

Full Length Research Paper

Determinants of nutritional behaviour of secondary school students in Akwa Ibom State, Nigeria

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The researchers' purpose in the study was to assess the determinants of nutritional behaviour of secondary schools students in Akwa Ibom State, using a descriptive survey design. Five research questions and three null hypotheses were verified in the study. The determinants of nutritional behaviour (DNB)" questionnaire was used to collect data from a multi-stage simple random sample of 450 drawn from the 1320 Senior Secondary II students in the State. Percentage analysis of data revealed a high positive score of 69.2% on knowledge of nutritional values, and a high positive score of 61.5% on the nutritional behaviour of students. Findings from Chi-square analysis revealed that knowledge of nutrition, family income and gender had significant influence of the nutritional behaviour of secondary school students in the state. Based on the findings, it was recommended that planned and consistent nutrition education should be undertaken to sustain and improve the level of knowledge and nutritional behaviour of students. Also, government should formulate policies that will improve on the social and economic status of people, while intensifying the poverty reduction programmes at the various levels.

Key words: Students nutritional determinants, knowledge, behaviour, values.

INTRODUCTION

Individuals in different sectors of the population devise and adopt ways or pattern of eating. These adherence and practices of feeding may be referred to as nutritional pattern. Ekpenyong (1998) referred to such adherence as nutritional behaviour. According to him, nutritional behaviour refers to food consumption habit, choice or selection or the adopted pattern of eating by different groups of people in the community. In this study, therefore, nutritional behaviour refers to choice or proclivity and actual food consumption practice of students in secondary schools in Akwa Ibom State. Meeting the nutritional requirements for growth and development at this rapid growth spurt, demands adequate quantity and quality intake of food by secondary school students the world over. Good nutrition involves eating the right combination of a variety of nutrients in their proper quantity. A number of factors,

however, influence what an individual eats or not and such factors determine nutritional habit, behaviour, or practices of people. Okafor (1997) submitted that determinants of nutritional practices are those factors or variables responsible for adoption of the nature of food consumed. Such variables, in his view include sex, family income, environmental conditions, religious affiliation, availability of food items, knowledge of food value and cultural significance, among others. Similarly, Ekpenyong opined that food intake depends on the nutritional needs of an individual and that this varies with age, growth rate, amount of work done, state and knowledge of nutrition, and state of health.

Evidence is replete in literature to attest that the school plays a vital role in shaping behaviour through a life span (WHO, 1997). Thus, students with good nutritional habits manifest socially, mentally, and physically alert personality. Surprisingly, Ekeh (1996) and Ekpenyong (1998) seem to suggest that students in secondary schools neither possess adequate knowledge of nutritional values nor practise good nutritional behaviour. As a result, such students manifest poor health

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development, poor eye sight, skin blemishes, and reduced appetite, among others. It is expected that knowledge of nutritional values should enable students to know the type of foods they need to consume each day to obtain essential nutrients their body needs for proper functioning. Furthermore, the nature of food produced, processed and distributed is changing rapidly owing to the scientific revolution in agriculture and technology. If these changes must produce good results, sound knowledge of the principles of nutrition is required. Burma (1991) noted that students, like everyone else, need sound and practical knowledge that can direct their food choices to ensure sound nutrition. This implies that knowledge acquired through nutrition education should help children especially secondary school students to examine their food intake and establish judicious eating habits.

Surprisingly, Ekeh (1996), the World Health Organization (WHO; 1997) and Ekpenyong (1998) asserted that the high level of malnutrition among students in Nigerian schools is attributable to poor nutritional knowledge and habit and other factors which substantially influence pattern of food consumption. Samuel (2001) also pointed out that children, especially secondary school students, have many health and nutritional problems resulting from many factors including lack of knowledge and their age characteristics. Since schools provide nutrition education, it is expected that students should possess necessary nutritional knowledge for their maximum benefits and life-long application. Besides, nutrition education in schools is capable of exerting significant influence on knowledge of nutritional values and acceptance of healthful nutritional habits. For instance, experts tend to show that students with good nutritional habit manifest alertness and zeal towards various activities in school, and perform academically better than poorly-fed children (Okafor, 1997; WHO, 1997).

Regrettably, Nwana (1996) reported that knowledge about nutrition and health-related matters was low among secondary school students in Enugu State. This situation is worrisome. In view of the socio-cultural similarities of Enugu State with the area of study it is possible that a similar trend may occur. Based on this premise, the researchers were challenged to investigate the determinants of nutritional behaviour in secondary schools in Akwa Ibom State, Nigeria, as a prelude to determining baseline data for nutrition intervention programmes in the State. In order to provide direction for the investigation, the following specific objectives were posited, namely to:

- (i) determine the level of knowledge of nutritional values among secondary school students in Akwa Ibom State;
- (ii) determine nutritional behaviour of secondary school students in Akwa Ibom State;
- (iii) determine the relationship between the knowledge of nutritional values and nutritional behaviour among

secondary school students in Akwa Ibom State;

(iv) assess the influence of family income on nutritional behaviour of secondary school students in Akwa Ibom State and

(v) ascertain the influence of gender on nutritional behaviour of secondary school students in Akwa Ibom State.

RESEARCH METHOD

The descriptive survey design was used for the study. This was considered suitable since data was required in their natural distribution in the population. According to Akpabio and Ebong (2009) this design is relevant when the researcher is required to undertake a systematic collection, analysis, and presentation of data to give account of the characteristics of particular individuals, groups, or the state of events without the manipulation of data as applicable in experimental studies. A similar design was successfully used to assess the reasons for non-use of HIV/AIDS screening services in Akwa Ibom State (Akpabio and Ikrok, 2007). This design was, therefore, considered relevant for the study.

Population for the study

The population comprised 1,320 Senior Secondary II (SSII) students in public secondary schools in the Akwa Ibom State (Akwa Ibom State Ministry of Education, 2009). This comprised both male and female students from government secondary schools in the area.

Sample and sampling technique

A multi-stage simple random sample of 450 students was drawn from 1320 SSII students in public secondary schools in Akwa Ibom State Nigeria. This comprised 34% of the population and was considered adequate for the study (Udoh and Joseph, 2003). First, a ballot sample of five schools was drawn from the three Senatorial Districts of the State, namely; Ikot Ekpene, Uyo and Eket. Thereafter, 150 students from each of the schools were drawn through basket and paper balloting. The first 30 students whose names were picked from the basket in each of the classes were listed for the study. However, only 420 copies of the questionnaire retrieved were found treatable. Therefore, the analysis for this study was based on the 420 participants.

Instrument for data collection

A 42-items questionnaire, entitled "Determinants of Nutritional Behaviour (DNB)" was developed by the researcher, and used for data collection in the study. It was designed in two sections: Section A, which comprised indices for gathering demographic data; while Section B was organised for eliciting information based on the objectives of the study on Agreed and Disagreed non-weighted responses.

Validation of the instrument

The face and content validity was ascertained by the judgement of five experts, two each in health education, measurement and evaluation, and one in nutrition from the University of Uyo. Based on the majority opinion of the experts, an item was considered suitable for inclusion in the instrument.

Table 1. Percentage analysis of knowledge of nutritional values (n = 420).

S/N	Items	Correct (%)	In-correct (%)
1	Nutrient is an important substance needed by the body for growth.	100.0	0.0
2	The six types of nutrients needed by the body are protein, carbohydrate, fat and oil, minerals and vitamins.	66.9	33.1
3	Protein builds up the body and replaces worn out tissues.	72.4	17.6
4	Sources of protein include meat, beans, fish, eggs, snails, milk, and soya beans.	97.9	2.1
5	Plant proteins are not necessary source of protein.	33.4	67.6
6	The end product of protein is amino acid.	36.7	63.3
7	Protein is the necessary substance for body growth in children.	82.9	17.1
8	Rice, cassava, yam, maize, cocoa yam, millet, and wheat are energy giving food items.	24.5	75.5
9	Digestion of starchy foods results in glucose.	84.5	15.5
10	Energy giving foods help in performing activities requiring weight.	71.2	26.8
11	Fatty foods help to regulate body temperature.	90.0	10.0
12	Protective foods are minerals and vitamins.	23.3	76.7
13	Protective foods are useful for body growth.	68.8	31.2
14	Protective foods are also needed for body building and bones.	92.4	7.6
15	Protective foods are fruits, sea foods, calcium, iron, salts and vegetables.	92.4	7.6
16	Water is a necessary nutrient.	100.0	0.0
17	Water helps in easy food digestion.	100.0	0.0
18	Water prevents indigestion.	60.0	40.0
19	Good nutrition involves eating a variety of food in the right proportion.	63.8	36.2

$$\bar{X} = \frac{\sum X}{19} = 69.2, \quad \bar{X} = \frac{\sum X}{19} = 30.8$$

Reliability of the instrument

The reliability of the instrument was established with data from 30 students with a similar background who did not participate in the study. Using a split-half data the reliability co-efficient of 0.74 was obtained by Kuder Richardson Formula 21 statistic. The reliability index was considered adequate and suitable for data collection in the study.

Method of data collection

With the consent of the principals of each of the schools drawn, as well as the respondents themselves, the researchers personally administered copies of the questionnaire to the respondents with the assistance of three duly trained research assistants. Copies of the questionnaire were retrieved upon administration to ensure quick and high return rate.

Method of data analysis

Descriptive statistics (percentages) and t-test were used for data analysis. The null hypotheses were tested at .05 alpha levels. To categorize the score as low, moderate or high, a modified Ashur (1977) principle was used, thus: below 40% - low, 41 to 60% - moderate, and 61% and above - high.

RESULTS

The data in Table 1 shows variations in the responses of

students on their level of knowledge of nutritional values with respect to the individual items. A mean score of 69.2% was recorded for correct responses, while 30.8% was recorded for incorrect responses. The findings indicate that students were generally knowledgeable in view of very high positive scores recorded for most items in the list of variables.

The data in Table 3 revealed that the calculated t-value ($t_{cal} = 3.51$) was greater than the table value ($t_{cri} = 1.96$) at 419 df and .05 alpha level; the null hypothesis is therefore rejected. Thus, knowledge of nutritional value has statistically significant influence on nutritional behaviour of students. The data in Table 4 shows the χ -square analysis of influence of family income on students' nutritional habit. Since the computed χ -value (7.3) is greater than the χ_{cri} (5.99), the null hypothesis was rejected. This implies that family income has significant influence on nutritional habit of the students. Moreover, the data in Table 5 shows the χ -square analysis of influence of gender on nutritional behaviour with a higher calculated value of 53.46 and χ -critical of 3.84. Thus, the null hypothesis was rejected, meaning that gender has a statistically significant influence on nutritional behaviour. The findings obtained could be summarised thus:

(1) As shown in Table 1, most of the respondents had a high level of knowledge of nutritional values as indicated by the high positive (correct) scores on most parameters

Table 2. percentage analysis of nutritional behaviour of secondary school students.

S/N	Items	Responses (%)	
		Agree	Disagree
1	I do take snacks even if I have taken enough foods	36.7	36.3
2	I prefer to be late to school than to forgo my breakfast everyday	32.4	67.6
3	I eat once a day to check weight	23.3	76.7
4	I prefer light foods thrice a day provided it is balanced	72.4	27.6
5	I eat between meals in addition to snacks	95.2	4.8
6	When food is given in school, I do not eat much because I want to read	71.2	28.8
7	I do not eat late in the evening to ensure adequate digestion before morning	68.8	31.2
8	I eat a lot of fruits before meal in the morning in order to have appetite	66.9	33.1
9	I prefer heavy meal in the morning	91.4	8.6
10	I prefer natural food substances to artificial foods especially tin foods	97.9	2.1
11	I prefer heavy food after school not minding the food nutrients	82.9	17.1
12	When I am given enough money, I eat everything that is available	90.0	10.0
13	I eat heavy meals two times a day instead of taking three meals	47.4	52.6
14	I take only available foods so long as I cannot mind the nutritional value	63.8	36.2
15	I prefer white soup to vegetable soup	59.2	40.4
16	Instead of eating diets containing vitamins and minerals, I depend on mineral and vitamins supplements	23.3	76.7
17	My parents do not like taking fruits and I behave same by avoiding fruits	17.1	82.9
18	I drink soft drinks instead of taking enough water after meal	66.9	33.1

$$\bar{x} = \frac{\sum x}{19} = 61.5; \quad \bar{y} = \frac{\sum y}{19} = 38.5$$

Table 3. t-Test analysis of influence of knowledge of nutritional value on nutritional behaviour (n = 420).

Variable	\bar{X}	SD	t_{cal}	t_{cri}
Knowledge of nutritional value	61.8	7.6		
Nutritional behaviour	63.4	9.6	3.5*	1.96

P < .05, df = 419, * = Significant

Table 4. X-Square analysis of the influence of family income on nutritional behaviour.

Family monthly income	Responses		Total	r^2
	Agreed	Disagreed		
₦10,000.00 – ₦30,000.00	194 (187.1)	68 (74.8)	262	7.3*
₦31,000.00 – ₦50,000.00	46 (88.6)	46 (35.4)	124	
₦51,000.00 and above	28 (24.3)	6 (9.7)	34	

*significant; P ≤ .05; $\chi_{cri} = 5.99$, and 2 df. Figures in parentheses are expected frequencies.

used to assess knowledge of nutritional values. A mean score of 69.2% was recorded for correct responses, while 30.8% was recorded for incorrect responses.

(2) Knowledge of nutritional value has statistically significant influence on nutritional behaviour of students.

The data in Table 3 revealed that the calculated t-value ($t_{cal} = 3.51$) was greater than the table value ($t_{cri} = 1.96$) at 419 df and .05 alpha level. Thus, the null hypothesis was rejected.

(3) Family income has a significant influence on students'

Table 5. χ^2 -Square analysis of the influence of gender on nutritional behaviour.

Variables	Responses		Total	X
	Agreed	Disagreed		
Male	136 (167.3)	79 (47.6)	215	53.46*
Female	191 (159.6)	14 (45.4)	206	
Total	327	93	420	

nutritional habit. This is shown in Table 4 that the calculated χ -value (7.3) was greater than the χ_{cri} value (5.99); the null hypothesis was thus rejected.

(4) The data in Table 5 showed a higher calculated χ -square value of 53.46 than the critical value of 3.84 at .05 alpha levels on the influence on gender and students' nutritional behaviour. This implies that there was a statistically significant influence of gender on nutritional behaviour. Consequently, the null hypothesis was rejected.

DISCUSSION

Findings in Table 1 on knowledge of nutritional values revealed some variations in the responses on knowledge of food values. For instance, all the respondents accepted that nutrition is needed for growth and that water is needed for digestion. Also, 97.9% identified correctly the major sources of protein, while 92.4% indicated correctly too that protective foods are needed for development of bones. Only 24.5% were able to indicate correctly the sources of energy giving foods. Also, 90.0% accepted that fatty foods help in regulating body heat, while 66.9% could identify the sources of nutrients needed for normal body functioning.

An average score of 69.19% was recorded generally for all the correct responses on knowledge. This tends to suggest that more than half of the respondents had a substantial level of knowledge with respect to food values. This score is an indicator for successes in nutrition education in the area. The score was slightly higher than the result (54.2%) of Waterlow (1998) on determining students' nutritional knowledge in Karba Local Government Area of Kogi State, Nigeria. The findings indicated that students were generally knowledgeable in view of very high scores recorded for most items in the list of variables. This, however, does not becloud the need for intensive nutrition education in schools as well as in the community considering the fact that only SSII students were involved in the study. It is possible that students in lower classes may not record similar findings. Intensive health education is still indicative in view of Ikorok (2001b) assertion of strong relationship between nutritional knowledge and nutrition education in all cultures.

Similarly, the data in Table 2 predictably showed a

corresponding high positive response with respect to nutritional behaviour. The findings indicated that on the average, 61.5% of the respondents exercised appropriate nutritional behaviour for health promotion. Further findings showed that students' knowledge of nutritional values has a statistically significant influence on their nutritional behaviour ($t_{\text{cal}} = 3.51$, $t_{\text{cri}} = 1.96$ at 419 df and 0.05 alpha level). These findings were in congruence with the findings of Okoro (1991) in the study to determine nutritional knowledge and practice of women in Owerri Urban. The result also corroborates findings of a similar study by Ikorok and Udodata (2005) on child care practices of mothers in Akwa Ibom State. Based on the results of these findings, it could be inferred that there is hope for successes and sustainability of nutrition education programmes in the area.

However, these findings contrast that of Rita (2000) which aimed at determining mother's nutritional knowledge in India, whereby only 10% of mothers could identify correctly the age to introduce weaning diet to the babies. The findings are also in line with that of Ikorok and Ekpenyong (2005) in their study on child nutritional practices of nursing mothers in Akwa Ibom State. It is possible that the increase knowledge of students in this study is as a result of the use of a formally planned educational curriculum for programmed instruction within the formal setting of the school environment. It is, therefore, necessary that health educators should endeavour to consciously plan their instructional programmes. These again suggest that use of a planned and consistent programme of instruction for health education is effective and should be adopted for community-wide nutrition education programmes.

The result in Table 4 that family income has influence on nutritional behaviour was not a surprise due to several experts' assertion on such relationship. Okoro (1991) and Ekpenyong (1998) in their studies indicated that family knowledge and income level determine food choices, quantity and quality of food consumed. The implication is that level income in turn influences children food choices and eating pattern even in school. Since almost all of the schools selected were day schools, the students depended essentially on whatever was available to them in the family. Further findings in Table 5 on gender and nutritional behaviour produced similar responses. Female students indicated more positive nutritional behaviour than their male counterparts. This result may have been

influenced by the availability of females in this culture with respect to food production and processing activities as assigned by their gender role.

The inference from findings of this study also corroborates findings of similar studies (Ikorok, 2001; Ikorok and Udondata, 2005) that social and cultural factors exert much influence on behaviour. These factors, therefore, should be considered in all health education interventions. Inference from findings could be used further to validate the global trends towards the paradigm shift from concentration on the medical model in health promotion to the more inclusive approach that also considers social indicators as paramount determinants of health, injury, and disability (WHO, 2000). The shift also assures reduction in health inequalities by targeting changing determinants of health in contemporary society. This implies that health care interventions should address economic and social behavioural indicators. In the United Kingdom, for instance, the Acheson Review highlighted the importance of socio-economic determinants of health inequalities and identified a range of social and welfare policies to promote the well-being of the population. Food consumption pattern is a cultural phenomenon; therefore, nutrition education and similar health interventions in our communities should be based on culturally-oriented processes if significant changes are anticipated.

CONCLUSION AND RECOMMENDATION

Findings of the study revealed the followings:

- (i) A high positive average score of 69.2%, indicating that students possessed high knowledge of nutritional values.
- (ii) A high positive average score of 61.5%, indicating that respondents exercised appropriate nutritional behaviour for health promotion in Akwa Ibom State.
- (iii) That knowledge of nutritional values has a statistically significant influence on nutritional behaviour of secondary school students in Akwa Ibom State ($t_{cal} = 3.51$ $t_{cri} = 1.96$ at 419 df and 0.05 alpha level).
- (iv) Also, family income has a statistically significant influence on nutritional behaviour of students (calculated χ -value = 7.3, χ_{cri} , value = 5.99).
- (v) Finally, gender had a significant influence of nutrition behaviour of secondary school students in the state (calculated χ -square value = 53.46, critical χ -square value = 3.84 at .05 alpha levels).

Based on the findings, it was recommended that planned and consistent programme of instruction for nutrition education should be undertaken to sustain and improve the level of knowledge and nutrition behaviour of students in the state. Also, nutritional behaviour being a cultural phenomenon implies that interventions to improve nutritional behaviour of people should adopt culturally-oriented approaches for sustainability. Finally, in view of the economic determinants of nutritional

behaviour, government should formulate policies that will improve the social and economic status of people, while intensifying the poverty reduction programmes at the various levels.

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