

Assessment of Knowledge, Attitude and Practices of Consumers Related to Health and Diet Issues in Igbo Etiti Local Government Area, Enugu State, Nigeria

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Abstract:-

Background: Consumer knowledge, attitude, and practice could determine their nutrition and health status.

Objectives: This work determined the consumer knowledge, attitude, and practices related to health and diet issues in Igbo-Etiti Local Government Area, Enugu State Nigeria.

Materials and Methods: Simple random sampling technique was used to select 400 respondents from the study area. Data on demographic and socio-economic characteristics, knowledge, attitude, and practices of consumers towards health and diet issues was obtained with a structured questionnaire and analyzed with IBM statistical product for service solution (version 21.0) using descriptive (frequency and percentages) and inferential (Chi-square) statistics.

Results: There were more (57.5%) males than females (42.5%). The common (43.3%) age range was 15 to 30 years, mostly (46.6%) unmarried. They were mainly Christians (73.9%), with a major family size of 1-3 (46.6%) persons. Most (76.0%) of them were of Igbo ethnicity, with farming (39%) and artisan (22.8%) as common occupations. Forty-four percent had secondary education, 42.3% earns between ₦20,000-40000 monthly. A good percentage had a fair knowledge (53.8%) and attitude (48.5%) on health and diet issues. Seventy-three percent heard about dietary supplements through radio/television (45.8%), with 52.0% usage. Many (69.5%) check expiry dates of food items before purchase, 5.3% use nutrition facts to purchase food products. Reasons for the non-use of the nutritional information on food labels were lack of knowledge (41%), ignorant of use (46.5%), and inability to view the tiny inscriptions (37.5%). Many (43.2%) of the respondents were regular buyers of low-fat/fat-free foods. Some (44.5%) were on a low sodium diet. Nutrition knowledge was significantly ($P=0.02$) associated with the purchase of low-fat foods, and positively related to the identification of sodium inscription on food products ($p = 0.04$).

Conclusion: Respondents have a fair knowledge and attitude towards diet and health issues, but utilization of nutrition information on food labels was low.

Keywords:- Consumer, awareness, attitude, practices, health, diet issues.

I. INTRODUCTION

Diet-related chronic diseases, such as obesity, diabetes, cardiovascular disease, cancer, and osteoporosis, constitute a huge burden to the health and economy of nations around the world (Christina, 2015). Recent years have seen tremendous growth in scientific knowledge of the relationship between diet and health (Joanne *et al.*, 2009). This increase in knowledge has informed dietary recommendations to promote health and longevity and has sparked national campaigns to educate people on more healthful eating habits (Joanne *et al.*, 2009). Recent trends in food demand confirm a radical transformation in the concept of diet; in addition to nutritional and sensory properties, diet plays an important role in the maintenance of health, psycho-physical well-being, and prevention of many diseases. Today, foods are not intended to only satisfy hunger and to provide necessary nutrients for humans but also to prevent nutrition-related diseases and improve the physical and mental well-being of the consumers (Roberfroid, 2002; Menrad, 2003). Studies have tried to estimate the value of health for individuals under different conceptualizations. Sparks *et al.* (2001) refer to the 'health-conscious self-identity as the extent to which health is an important component of a person's self-concept. Other authors measure health concerns to capture individuals' concerns about food (diet) and health-related issues or use health interests to evaluate the value of health for a person (Bower, 2003). The importance of health concerns can be interpreted as a consequence of several factors not just related to socio-demographic changes which occurred in society over recent years, but also to the important progress made in terms of scientific knowledge about the interactions between diet and health (Annunziata and Pascale, 2009). On the one hand, the increase in life expectancy augmented the occurrence of diseases correlated to incorrect dietary habits, including chronic diseases such as osteoporosis, cancer, cardiovascular diseases, hypertension, and diabetes that are linked to significant increases in sanitary costs, which have made health an increasingly important buying motivation in food choices (Aschemann, 2008). Moreover, several scientific studies have demonstrated the link between diet and health about chronic diseases, and have encouraged the development of a growing spectrum of products such as Nutraceuticals, Medifoods, and Vitafoods (Annunziata and

Pascale, 2009). It follows that the attention of consumers towards healthy eating is no longer exclusively focused on the reduction or elimination of substances that are considered negative, but tends to move towards attributes that characterize the product in positive terms, such as freshness and naturalness, shifting demand towards products with a strong healthy image, as confirmed by market research conducted at international level (Nielsen, 2008; 2007). Currently, the healthy foods and drinks market is excelling, in terms of innovation and market penetration. This trend is fully confirmed when referred to the Italian market, where demand for health products grew to the highest growth rate in terms of purchase volumes within five years - 2002/06, (ISMEA, 2007). Different researchers conclude that a better understanding of consumers' awareness and perception of healthy foods and their determinants are key success factors for market orientation and development and for successfully negotiating market opportunities (Geeromset *al.*, 2008).

At present, the rapid increase in overweight and obesity rates is posing an enormous health crisis globally. Diet-related illnesses are rising, in Nigeria 20.3% to 35.1% are overweight and the prevalence of obesity ranged from 8.1% to 22.2% (Innocent *et al.*, 2013). Additionally, costs for treating these illnesses have skyrocketed (Frazao, 2006). Consequently, there is a need to promote healthier diets and lifestyles, although most times, consumers often believe their diets are healthier than they are. Consequently, for nutritional intervention programs to be effective, it is pertinent to ascertain the consumer's level of awareness and attitudes of the links between food consumption, diet, and health-related issues. At this point, the following objectives will be answered by this paper (1). determine personal

information (sector, gender, age, education, ethnicity, household size, and income) of the study population (2) ascertain the respondent's awareness on health and diet issues. (3) evaluate the attitudes of respondents towards health and diet issues. (4) determine the respondents' health and diet practices. (5) examine the extent of the use of dietary supplements by the respondents. (6) determine the use and impact of food labels. (7) determine the relationship or influence of knowledge on the practice of the respondents.

II. METHODOLOGY

- **Study design:** Cross-sectional survey research design was employed for the study.
- **Area of study:** The study was conducted in Igbo-Etiti, a Local Government Area in Enugu State, South-Eastern Nigeria. Its landmass is 325 km² and has a population of 209,248 persons National Population Commission (2006). It has thirteen (13) communities which includes; Ukehe, Umunko, Diogbe, Ekwegbe, Umuna, Ozalla, Ohodo, Onyohor, Ochima, Ikolo, Aku, Idume, Ohebedim.



Fig. 1: Map of Enugu State showing Igbo Etiti LGA.

- **The population of study:** The population for the study comprised 440 consumers who were 18 years and above in every household of the four (4) selected communities in Igbo-Etiti Local Government Area (LGA).

- **Sample size determination:** Sample size was obtained with the formula: $n = N/1+N(e)^2$

where sample size n = sample size, N = population size, e = level of precision at 5% = 0.05

$$= \frac{209248}{1+209248(0.05)^2} = \frac{209248}{209249(0.05)^2} = \frac{209248}{209249(0.0025)} = \frac{209248}{523} = 400$$

- **Sampling procedure:** Sampling was done in multiple stages. Firstly, four communities were selected from the 13 communities in Igbo-Etiti LGA using simple random sampling. The sample size (400) was distributed equally among the four selected communities; 100 respondents were selected from each selected community using simple random sampling without replacement. Finally, was the questionnaire was administered to the selected respondents by the interviewer.

- **Data collection:** A structured questionnaire was used to elicit information on the personal data, knowledge, attitude, and practices of the respondents towards diet and health-related issues. Face validation of the questionnaire was performed by three lecturers in the Human Nutrition and Dietetics Department, Michael Okpara University of Agriculture Umudike, and the consistency was pretested with 20 respondents in Umudike, Ikwano LGA Abia state. A reliability coefficient of 0.82 was obtained for the instrument using Cronbach’s Alpha measure of consistency.

- **Statistical Analysis:** Descriptive and inferential statistics using IBM Statistical Package for Service Solution (21.0) were employed for the data analysis. The descriptive tool (frequencies and percentages) categorized consumers’ knowledge, attitude, and practice, and the inferential statistics (chi-square), tested the relationship between consumers’ knowledge and utilization of diet and health issues.

III. RESULTS

A. Personal characteristics of respondents

Table 1 shows the personal characteristics of the respondents. There were more (57.5%) male than female respondents (42.5%), mainly (43.3%) between 15 to 30 years and mostly (46.6%) single. The majority (73.9%) were Christians, and of Igbo ethnicity (76.0%). The common (46.6%) family size was 1-3 persons, with more farmers (39%) and artisans (22.8%). A good percentage (44%) had secondary education, with a common (42.3%) monthly income of ₦20,000 – 40,000 monthly.

Parameters	Frequency (%)n=400	Parameters	Frequency (%)n=400
Sex		Ethnicity	
Male	230 (57.5)	Igbo	304 (76.0)
Female	170 (42.5)	Hausa	67 (16.8)
Age		Yoruba	29 (7.3)
15-30	173 (43.3)	Occupation	
>30 – 45	151 (37.8)	Farmer	156 (39.0)
>45 – 60	98 (24.5)	Trader	69 (17.3)
>60	38 (9.5)	Civil servant	84 (21.2)
Marital status		Artisan	151 (22.8)
Single	184 (46.0)	Education status	
Married	178 (44.6)	none formal	104 (26.0)
Divorced	26 (6.5)	Primary	67 (16.8)
Widowed	12 (3.0)	Secondary	176 (44.0)
Religion		Tertiary	52 (13.0)
Christian	296 (73.9)	Income (₦)	
Tradition	65 (16.3)	Less than 20,000	127 (31.6)
Muslim	39 (9.8)	>20,000 – 40,000	169 (42.3)
Family size		>40,000 - 60,000	71 (17.8)
1-3	186 (46.6)	>60,000	33 (8.3)
4-6	102 (25.5)		
7-9	72 (18.0)		
≥10	40 (10.1)		

Table 1: Personal characteristics of respondents

B. Respondents’ knowledge of nutrition

The respondents’ nutrition knowledge scores (Table 2) show that 51.5% revealed that fat is the main source of calories in peanut butter, 32.8% claimed that olive oil is very healthy and extra intake would not result in weight gain. Some (18.3%) knew that fat should be eliminated from the diet, 31.0% claimed that exercise caused a rise in blood

cholesterol level, and 46.2% associated all types of cholesterol with clogging of the arteries. Up to 22.0% claimed that protein cannot be gotten from plants and animals sources, 48.5% and 47.0% know that excess vitamin C is eliminated in the urine, and vitamin D can be gotten from the sun respectively. Many (42.5% and 59.5%) of the respondents believed that excessive iron and calcium intake

causes tissue damage especially the liver, and urinary tract stones respectively; while up to 20.5% had no answer to no sodium diet. The respondents’ knowledge scores were 31.0%

poor, 53.8% fair, and 15.2% good.

Parameters	Frequency n=400	(%)	Parameters	Frequency n=400	(%)
Peanut butter calories mainly from			Vitamin(s) from animal sources		
Fat	206	(51.5)	retinol	116	(29.0)
Protein	124	(31.0)	vitamin B ₁₂	169	(42.2)
Carbohydrate	70	(17.5)	riboflavin	71	(17.8)
three types of fat	169	(42.3)	all of the above	44	(11.0)
Olive oil is healthy	131	(32.8)	Excessive iron intake		
reduce fat intake	73	(18.3)	Toxic and difficult to excrete	127	(31.8)
All of the above	26	(6.6)	Tissue damage	170	(42.5)
Exercise increases HDL cholesterol	124	(31.0)	infection	59	(14.8)
All cholesterol clogs arteries	185	(46.2)	A and B	34	(8.5)
None of the above	91	(22.8)	All of the above	6	(1.5)
Complex carbohydrates should be avoided	170	(42.5)	None of the above	4	(1.1)
exchanged with protein	111	(27.8)	Excessive calcium intake		
The major source of food consumed	119	(29.7)	causes urinary tract stones	238	(59.5)
protein cannot be gotten from plants and animals	88	(22.0)	Is better	162	(40.5)
The more protein the better	194	(48.5)	No sodium diet		
Proteins help athletes build more muscle	100	(25.0)	Adds flavor to most foods	113	(28.3)
none of the above	18	(4.6)	Causes dehydration	106	(26.5)
Excess vitamin C is			Causes muscles cramps	99	(24.8)
Used by the body	109	(27.3)	No answer	82	(20.5)
Eliminated in the urine	194	(48.5)	Overall knowledge score		
Stored in the liver	97	(24.2)	Poor (<40)	124	(31.0)
Vitamins from sun			Fair (40-59)	215	(53.8)
None	119	(29.8)	Good (60-100)	61	(15.2)
Vitamin D	188	(47.0)			
Vitamin D and K	54	(13.5)			
All the vitamins	39	(9.8)			

Table 2: Respondents’ knowledge of Nutrition

IV. RESPONDENTS’ ATTITUDE TOWARDS HEALTH AND DIET ISSUES

Table 3 shows that 43.3% of the respondents had strong confidence in their ability to select healthy foods, 41.8% rated their health status as very good, and 45% believed that adults and children can develop hypertension. More than half (54.5%) of the respondents did not purchase low sodium foods, 55.0% were very concerned about the amount of sodium consumed, while 56.3% agreed that

incorporating fruits and vegetables increases nutrient density. Most (60.8%) of the respondents affirmed that an adequate diet contains six classes of food in the right proportion, 50.2% and 41.3% affirmed that healthy food consumption nourishes the body, and adequate diet maintains health respectively. Up to 39.3% strongly agreed that protein repairs worn-out tissue. Overall grades showed 16.0% poor, 48.5% fair, 35.5% good attitudes towards health and diet issues.

Parameters	Frequency (%) n=400	Parameters	Frequency (%) n=400
Can select healthy food		fruits and vegetables make for a healthy diet	
strongly agreed	173 (43.3)	Agree	225(56.3)
somewhat agreed	145 (36.3)	Strongly agree	129(32.3)
somewhat disagreed	52 (13.0)	Disagree	40(10.0)
strongly disagreed	16 (4.0)	Strongly disagree	6(1.5)
No knowledge	14 (3.5)	An adequate diet contains six classes of food in the right proportion	
Health status rating		True	243(60.8)
Excellent	148 (37.0)	False	157(39.3)
very good	167 (41.8)	Healthy food consumption nourishes the body	
Good	67 (16.8)	Yes	201(50.3)
Fair	9 (2.3)	No	117(29.3)
Poor	3 (0.8)	I don't know	82(20.5)
No knowledge	6 (1.5)	An adequate diet maintains health	
Everyone can be hypertensive		Yes	165(41.3)
Yes	182 (45.5)	No	129(32.3)
No	155 (38.8)	I don't know	106(26.5)
I don't know	63 (15.8)	Protein repairs worn-out tissues	
Purchase of reduced-sodium or low salt foods		Agree	143(35.8)
Yes	182 (45.5)	Strongly agree	157(39.3)
No	218 (54.5)	Disagree	70(17.5)
Concerned about the amount of sodium consumed		strongly disagree	29(7.3)
very concerned	220 (55.0)	Overall attitude score	
somewhat concerned	147 (36.8)	Poor (<40)	64 (16.0)
somewhat unconcerned	32 (8.0)	Fair (40 – 59)	194 (48.5)
		Good (60 - 100)	142 (35.5)

Table 3: Respondents Attitude Towards Health and Diet Issues

A. Respondents awareness, use of dietary supplements, and nutrition facts on food labels

Table 4 shows the respondent's awareness, use of supplements, and nutrition facts on food labels. Seventy-three percent of the respondents heard about dietary supplements, through radio/television(45.8%);while 69.5% check expiry dates of food items before purchase. A significant percent (35.3%) rarely used food label facts, 41.0%,and 5.1% find it difficult to use and understand food label facts respectively. More (46.5%) respondents found it hard to read and understand nutrition facts on food labels,

37.5% had challenges with the tiny font size used, 40.0% believed that food labels correctly described most of their constituents, 45% had never consulted a diet expert,and49.0% were not on a reduced-calorie diet. Many (44.3%)had never seen an advert on fat-freeor low fats,46.3% were not regular buyers of low-fat/fat-free foods, and 44.5% were on a low sodium diet.Some (47.0%) of the respondents had been advised to reduce their sodium intake, and 53.2% had seen products with low-sodium inscription in stores and adverts.

Parameters	Frequency (%) n=400	Parameters	Frequency (%) n=400
Heard of dietary supplements		correctly describe the constituents	
Yes	292 (73.0)	All of them	139 (34.8)
No	108 (27.0)	Most of them	160 (40.0)
Source of information		some of them	71 (17.7)
No response	108 (27.0)	none of them	18 (4.5)
radio/television	183 (45.8)	No knowledge	12 (3.0)
newspaper /magazine/posters/handbills	36 (9.0)	Reduced-calorie or weight-loss diet	
friends/relatives	31 (7.8)	Yes	156 (39.0)
hospitals/clinics	21 (5.3)	No	196 (49.0)
nutrition education program	21 (5.3)	No knowledge	48 (12.0)
Used dietary supplement		Recommended to reduce calorie	

Yes	208 (52.0)	Yes	160 (40.1)
No	192 (48.0)	No	205 (45.0)
Vitamins and minerals are dietary supplements		No knowledge	36 (11.5)
Yes	227 (51.8)	Adverts onfat-free/low fats	
No	173 (33.8)	Yes	175 (42.3)
Use of expiry dates of food items before purchase		No	177 (44.3)
Yes	278 (69.5)	No knowledge	48 (12.0)
No	122 (30.5)	Regular on low fat/fat-free foods	
Use of nutritional facts when purchasing food		Yes	173 (43.2)
Never	129 (32.3)	No	185 (46.3)
Rarely	141 (35.3)	No knowledge	42 (10.5)
Sometimes	75 (18.5)	Reduction of salt intake	
Often	34 (8.5)	Yes	178 (44.5)
Always	21 (5.3)	No	163 (40.7)
A Personal opinion on the use of food facts on labels		No knowledge	59 (14.8)
No time	137 (34.3)	Advised to reduce sodium intake	
Difficult to use and understand	164 (41.0)	Yes	188 (47.0)
No need for it	68 (5.1)	No	152 (38.0)
No knowledge	33 (8.3)	No knowledge	60 (15.0)
Challenges with using nutritional facts		Seen products with “low sodium” inscription	
The print is very tiny	150 (37.5)	Yes	213 (53.2)
it is hard to read and understand	186 (46.5)	No	122 (30.5)
No knowledge	64 (16.0)	No knowledge	65 (16.3)

Table 4: Respondents’ awareness, use of dietary supplements, and nutrition information on food labels

V. RESPONDENTS NUTRIENT INCLUSION AND RESTRICTION PRACTICES

Table 5 shows the respondents’ nutrient inclusion and restriction practices. A good proportion (56.2%, 54.3%, 53.1%, 49.4%, 47.4%) of the respondents had tried to limit saturated fats, calories, sugar, carbohydrate, and sodium in their diet respectively. More than half (54.1%) had attempted to increase calcium in their diet while 51.7%, 53.8%, 50.1%, 38.7%, and 39.1% of the respondents had attempted to increase iron, Vitamin C, Vitamin A, potassium, and fiber in their diets respectively.

Parameters	Yes	No	Don’t know	Refused
	Frequency (%)	Frequency (%)	Frequency (%)	Frequency (%) n=400
Reduce intake				
Saturated fats	224 (56.2)	109 (27.3)	55 (13.8)	12 (3.0)
Calories	217 (54.3)	106 (26.5)	55 (13.8)	22 (5.5)
Sugar	213 (53.1)	125 (31.3)	53 (13.3)	9 (2.3)
Carbohydrate	197 (49.4)	122 (30.5)	62 (15.5)	19 (4.8)
Sodium	190 (47.4)	114 (28.5)	73 (18.3)	24 (6.0)
Increase intake				
Calcium	214 (54.1)	114 (28.5)	51 (12.8)	19 (4.8)
Iron	206 (51.7)	115 (28.8)	64 (16.0)	15 (3.8)
Vitamin A	180 (50.1)	120 (30.0)	57 (14.3)	23 (6.0)
Vitamin C	217 (53.8)	104 (26.0)	62 (15.5)	21 (5.3)
Potassium	155 (38.7)	113 (28.3)	101 (25.3)	31 (7.8)
Fiber	160 (39.1)	81 (20.3)	100 (25.0)	59 (14.8)

Table 5: Respondents nutrient inclusion and restriction practices

Association of respondents’ knowledge and use of nutrition information on food labels

Table 6 showed the relationship between respondents’ knowledge of health and diet issues and their practices/food facts use. Respondents’ knowledge was significantly associated with the purchase of low-fat/fat-free foods ($r = 0.04$; $p = 0.02$). Knowledge of diet and health issues was significantly correlated with identification/observation of low sodium inscription on food products ($r = 0.005$; $P = 0.04$).

Parameters	Knowledge	
	R	p-value
Use nutritional facts when purchasing food	0.03	0.07
Challenges with using nutritional facts	-0.43	0.11
Food labels correctly describe the constituents	0.08	0.54
Recommended to reduce calorie/ weight diet	-0.01	0.6
Adverts on fat-free or low fats	0.09	0.09
Regular purchase of low fat/fat-free foods	0.04	0.02
The current practice of salt intake reduction	0.06	0.7
Advised to reduced sodium intake	0.02	0.31
Seen products with “low sodium” inscription	0.005	0.04

Table 6: Relationship between respondents' knowledge and use of nutrition information on food labels

VI. DISCUSSION

This study's gender ratio validates the reports that women constitute 49.5% and men 50.5% of the nation's adult population (National Bureau of Statistics NBS, 2015). The higher proportion of single respondents was because they were mostly early youth and is in line with Onyeme's (2004) report that married life is meant for mature people. The majority of Christians and Igbo ethnicity found in this study is a reflection of the study location - South-Eastern Nigeria, dominated by the Christian religion and the Igbo tribe. The common family size (1 – 3 persons) was because they were mostly young adults (15 to 30years) in their early married life. Family size is a vital element for the quality of life. A small family can easily meet their needs as opined by Norris (2002) that smaller families have a bigger share of the available resources and, the large family has a smaller share. The main education status of the respondents could be explained by the location of the study, rural areas where most residents usually do not have resources for higher education. The level of education can affect the ability to manage resources efficiently. Berkman (2001) reported an association of educational and income status. Their main income status (₦20,000 – 40,000) was also related to their low education status. Adults with higher education have greater access to resources that can be used to maintain healthy life (Darmon and Drewnowski, 2008).

Scagliusi *et al.* (2006) listed awareness of health and diet issues among the steps that alter nutrition and health behavior. The study respondents' fair knowledge is in line with Triches and Giugliani (2005) which explained that individual nutrition knowledge may favor consumption of healthy food and promote changes in food habits. However, it has been shown that an individual's nutrition and health knowledge may not influence the choice of healthy foods (Wardle and Parmenter, 2000).

The study respondents' fair attitude towards health and diet issues could be related to their perception and experiences, although Azizi *et al.* (2009) reported a substantial difference between knowledge and practice. Therefore, it is not surprising that dietary supplement is well known amongst the respondents given their abundance in most pharmaceutical companies, patent drug vendors, and advocacy by health care practitioners for the vulnerable to meet daily requirements. The level of utilization of supplements could also be a reflection of the widespread

wrong public insight that natural products and dietary supplements are better than conventional pharmaceuticals as reported (Harris, 2000; Ernest, 1998). This study's dietary supplement utilization is similar to the findings from NHANES 2003–2006 and Multiethnic Cohort Study which found 54 % and 58% overall supplement usage (Bailey *et al.*, 2011). Although the majority might be oblivious of the long-term harmful effects of indiscriminate use of dietary supplements. The inspection of the expiry date of food products by the majority of the respondents could be attributed to the widespread sensitization and campaign by the drug and food agencies against the consumption of expired products. The low and infrequent use of food facts on labels by the study respondents is at variance with the 18% Europeans, 44% Portuguese, 86% Italians, and 27% UK shoppers that were regular users of food information on products (Nielsen, 2005; Grunert *et al.* 2010). This indicates an urgent need to improve the use of nutrition facts on products among consumers. The main reason for the reduced tendency to read and use food labels was the small font size on food labels (Grunert *et al.*, 2010; Nielsen, 2005). One possible explanation for the observed assumption that food label reflects all or most of the food constituents is the effective role of regulatory agencies in Nigeria such as NAFDAC and SON in ensuring that food products are subjected to standard checks. Contrary to the belief of most respondents, Bruce (2015) observed that most (70%) packaged foods contain unidentified added sugar. This is because nutrition labeling requires a list of total sugar not specific sugar on labels. Several studies found that individuals on a special diet tend to be more conscious and interested in utilizing food facts on labels due to its significant association with lower fat and salt intake (De Magistris, 2010; Helfer and Shultz, 2014). This explained the trend of respondents that are concerned with no or low fat and sodium inscriptions of food labels. The percentage of the respondents reducing intakes of fats, calories, sugar, carbohydrates, and sodium; and increasing consumption of calcium iron, potassium, fibre, vitamin A and C indicates that some respondents are aware of what constitutes a healthy diet. The association between nutrition knowledge and purchase of low/free fat products, and identification of sodium inscription on food labels could prompt positive health-seeking behavior.

VII. CONCLUSION

The observed low socio-economic characteristic of the respondents may have contributed to the fair knowledge and attitude towards health and diet issues. These factors further had a bearing on the poor utilization of food label facts. The respondents were mainly concerned about the health claims of fat and sodium content as well as expiry dates. The majority of the respondents consumed dietary supplements. A commendable dietary approach that involved fat, calorie, sodium, and sugar restriction, as well as the inclusion of key nutrients, was also practiced. Respondents' knowledge of diet and health issues had an effect on the purchase of low-fat food as well as in the identification of sodium inscription on food products use of nutrition facts on food labels was poor.

REFERENCES

- [1.] Christina W, The Prevalence and Consumer Attitudes and Understanding of Nutrient Content and Disease Risk Reduction Claims: Evaluating the Implementation of Nutrition-related Claims on Foods in Canada. A thesis submitted in conformity with the requirements for the degree of Doctor of Philosophy. University of Toronto 2015.
- [2.] Joanne FG, Brenda MD, Alan SL. What People Know and Do Not Know About Nutrition. *Public Law*;2009; 101-535.
- [3.] Roberfroid MB, Global view on functional foods: European perspectives. *British Journal of Nutrition*.2002; 88: S133–S138.
- [4.] Menrad K. Market and marketing of functional food in Europe. *Journal of Food Engineering*.2003; 56: 181–188.
- [5.] Sparks P, Guthrie CA. Self-Identity and the Theory of Planned Behavior: A Useful Addition or an Unhelpful Artifice? *J. Applied Social Psychology*. 2006; 28 (15): 1393 - 1410
- [6.] Bower JA, Saadat MA, Whitten C. Effect of liking, information, and consumers' characteristics on purchase intention and willingness to pay more for a fat spread with a proven health benefit. *Food Quality and Preference*.2003; 14: 16–74.
- [7.] Sun YHC. Health concern, food choice motives, and attitudes toward healthy eating: the mediating role of food choice motives.*Appetite*. 2008;10:1016/j.appet.2007
- [8.] Annunziata A, Pascale P. Consumers' behaviors and attitudes toward healthy food products: The case of Organic and Functional foods. Paper for presentation at the 113th EAAE Seminar "A resilient European food industry and food chain in a challenging world", Chania, Crete, Greece, 2009; September 3 - 6.
- [9.] Aschemann J,Hamm U. Determinants of Choice Regarding Food with Nutrition and Health Claims. 12th Congress of the European Association of Agricultural Economists – EAAE Ghent, Belgium 2008; August 26 -29
- [10.] Nielsen AC. What's Hot Around the Globe: Food and Beverage Macro-trends, evoluzionedeglistilidivita, comportament id' acquistodeiprodottialimentarinelmondo. 2008.
- [11.] Nielsen, A.C. 2007. What's Hot Around the Globe – Insights on Growth in Food & Beverage Products. http://pt.nielsen.com/documents/tr_08_08_WhatsHotAroundtheGlobeBeverages.pdf
- [12.] ISMEA. Gliacquistialimentari in Italia: tendenzerecenti e nuoviprofili di consumo. Report Consumer. Food purchases in Italy: recent trends and new profiles of consumption 2007
- [13.] Geeroms N, VerConsumerbeke W, Van Kenhove P. Consumers' health-related motive orientations and ready meal consumption behavior. *Appetite*, 2008; 51: 704-712.
- [14.] Innocent IC, Abali C, Collins J, Kenneth AO, Miracle EI, Samson EI, Okechukwu SO,Efosa O.Prevalence of overweight and obesity in adult Nigerians – a systematic review. *Diabetes Metabolic Syndrome Obesity*. 2013; 6: 43–47.
- [15.] Frazao E,Allshouse JE. Size and Growth of the Nutritionally Improved Foods Market. U.S. Department of Agricultural Economics Resource Service. 1996; AIB-723.
- [16.] National Bureau of Statistics. Statistical Report of Women and Men in Nigeria. 2015; <http://nigerianstat.gov.ng>
- [17.] Onyeme I. Abia Government outlaws Okada. *National Vanguard*. 2009; 17: 59
- [18.] NorrisT. America's Best Kept Secret: The Healthy Communities Movement. (Reprint by Healthy Communities Massachusetts from the National Civic Review, introduction, Spring), Pan American Health Organization. Healthy Municipalities and Communities: Mayors' Guide for Promoting Quality of Life. Washington, DC. 2002;
- [19.] Berkman ND, Sheridan SL, Donahue KE. Low health literacy and health outcomes: An updated systematic review. *Ann Intern Med*. 2011; 155(2):97–107.
- [20.] Darmon N, Drewnowski A.Does social class predict diet quality? *Am. J. Clin.Nutr*.2008; 87:1107–1117
- [21.] Scagliusi FB, Polacow VO, Cordás TA, Coelho D, Alvarenga M, Philippi ST,Lancha-Júnior AH. Tradução, adaptação e avaliaçãopsicométrica da Escala de ConhecimentoNutricional do National Health Interview Survey Cancer Epidemiology. *Rev. Nutr*.2006; 19(4):425–436.
- [22.] Triches RM,Giugliani, ERJ. Relationship between nutrition knowledge and dietary intake. *British JNutr*.2014; 111(10):1713-1726.
- [23.] Wardle J, Parmenter K, Waller J. Nutrition knowledge and Food Intake. *Appetite*. 2000;34(3): 269 - 275
- [24.] Azizi M, Aghae N, Ebrahim M, Ranibar K. Nutrition Knowledge the Attitude and Practices of College Students Physical Education and Sport. 2011; 9(3): 359 - 357
- [25.] Harris IM. Regulatory and ethical issues with dietary supplements. *Pharmacotherapy* 2000; 20: 1295-1302.
- [26.] Ernst E. Harmless herbs? A review of the recent literature. *Am. J. Med*.1998; 104: 170-178. 2
- [27.] Bailey RL, Gahche JJ, Lentino CV, Dwyer JT, Engel JS Thomas PR. Dietary supplement use in the US. *J. Nutr*. 2011; 141(2):261–266.

- [28.] Nielsen AC. Global food labeling survey. 2005.
- [29.] Grunert KG, Wills JM, Fernandez-Celemin L. Nutrition knowledge, and use and understanding of nutrition information on food labels among consumers in the UK. *Appetite*. 2010; 55:177–89.
- [30.] Bruce N. Food health-rating labels failing to reveal added sugars. *George Institute for Global Health* 2015; 51 (3):35
- [31.] De Magistris T, Gracia A, Barreiro-Hurlé J. Effects of the nutritional labels on healthy habits in Spain. *Agric.Econs Czech*. 2010; 256:540-51
- [32.] Helfer P, Shultz TR. The effects of nutrition labeling on consumer food choice: a psychological experiment and computational model. *Ann NY Acad. Sci*. 2014; 1331:174-85.