DIETARY PATTERN AND NUTRITIONAL STATUS OF ADOLESCENT IN PRIVATE SECONDARY SCHOOLS IN ILARO.

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by

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ABSTRACT

This study investigated the dietary pattern and nutritional status of adolescent in Private Secondary Schools in Ilaro town. The specific objectives are to determine the socio economic characteristics of the adolescents, to assess the dietary pattern and nutritional status of the respondent and to know the relationship between dietary pattern and nutritional status of the adolescents. To achieve these, 200 questionnaires were administered. 4 private secondary schools were randomly selected for the study. Findings revealed that majority of the respondent were within the active age bracket of 10-19 years. The findings also showed that most of the respondent were females (55.5%) and (56.5%) were Muslims. However, findings on dietary pattern revealed that (58.5%) of the respondents do skip breakfast. Also, majority of the respondent eats trice daily. The nutritional test carried out showed that (54%) of the respondent were of normal body weight (18.5-24.9). Moreover, the second test carried out was the Pearson chi-square test which revealed that since the significant value was 0.000 at 5% level of significance, we accept our Hi which implies that there was significant relationship between the dietary pattern and nutritional status of the respondents.

Keywords: Dietary pattern, nutritional Status, Adolescent, Private School.

INTRODUCTION

A healthy diet is a pillar of well-being throughout the lifespan. It promotes the achievement of healthy pregnancy outcomes, support normal growth, development and healthy body weight, reduces chronic diseases risk and promotes overall health and wellbeing. A dietary pattern to

support optimal nutrition and health should be based on biological and medical needs as well as preference of the individual (Rozin et al, 1999).

Dietary pattern as defined by (Birch, 1999) is said to be the quantities, proportion, variety or combination of different foods and beverages in the diet and the frequency in which they are consumed. The nutritional quantity of a dietary pattern can be determined by assessing the nutrient content of the food and beverages and comparing these characteristics to age, sex, specific nutrition requirement and standard for nutrient adequacy.

A nutrition transition has been noticed, characterized by a change from traditional eating patterns to those typical of Western lifestyle. In some cases, a shift from a traditional eating pattern to a more westernized diet has had some undesirable effects on health status (Cruz, 2000). Generally, there is a probability of an individual to change his or her personality, attitude and behavior when introduced to a new environment. Food habit which are shaped by culture, are dynamic and susceptible to changes brought about by migration to a new environment.

Dietary pattern of adolescents and young adults has been studied widely and reported in the literature as being incidental with obesity, frequent snacking and meal skipping particularly breakfast (Isa & Masuria, 2011). Adolescent may make poor food choices which may affect their nutritional health status at the beginning of secondary school level and throughout their tertiary life. This has been studied and confirmed by previous studies (Cruz ,2000, Soriano, Molto & Manes 2000; Papadaki & Scot, 2002; Isa & Masuria 2011). Health as defined by World Health Organization (WHO, 1948) is said to be a state of complete physical, social and mental well-being and not just the absence of disease or infirmities. WHO definition of health has received criticism Jadad AR and O'Grady L, (2008). Most criticisms center on the word “complete”, which many believe to be absolute, and difficult to measure. Furthermore, questions arise over whether it is even possible for a person to be without any physical, mental or social challenges. This is why several authors suggest redefining health as: “a satisfactory and acceptable state of physical (biological), mental (intellectual), emotional (psychological), economic (financial), and social (societal) wellbeing Oleribes, et al (2018).

Nutrition is a salient means through which the indicators for good health can be achieved. This is because proper nutrition promotes a good nutritional status thus satisfies the requirement for good physical health.

According to Williams and Schlenker (2008), for one to have a very good or optimum nutritional status, one must be both food and nutrition secured, however most people are on borderline nutrition because security is difficult to achieve. Individual's nutritional status depends on the interaction between food that is eaten, the overall state of health and the physical environment (WHO, 2001).

During adolescence, there is high influence of nutrition deficiencies and poor eating habit which exposes them to many risk factors leading to the development of chronic diseases such as diabetes, osteoporosis, hypertension, heart diseases, chronic kidney failure, cancer, ulcer, overweight and obesity and many others. (Lopez et al, 2006).

According to the Institute of Public Health Nutrition, (2004), they describe the nutritional status as the condition of the body in those aspect influenced by the diet, the level of nutrients in the body and the ability of that level to maintain normal metabolic integrity.

The nutritional status of adolescence is particularly important, because it is through women and their offspring's that the attery effect of malnutrition are propagated to future generation. Proper food and good nutrition are essential for survival, physical growth, mental development, performance and productivity, health and wellbeing of adolescents.

There are various ways of assessing nutritional status and this include anthropometric measurement, biochemical assessment method, clinical assessment method and dietary recall. General adequacy is assessed by measuring weight and height, the result is commonly expressed as the Body Mass Index (BMI) which is define as the of weight in (kilogram) divided by height in (m^2).

BMI is calculated as**:**

$$\frac{\text{Body weight (in kilograms)}}{\text{Height}^2 \text{ (in meter square)}}$$

Adolescence is a period of rapid growth and maturation in human development. The nutritional status of adolescents contributes significantly to the nutritional status of the community. It is only recently that efforts, although small, have been made to include adolescents as beneficiaries in some of the health and nutritional intervention programs. WHO,(2005).

Adolescents comprises of 20% of the global population. They are a nutritionally vulnerable age group because of their increased nutritional needs, eating patterns, lifestyles and susceptibility to environmental influences. Therefore, healthy eating habits play an important role in growth and development during adolescence.

It has been observed that individuals who developed healthy eating habit earlier in life are more likely to maintain them into adulthood, and to have a reduced risk of developing chronic diseases. WHO, (2003). Thus, it is necessary to promote and encourage a healthy eating pattern in adolescence by providing information on nutrition and their eating habits. This is very important in order to identity the risky and unhealthy behavior among the age group

Energy needs of adolescent are influenced by activity level, basal metabolic rate and increased requirements to support pubertal growth and development. Adolescent males have higher caloric requirement (4000Kcal or more per day) since they experience greater increase in height, weight, and lean body mass than females. Carbohydrate-rich foods, such as fruit, vegetables, whole grains, and legumes are also the main source of dietary fiber. Dietary recommendations suggest that 50% or more of total daily calories should come from carbohydrate. Ten foods that contribute the most carbohydrate to the diets of adolescents include (in descending order) yeast bread, soft bread, soft drinks, milk, ready-to-eat cereal, and foods such as cakes, cookies, quick breads, donuts, sugars, syrups, and jams.

Protein needs of adolescents are influenced by the amount of protein required for maintenance of existing lean body mass during the adolescent growth spurt. When protein intakes are consistently inadequate, reductions in linear growth, delays in sexual maturation and reduced accumulation of lean body mass may be seen (DRIs, 2002/2005)

As described by Sumatti, et al, (2015) Fats are an essential part of our body, the vital organs (brain, heart, liver) are protected by fats and other lipids. The human body requires dietary fat and essential fatty acids for normal growth and development.

Major sources of total and saturated fat intakes among adolescents include milk, beef, cheese, margarine, and foods such as cakes, cookies, donuts, and ice cream (DRIs, 2002/2005)

Calcium needs during adolescence are greater than they are in either childhood or adulthood because of the dramatic increase in skeletal growth. About 45% of peak bone mass is attained during adolescence, adequate calcium intake is important for the development of dense bone mass and the reduction of the lifetime risk of fractures and osteoporosis. Iron need increases in adolescent due to onset of menstruation in female. Insufficient amount of iron in female can leads to anemia. Other nutrients are also required in greater quantities during adolescent than in childhood**.**

Secondary school life is a challenging period especially for students who have to leave their familiar surroundings and settle in a new environment (boarding). The unfamiliar environment may have

impact on their personality, attitude and behavior especially on their food choices which is influencing their nutritional status. Secondly, dietary pattern of adolescent has been widely studied and reported in the literature as being associated with obesity, frequent snacking and meal skipping. Students may make poor choices which may affect their nutritional status as they begin their secondary school studies and thus may continue throughout their secondary school life (Isa & Masuri, 2011).

Lastly, less attention is paid to adolescent as it is assumed that they can take care of themselves and what is being eaten is predetermined by the peer influence, school environment including what is available to them in the school premises, so for these reasons there is dual burden of under nutrition and over nutrition in the age group and high probability of chronic, non-communicable disease such as obesity, diabetes, etc. (Birch, 1991). Data on dietary pattern of adolescent is scarce in Africa, especially Nigeria as a result, this study is designed to look into private Secondary School adolescent´s awareness of food choices, eating pattern and how they influence their nutritional health.

The specific objectives of this study are to determine the socio-economic characteristics of the adolescent, to assess the dietary pattern of the adolescent in private secondary schools, to assess the nutritional status of the adolescent in private secondary schools, and to know the relationship between dietary pattern and nutritional status of the adolescent in private secondary school in Ilaro town.

AREA OF THE STUDY

This study was carried out in four (4) private secondary schools in Ilaro town, Ogun state.

MATERIALS

The materials used to carry-out the research project include;

Height-O-Meter for measuring height.

Weighing scale for measuring weight.

Questionnaire was used to determine the knowledge of the respondent in relation to their dietary intake and nutritional status.

METHOD OF DATA COLLECTION

The data collection methods employed was the well-structured questionnaire to determine the nutritional status and dietary pattern of the respondents.

NUTRITIONAL STATUS ASSESSMENT METHODS

This was done at the anthropometric assessment section of the questionnaire which included assessment of the participants' nutritional status using weight, height, sex and age as the variables. For their weight, each participant stood on a mechanical analogue weight scale, after it has been zeroed and had removed his or her foot wear and other heavy object on the body so as not to add to their weight. It was then recorded to the nearest 0.1 kg. The scale was carefully handled and periodically calibrated by placing a pre-weighted object on it as a standard to ascertain accuracy.

Their height was also measured using a height-o-meter. Each participant stood vertically against the wall on which the height-o-meter has been attached barefooted and asked look straight ahead after which the measurement read and recorded to the nearest 0.1cm.

To avoid variability in data collection, the measurement was repeated twice.

The Body Mass Index (BMI) was then calculated from the figures using the formula;

BMI is calculated as**:**

$$\frac{\text{Body weight (in kilograms)}}{\text{Height}^2 \text{ (in meter square)}}$$

It was then compared to the international standard to assess if their body weights conform to their age.

SAMPLE SIZE AND SAMPLING METHOD

Random sampling method was used to select 50% private secondary schools for the study. The completed questionnaires were serially coded and the final analysis was tabulated. It was analyzed using Microsoft excel software package and SPSS (Statistical Package for Social Sciences) programmed version 16, in which the chi-square was selectively used.

DATA ANALYSIS

The completed questionnaire were serially coded and the final analysis was tabulate.it was analyzed using Microsoft excel software package and SPSS (statistical package for social sciences) programmed version 16, in which the chi-square was selectively used

Table1: Socio Economic Characteristic of Respondents

Age(years)	Frequency	Percentage	Cumulative %
10-14	122	61.0	61.0
15-19	78	39.0	100.0
Total	200	100.0	
Gender			
Male	89	44.5	44.5
Female	111	55.5	55.5
Total	200	100.0	
Religion			
Christianity	86	43.0	43.0
Islamic	112	56.0	99.0
Others	2	1.0	100.0
Total	200	100.0	
Family type			
Monogamous	168	84.0	84.0
Polygamous	32	16.0	100.0
Total	200	100.0	
Class			
Junior	117	58.5	58.5
Senior	83	41.5	100.0
Total	200	100.0	
Daily Allowances Money			
50-100	109	54.5	54.5
100-150	42	21.0	75.5
150-200	27	13.5	89.0

Above	22	11.0	100.0
Total	200	100.0	100.0

Table 2: Table of Dietary pattern of Respondents

Do You Skip Breakfast When Coming To School?	Frequency	Percentage	Cumulative %
Yes	117	58.5	58.5
No	83	41.5	100.0
Total	200	100.0	
Does having late breakfast affect your lunch?			
Yes	72	36.0	36.0
No	128	64.0	100.0
Total	200	100.0	
Where do you get your lunch?			
Cafeteria	29	14.5	14.5
Home	171	85.5	100.0
Total	200	100.0	
Do you eat balanced diet daily?			

Yes	163	81.5	81.5
No	37	18.5	100
Total	200	100.0	
How often do you take fruit?			
Everyday	100	50.0	s50.0
Once a week	39	19.5	69.5
Twice a week	53	26.5	96.0
Monthly	8	4.0	100.0
Total	200	100.0	
How often do you take snacks?			
Once a Day	105	52.5	52.5
Twice a Day	53	26.5	79.0
More than that	39	19.5	98.5
None	3	1.5	100.0
Total	200	100.0	
How often do you take milk, cheese, margarine, yoghurt and ice cream?			
Everyday	85	42.5	42.5
Once a week	50	25.0	67.5
Twice a week	48	24.0	91.5
Monthly	17	8.5	100.0
Total	200	100.0	

Table 3: Nutritional Status of Respondents

Inferences of Nutritional Status (Kg)	**Frequency**	**Percent**	**Cumulative %**
Underweight <18.5	87	43.5	43.5
Normal Weight = 18.5-24.9	108	54.0	97.5
Overweight > 25	5	2.5	100.0
Total	200	100.0	

Table4: Cross Tabulation of Nutritional Status and Dietary Pattern

			RESPONSE		Total
			YES	NO	
NUTRITIONAL STATUS*DIETARY PATTERN	DO YOU SKIP BREAKFAST WHEN COMING TO SCHOOL	CountT	117	83	200
		Expected Count	115.6	84.4	200.0
	DOES HAVING LATE BREAKFAST AFFECT YOUR LUNCH	Count	72	128	200
		Expected Count	115.6	84.4	200.0
	DO YOU EAT A BALANCE DIET DAILY	Count	163	37	200
		Expected Count	115.6	84.4	200.0
	DO YOU EATBETWEEN MEALS	Count	135	65	200
		Expected Count	115.6	84.4	200.0
	DOES SNACKING AFFECT YOUR NEXT MEAL	Count	42	158	200
		Expected Count	115.6	84.4	200.0
	DO YOU ENGAGE IN SOME PHYSICAL ACTIVITIES?	Count	184	16	200
		Expected Count	115.6	84.4	200.0
	DO YOU PREFER EATING THE SAME FOOD WITH YOUR FRIEND FOR LUNCH?	Count	110	90	200
		Expected Count	115.6	84.4	200.0
	DO YOU EAT LESS BECAUSE YOU ARE AFRAID OF GAINING WEIGHT?	Count	76	124	200
		Expected Count	115.6	84.4	200.0
	DO YOU THINK ADOLESCENTS SHOULD EATT VARIETIES OF FOODS	Count	141	59	200
		Expected Count	115.6	84.4	200.0
Total		Count	1040	760	1800
		Expected Count	1040.0	760.0	1800.0

Table 5: Table of Hypothesis

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	345.689[a]	8	.000
Likelihood Ratio	374.391	8	.000
Linear-by-Linear Association	.888	1	.346
N of Valid Cases	1800		

a. 0 cells (0.0%) have expected count less than 5.
The minimum expected count is 84.44

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.438	.000
	Cramer's V	.438	.000
N of Valid Cases		1800	

a. Not assuming the null hypothesis.
b. Using the asymptotic standard error assuming the null hypothesis.

Since the P=0.000, hence at 5% level of significance we reject our null hypothesis and accept the alternate hypothesis that there is a significant relationship between 'Dietary Pattern' and 'Nutritional Status'. Since there are 0.0% cells that have expected count less than five, then this assumption has not been violated and the minimum expected count is 84.44%

The contingency coefficient shows that nutritional status has a small to moderate effect on dietary pattern and it is significant.

DISCUSSSION

Results of the socio-demographic characteristics of the respondent's shows that most (61%) of the respondents falls within the age range of 10-14years while 39% falls within the age range of 15-19years. The result also shows that 44.5% of the respondents are males while 55.5% are females. Moreover, 84% of the respondents are from a monogamous family while 16% are from a polygamous family. However, 54% of the respondents received between ₦50 - ₦100, 21% received between ₦100 - ₦150, 13% received between ₦150 - ₦200 while 11% received above ₦200 for their daily allowance respectively.

The result of dietary pattern section shows that 58% of the respondents' skip breakfast due to time, this is consistent with the earlier report of Samuelson, (2000) which stated that adolescents aged 13-18years indicated that their meal patterns were irregular. The results also revealed that majority of the respondents eats thrice daily which gives credence to a study conducted by Olumaikaiye et al (2010) stating that the association between nutritional status of adolescents and food consumption pattern showed that more than half of the participants ate thrice daily. The result also shows that 14.5% of the respondents get their lunch from the cafeteria, which is consistent with the report of Soriano et al (2000), cafeteria system and availability of junk foods may compromise the diet of adolescents while 85.5% gets their lunch from home; this is related to the earlier report of Cupisti et al (2012), who stated that most meals were eating at home and parents determined what is to be eaten each time. Moreover, 81.5% of the respondents have a balanced diet daily. However, majority of the respondents takes milk, cheese, margarine, yoghurt, and ice-cream etc. every day and according to the CFNI data Subar et al (2004), they stated that the ten sources of energy among teens were milk, bread, cake/doughnut, soft-drinks, cheese, beef, cereal, chips, sugar and chicken. This result also shows that majority of the respondents take snacks every day, this is consistent with the opinion of Isa & Masuri (2011), Richard.S & Catherine.D (1996), which reported that frequent snacking was common among adolescents. The results also revealed that snacking rates were high with three quarter of the participants consuming snack thrice or more times per day.

The result of the nutritional status section shows that most 54% of the respondents have normal weight. This is in agreement with the opinion of Margret Kessel *et al* (2002) which stated that healthy weight is the preferred term to use for weight recommendations. Moreover, 83% of the students indicated that they knew about nutritional education and majority of them gets their knowledge from schools, this is consistent with Allen et al (2003), which stated that school can be a key part of helping adolescents become healthy adults. 92% of the respondent engage in physical activities and 8% do not. According to Cupisti, et al (2012) sedentary lifestyles may be implicated for the prevalence of risk of becoming overweight. According to Janssen et al (2004), many of the adolescents spent less of their time in doing physical activities but rather spent lot of time in watching television as well as playing video games. "Dietary pattern is said to be the quantities, proportion, variety or combination of different foods and beverages in the diet and the frequency in which they are consumed".

The second test carried out was the pearson chi-square test which shows that since the significance value is 0.000 at 5% level of significance, it implies that there is significant relationship between the dietary pattern and nutritional status of the adolescents.

CONCLUSION AND RECOMMENDATIONS

Based on the findings of this research, it can be concluded that the dietary pattern of the adolescents had an influence on their nutritional status as more than half of the respondents have normal body weight. Consumption of fatty foods, junks and ice cream tends to have an influence on those who are overweight and those at risk of becoming overweight.

RECOMMENDATIONS

This study recommends as follows:

1. Parents should encourage their wards to eat healthy snacks or fruits rather than eating fatty foods and junks.
2. The Ministry of Health should carry out Educative Programs for parent on the needs for good nutrition in adolescence and also encouraged variability in diet and consumption of animal protein since parent have major influences on food choice.

3. Adolescent should have access to information and services relating to nutrition and general health.
4. All students should be encouraged to take part in physical education classes which involves all students in physical activities at least once a week.

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