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Dietary habits and nutritional status of in-school adolescents: a case study of a public and a private secondary school in Ilishan, Ogun State

*Adeyeye, J. A.¹; Biachi, N.¹ and Adekanye, E. A.²

¹Department of Nutrition and Dietetics, Babcock University, Ilishan – Remo.

²University of Lagos, Akoka, Lagos.

*Corresponding author: <joshuadeyeye@yahoo.com>

Abstract

This study was undertaken to assess the dietary practices and nutritional status of in-school adolescent secondary school students in order to identify the groups of adolescent that can benefit from the nutritional awareness and educational empowerment program. A survey research design was adopted using a structured questionnaire consisting of three sections and was used for data collection in line with objective of the study. However, it was evidenced that good eating habits and well balanced physical activities support the strategy that promote a healthy lifestyle and longevity.

Keywords: Adolescent, Dietary habits, Nutritional status, anthropometric indicators, BMI

Introduction.

Adolescent is a period of transition between childhood and adulthood of age bracket between 10 to 19 years old (Nana, 2002). It is a decisive period of development because it represents the transition between life as a child and life as an adult (Hajra, *et al.*, 2009). Adolescents according to Omobuwa, *et al.*, (2014), are tomorrow's adult population and their health and wellbeing are crucial. Adolescents make up roughly 25% of the world population (WHO, 2007). During the period of adolescence, food intake pattern and dietary habits are set in place and these patterns can have impact on lifetime nutritional status as well as the health of individual. However, nutrients needs are greatest during adolescence (Lifshitz, 1993). It is also known that poor eating and physical activities habits during adolescence can store up health problems for later year (Stanner, 2003). Dietary habits developed during adolescent may contribute to various eating disorders that may increase the risk for several important chronic diseases later in life (Story, *et al.*, 2002). Adolescents have been considered to have the lowest mortality among different age groups therefore they received less attention in terms of dietary

guidance (Woodruff, 2000). Adolescent age group tends to be lacking sufficient knowledge on healthy dietary practices (Matthew, *et al.*, 2011; Niemeier, *et al.*, 2006). Increasing research reports (UNICEF, 2003; WHO, 2007; Keski, *et al.*, 2003 and Niemeier, *et al.*, 2006) revealed that majority of adolescent individuals may have insufficient knowledge of food choice that can lead to unhealthy dietary habits. Most adolescent easily adopt eating food sold by street food vendors and nearby kitchens. The hygienic nature of such processed food items are under great suspect of food contamination and food poisoning. As most adolescent individuals become independent and more mobile, they eat less meal at home because of their activities outside the homes. Adolescents tend to share more food with peers, learn more of the new food preferences and discard old food habit (Olumakaiye, *et al.*, 2010). Therefore adolescent may represent a hope of opportunity in which to prepare nutritional diets for healthy adult life.

Materials and methods

The study was conducted in two selected secondary schools consisting of a private (Isanbi Model School) and a public (Ilishan High School) secondary schools in Ilishan, Ogun State. These secondary schools were chosen based on their higher student enrollment figures.

Sampling size determination

The population of the adolescent secondary schools respondents was selected using a convenient sampling method which is a non-probability procedure. The study was also a purpose research design in that the study was primarily focused on the adolescent group of the population. The formula below was adopted to determine the sample size.

$$\text{Sample size } (n) = \frac{Z^2 PQ}{(e)^2}$$

Where n = sample size required
 Z = level of confidence or probability where the true percentage is within the chosen value d (1.96)
 P = Prevalence of malnutrition among under five in Ogun State. (22.8%) of NDHS, (2013)
 Q = $(100 - p)$
 e = is the desired level of precision required for the result ($p < 0.05$) = 5%. (Anyika et al., 2009).

A total population number of (132) adolescent volunteered for sampling their perception and response on the dietary habits and nutritional status associated with the adolescent lifestyle where $n = 66$ per secondary school.

Data collection

A structured questionnaire and anthropometric measurement equipment was the research instrument used in this study. The questionnaire which consisted of three sections that included the demographic characteristics of the adolescent participating in the study followed by the dietary habits and food frequency pattern of the respondents and the Anthropometric indices of BMI of the adolescent.

Anthropometric measurements

The Anthropometric method was a procedure used to assess the nutritional status of adolescent group in relation to their body growth measurement of the height, body weight and body size.

Weight measurement

The body weight of each adolescent was determined using a portable calibrated Bathroom scale in kilograms. This scale was placed on level surface and being always set at zero reading before every measurement was read and recorded to an accuracy of 0.1 (kg) as described by Lohman, et al., (1988).

Height measurement

Height of each respondent was measured using a vertical calibrated standiometer board placed against the vertical wall with a stretchable metric tape rule to the nearest (0.1cm). Measurement was taken with each adolescent bared footed, standing erect with the parallel and heels put together as described by (WHO, 2007) standard references. The Body Mass Index (BMI) index (kg/m^2) was determined by dividing weight (kg) by height (m) square and classified as underweight, normal or overweight and obese following the procedure of (WHO, 2007) standard reference.

Statistical analysis

Data generated was subjected to descriptive statistics of (SPSS) version 17, (2004), analysis and the information was classified under the means, frequency and percent. The Chi-square was employed to show any relationship that may exist between the dietary and food frequency pattern and the anthropometry index of weight for height, height for age and weight for age using the WHO Anthro Plus software.

Results

The demographic characteristics of adolescent secondary school respondent are presented in **Table 1**. The Table classified the information on the adolescent respondent under variables, frequency and percentage. The study showed that the highest number (25%) and (47%) adolescent groups attending Isanbi Model High school (private) and Ilishan High School (public) were within the age bracket of (16-19) years while lower numbers (39%) and (53%) respectively belonged to age bracket (13-15) years. Majority (83%) and (67%) adolescent secondary schools from private and public schools respectively came from monogamy family background while minority ((17%) and (33%) adolescent were from polygamy family background. Also, descending number (43%), (22%), (18%) and (17%) of adolescent that were attending the private secondary school got to school every day by: school bus, trekking, taking public transport and private vehicles, also (9%), (57%), (13%) and (15%)

adolescent group in public secondary school arrived to school daily by: school bus, trekking, public transport and private vehicles respectively. Majority

(95%) and (43%) parents of adolescent groups attending the

Table 1: Demographic characteristics of adolescent secondary school students.

		Isanbi Model High School (Private High School)		Illishan High School (Public High school)	
Items	Variables	Frequency	Percentage	Frequency	Percentage
Age Bracket	10 – 12	24	36	0	0
	13 - 15	26	39	35	53
	16 – 19	16	25	31	47
Sex	Female	28	43	33	50
	Male	38	57	33	50
Religion	Christianity	60	90	51	77
	Islam	6	10	15	23
	Traditional	0	0	0	0
Tribe	Yoruba	48	72	53	80
	Igbo	14	21	10	15
	Hausa	4	7	3	5
Family	Monogamy	55	83	44	67
	Polygamy	11	17	22	33
How do you get to school	School bus	29	43	6	9
	Private car	11	17	10	15
	Public transport	12	18	9	13
	Trekking	14	22	37	57
	Bicycle	0	0	4	6
Housing	Block of flat	46	69	32	48
	Detached bungalow	8	12	5	7
	Semidetached	5	8	7	11
	bungalow	7	11	22	34
	Room apartment				

TABLE 2: Dietary habits of adolescent secondary schools students.

ITEMS	VARIABLES	Isanbi	Model	High	Illishan High School (Public)
		(Private)			
		FREQUEN CY	PERCENTA GE (%)	FREQUEN CY	PERCENTAGE (%)
Source of food	Home made	56	74.7	60	80
	Fast food	13	17.4	5	5.3
	Street food	6	8	10	14.7
Meals intake per day	Twice	14	18.7	3	4
	Three times	45	60	43	57.3
	Four times	0	0	11	14.7
	More than four times	16	21.3	18	24
Breakfast	Cereal	31	41.3	38	50.7
	Legumes	5	6.7	4	5.3
	Grains	39	52	33	44
Lunch	Cereal	41	54.7	3	4
	Legumes	26	34.7	6	8
	Tubers	2	2.7	36	48
	Others	6	8	30	40
Supper	Cereal	9	12	10	13.3
	Legumes	10	13.3	8	10.7
	Tubers	9	12	15	20
	Grains	41	54.7	42	56
	Others	6	8	0	0
Snacks	Meat pie	11	14.7	10	13.3
	Gala	2	2.7	3	4
	Sausage	14	18.7	19	25.3
	Fish pie	27	36	10	13.3
	Pofpof	48	64	33	44.1
Fruits	Apple	13	17.3	3	4
	Orange	22	29.3	19	25.3
	Pineapple	35	46.7	10	13.3
	Water melon	40	53.3	43	57.4

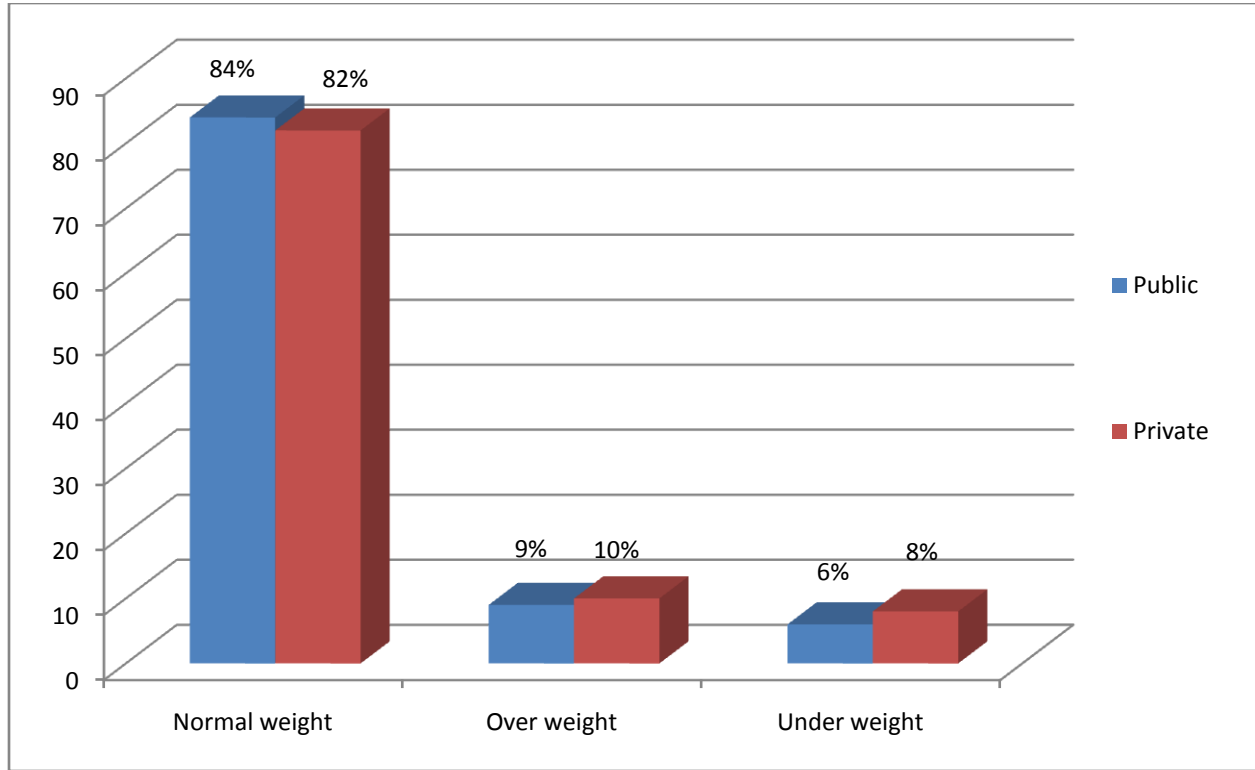


Figure 1. The body mass index (BMI) of adolescent student respondent

private and public secondary schools were highly educated having at least a University degree certificates followed by lower number (2%) and (43%) adolescent whose parents completed high school diploma. Also the study showed in descending numbers (33%), (22%), (18%) and (8%) parents of the adolescent group attending private secondary schools were professional: business men and women, University lecturers, farmers and civil servant by profession. Also, (50%), (6%), (15%) and (9%) parents of adolescent groups attending public secondary school were: business men, University lecturers, full time farmers and civil servant employees by profession.

The dietary practices and food frequency information of adolescent secondary school students are presented in **Table 2**. The Table classified the information under variables, frequency and percentages. Majority (74.7%) and (80.0%) adolescent group in private and public secondary schools respectively preferred to eat at home, while lower number (17.4%) of private high school have developed the taste and the appetite for food from fast food restaurants, compared to lower number (5.3%) adolescent student in public high school that preferred to buy food at fast food restaurants. However, (14.7%) adolescent group from public high school preferred to buy food from street

food vendors. Majority (60%) and (57.3%) adolescent secondary school student from private and public high schools respectively preferred to eat three times per day, while (21.3%) and (24.0%) of adolescent from these high schools preferred to eat more than four times a day.

The study showed that majority (52.0%) and (44.0%) adolescent group of students from the private and public secondary schools respectively preferred grain food base for breakfast cereals while minority (6.7%) and (5.3%) adolescent groups preferred legumes base food formula in their breakfast. This is evidence that adolescent do not like beans/legumes as the main source of food item. Majority (64.0%) and (44.1%) adolescent groups in private and public secondary schools preferred snack food like hot pof-pof followed by (18.7%) and (25.3%) adolescent groups that preferred snack sausages. Adolescent students from private secondary schools (36.0%) and (14.7%) preferred to eat protein added snack food such as the fish pie and meat pie respectively. The study also indicated that many of the adolescent groups do not prefer to eat vegetables as there was no data to support such preference. However, majority (40.0%) and (57.4%) adolescent groups from private and public secondary schools preferred to eat watermelon fruits regularly in their

meals, followed by (46.7%) and (13.3%) adolescent group that preferred to eat pineapple fruits. The study

Figure 1 shows the nutritional status of the secondary school adolescent student that participated in the study. The Anthropometric method is a procedure used to assess the nutritional status of adolescent groups in relation to their human body growth measurement such as the height, weight and size. The study shows that majority (84%) and (82%) of adolescent students of both the Public and Private Secondary Schools respectively had Normal Weight. This is followed by (9%) and (10%) of adolescent groups in both secondary schools that were Overweight while the minority (6%) and (8%) adolescent group were Underweight.

Discussions

The study revealed that majority of adolescent that participated in the study preferred to eat three meals or more per day especially the morning meal (breakfast), mid-day meal (lunch) and the evening meal (dinner). The study indicated that there was no definite pattern of meal skipping habit among them. However, most of the diets consumed by these adolescent groups were carbohydrate dominated. Food commonly consumed were of roots, tubers, grains of cereals especially rice food. These carbohydrate rich foods are to the advantage of the adolescent because such carbohydrate intake increases the yield of abundant glucose which is known to be the main fuel resource of the brain cells. Also it is expected that a carbohydrates rich meal might improve cognitive and learning potentials.

Consistent with the reports of others: (UNICEF, 2012; WHO, 1985; FAO, 1993; Mananga, et al., 2014), sound nutrition is important for the good health of the growing adolescent in order to ensure the optimal, physical, psychological and cognitive development (Ene-Obong and Ekweagwu, (2012). The anthropometric study on nutritional status of the adolescent subject indicated the prevalence that majority of secondary school adolescent had normal weight followed by low prevalence of underweight, overweight. However, the BMI did not show any data on obese group of adolescent.

Conclusions

The study has provided sufficient evidence to show that nutritional needs remain throughout the life cycle. Good nutrition generally can improve the spirit and quality of life of adolescent. It can also speed recovery from illness and prolong life of adulthood. The investigator strongly feels that all educational institutions including secondary schools should routinely organize talks, workshop of different

also showed that (17.3%) adolescent from private nursery school preferred to eat an apple a day.

aspects of foods and nutritional education that will increase the awareness of the adolescent group on nutritional needs for maintaining good health and longevity.

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