati ọkà fun apẹẹrẹ, iresi ati bẹbẹ lọ		
14	Eran, adie, eja		
15	Awọn eso ati awọn ẹfọ		
16	Awọn ounjẹ sitashi, awọn gbongbo ati isu fun apẹẹrẹ		
17	Suga, ogun omi ṣuga oyinbo ati adun fun apẹẹrẹ chocolates, pop up bbl.		
18	awon oloje bi apeere ewa		
19	Awọn filawa eyinbo bi apeere sokoleti, puff puff ati be be lo		
20	Awọn ohun mimu ti o dun e, g milo		
21	Miliki ati irufe miliki		
22	Awọn ohun mimu ti o dun pupo bi apẹẹrẹ happy hour, ribena bbl		
23	Omi		

IPIN E : IWA AWON ỌMỌLEEWE SI IRUFE OSUWAN OUNJE OSAN

Jowo fi ami si (√) eyikeyi awọn idahun ti o kan si ọ ninu awọn aṣayan ti a pese tabi pari awọn aaye alafo ti a pese bi o wulo.

S / N	Asayan	Mi o gba tinu tinu	Mi o gba	Mi o mo	Mo gba	Mo gba tinu tinu
25	Mo jẹ ohun ti awọn obi mi fun mi losi ile-iwe					
26	Mo nifẹ lati jẹ ounjẹ to dun					
27	Ounjẹ mi maa n tutu kin to je					
28	Mo nifẹ lati jẹ ohun ti a polowo lori tẹlifisiọnu					
29	Mo fẹ ounjẹ ti yoo mu mi sanra					
30	Emi ko fẹran ohun ti obi mi fi sinu osuwan ounje mi					
31	Awọn awọ ninu ounje ore mi dara julo nigbagbogbo ju temi lo					
32	Mo fẹ lati ni oniruuru ounjẹ ti o wa ninu osuwan ounje ọsan mi lojoojumọ					
33	Awọn obi mi maa n bọwọ fun ayanfẹ mi					
34	Mo ni ominira lati jiroro nipa ayanfẹ mi pẹlu awọn obi mi					
35	Ounjẹ mi ma nkoro ki emi to le jẹ					

O ṣeun fun ikopa rẹ!

APPENDIX III

Coding Guide			
	Variable (Questionnaire/Statement)	**Variable Label**	**Code**
1.	Gender	Male	1
		Female	2
2.	Age		
3.	Class		1-6
4.	Religion	Christianity	1
		Islam	2
		Traditional	3
		Others	4
5.	Ethnic Group	Yoruba	1
		Hausa	2
		Igbo	3
		Others	4
6.	Type of School	Private	1
		Public	2
7.	Availability of lunch box on visit to school	Yes	1
		No	2
8.	What type of lunch box	Lunch bag	1
		Lunch box	2
		Lunch basket	3
		Party bag	4
		Polythene bag	5
		Not applicable	99
9.	Is there food in the lunch box?	Yes	1
		No	2
10.	Is the food homemade or bought?	Homemade	1
		Bought	2
11.	Is the food still warm/hot whenever you want to eat it?	Yes	1
		No	2
12.	Is there snack in the lunch box?	Yes	1
		No	2
13.	Availability of packed lunch on visit to school	Yes	1
		No	2
14.	What type of container	Metal Food flask	1
		Plastic cooler/warmer	2
		Plastic bowl	3
		Take away bowl	4
15.	How often do you bring lunch box to school?	Daily	1
		Once in a week	2
		Three times in a week	3

		More than three times a week	4
16.a	Cereals e.g. coco pops, corn flakes.	YES	1
b.	Meat, Poultry and Fish		
c.	Fruits		
d.	Roots and Tuber e.g. yam		
e.	Sugars, Syrups and Sweets e.g. chocolatesetc.		
f.	Legumes e.g. beans		
g.	Pastries e.g. meat pie, biscuits, puff puff		
h.	Sweetened Beverages e g milo	NO	2
i.	Milk and milk related products e.g. hollandia		
j.	Sweetened drinks e.g. Happy hour, ribena.		
k.	Water		
l.	Vegetables		
m.	Grains e.g. Rice ,Spaghetti ,Noodles		
17.	School canteen	Yes	1
		No	2
18.	Tuck shop	Yes	1
		No	2
19.	Food vendors around the school	Yes	1
		No	2
20.	No mid-day meal	Yes	1
		No	2
21.	What type of food did you today?	Rice	1
		Rice and other food compliments	2
		Spaghetti	3
		Pastries	4
		Yam	5
		Fruits	6
22.	What type of food do you normally buy?	Rice	1
		Rice and other food compliments	2
		Spaghetti	3
		Pastries	4
		Yam	5
		Fruits	6
23.	What type of drink did you buy today?	Milk and related products	1
		Sweetened drinks	2
		Zobo	3
		None	4

		Not applicable	5
		No response	99
24.	What type of drink do you usually buy?	Milk and related products	1
		Sweetened drinks	2
		Zobo	3
		None	4
		Not applicable	5
		No response	99
25. 26. 27. 28. 29. 30. 31.	• Lunch box is an extra weight to carry. • Packed lunch usually gets cold before it is eaten. • I don't think it is necessary to have a lunchbox for school. • I prefer to take money to school to packed lunch. • I am too old to be carrying lunch box to school • The food in my lunch box is usually preserved and warm till it is eaten. • The food in my lunch box is usually what I like to eat.	Agree	1
		Undecided	2
		Disagree	3
		No response	99

APPENDIX IV

INFORMED CONSENT FORM

My name is Odunayo Olufunke Akano a Masters Student of the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan. I am conducting a study on "The Prevalence and Content of lunch boxes of Primary school pupils in Ibadan North East LGA Oyo State.

Your child has been selected for the interview, I need your consent as the parent before administering the questionnaire to him/her. Participation is voluntary and information obtained from your ward will be treated as confidential .Your child's name will not appear on the questionnaire .Please encourage your child to answer the questions honestly as the success of the programme depends on your cooperation.

Thank you.

Now I will like to seek your permission to start the discussion with your child.

Are you willing to give consent?

1 Yes[ ]
2. No[ ]

Thank you.

…… ……..

Signatureof respondent **Signature of interviewer and Date**

APPENDIX V

ETHICAL APPROVAL

TELEGRAMS..... TELEPHONE.....

OYO STATE: THE PACESETTER

MINISTRY OF HEALTH

DEPARTMENT OF PLANNING, RESEARCH & STATISTICS DIVISION

PRIVATE MAIL BAG NO. 5027, OYO STATE OF NIGERIA

Your Ref. No. .....

All communications should be addressed to the Honorable Commissioner quoting

Our Ref. No. AD 13/479/ 1010

15th November, 2018

The Principal Investigator,
Department of Health Promotion and Education,
Africa Regional Health Education Centre,
Faculty of Public Health,
College of Medicine,
University of Ibadan,
Ibadan.

Attention: Akano Odunayo

ETHICS APPROVAL FOR THE IMPLEMENTATION
OF YOUR RESEARCH PROPOSAL IN OYO STATE

This is to acknowledge that your Research Proposal titled: "Contents of Lunch Boxes of Primary School Pupils in Ibadan North East Local Government Area of Oyo State" has been reviewed by the Oyo State Ethics Review Committee.

2. The committee has noted your compliance. In the light of this, I am pleased to convey to you the full approval by the committee for the implementation of the Research Proposal in Oyo State, Nigeria.

3. Please note that the National Code for Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations, in line with this, the Committee will monitor closely and follow up the implementation of the research study. However, the Ministry of Health would like to have a copy of the results and conclusions of findings as this will help in policy making in the health sector.

4. Wishing you all the best.

OYO STATE RESEARCH ETHICAL REVIEW COMMITTEE
Signature & Date
MINISTRY OF HEALTH

Dr. Abbas Gbolahan
Director, Planning, Research & Statistics
Secretary, Oyo State Research Ethics Review Committee