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THE ROLE OF FUNCTIONAL FOODS AWARENESS IN COMBATING DEGENERATIVE DISEASES IN THE 21ST CENTURY NIGERIA

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Abstract

This paper investigated the role of functional food awareness in combating degenerative diseases for educational development in 21st century Nigeria. The study adopted a descriptive survey design. The population consists of 304 academic staff, 874 non-academic staff, and 5882 students at the College of Education, Agbor. The sample size consisted of 300 respondents, 158 men (53%), and 142 females (476), aged 18–58 years. The stratified random sampling technique was used to select 110 respondents from each of three groups: academic, non-academic, and students of the College of Education, Agbor. The instrument used in this study was a questionnaire titled "Role of Functional Foods Awareness in Combating Degenerative Diseases Questionnaires" (RFFACDQ). The instrument was validated through expert judgement from the Vocational Education Department at Delta State University, Abraka. The reliability of the instrument was established using the Pearson Product Moment Correlation Coefficient (r), and it was found reliable at 0.85. Three hundred and thirty (330) questionnaires were randomly distributed in the College of Education Agbor to academic staff, non-academic staff, and students in the ratio of their populations. Out of the three hundred and thirty questionnaires that were distributed, three hundred were retrieved. The research questions were analysed using percentages, mean ratings, standard deviations, and analysis of variance (ANOVA). The study revealed that the majority of the respondents were not aware of the term "functional foods." On the level of utilisation of functional foods in combating degenerative diseases, the majority of the respondents utilise functional foods but lack knowledge of their benefits in combating

degenerative diseases. The respondents got their information about functional foods from friends, relatives, health professionals, television, textbooks, newspapers, and magazines. The study also revealed that food habits, taste, and price influenced respondents' choices of foods.

Keywords: awareness, combating, degenerative diseases, educational development, functional

Introduction

Basic health education is a necessity because education is one of the indices used in nations around the world. One of the greatest health challenges of the 21st century is the issue of degenerative diseases. Degenerative disease is a disease in which the function or structure of the affected tissues or organs will progressively deteriorate over time, whether due to normal bodily wear or lifestyle choices such as eating habits or exercise (Murphy, Kenneth, & Kochanek, 2004). Degenerative diseases are usually associated with the accumulation of free radicals, especially where the body is unable to constantly neutralise the effects of free radicals. Stuart Hamilton (2004) stated that the accumulation of free radicals in the body is as a result of declining efficiency in the body due to normal body wear or ageing. Stuart-Hamilton also added that an approach to consider in neutralising the accumulation of free radicals resulting from increasing fatty acids in the blood stream is to find methods and supplements to increase oxygen in the blood stream; this will help maintain optimal levels of glucose burned by oxygen and converted to ATP (chemical energy that the body can use). During the first 50 years of the 20th century, scientific focus was on the identification of essential nutrients in the prevention of nutritional deficiency (Onwuzulike, 2000). This emphasis on nutrient deficiencies or "under nutrition" dramatically shifted during the 1970s, when diseases linked to excess or "over nutrition" became a major public health concern. Scientists also began to identify physiologically active components in foods from both plants and animals that could reduce the risk of a variety of chronic diseases. These events, coupled with an ageing health-conscious population, changes in food regulation, and numerous technological advances in the 1990s, led to the formation of the trend known as "functional foods" (Department of Health and Human Services, 2001).

Nutrition education has been defined as the process by which beliefs, attitudes, environmental influence, and understanding about food will lead to practises that are scientifically sound, practically consistent with individual needs, and available food resources (Ngwu & Njoku, 2007). Nutrition education also involves learning the importance of foods and nutrients and their relationship to growth, development, health, and well-being. Its purpose is to initiate behavioural alterations in individuals, groups, and the larger population, moving from behaviours presumed to be conducive to the present and future. According to UNICEF/WHO (2006), Nigeria is among the developing nations that are not nutritionally educated, so they are still threatened by malnutrition and food-related diseases. Ene-Obong (2000) stated that the food that an individual eats goes a long way in influencing the state of health throughout life. Since education promotes change and development, distance education can be applied to health so as to change wrong ideas, beliefs, and practices that prevent good nutrition.

Diet-related diseases are serious problems of public health importance in Nigeria and beyond. Ignorance of the nutritional value of functional foods is widespread (World Health Organization (WHO), 2003), especially in the rapidly growing urban populations. Globally, the problem of infectious diseases has been largely combated, but that of degenerative diseases is now becoming more prevalent in our modern society (McCall & Frei, 2002). In this regard, recent discoveries resulting in the establishment of a positive relationship between diet and health appeared to offer a solution. Skinner (2004) reported that the focus of the world health system is now on the holistic approach. According to Skinner, this approach places greater emphasis on optimising health through proper nutrition and the avoidance of substances that can pollute the body. Ignorance of the benefits of functional foods leads to faulty food selection, preparation, and consumption, which will certainly contribute to the onset of chronic diseases.

Role of Functional Food Awareness in Combating Degenerative Diseases

Many countries have issued dietary guidelines encouraging people to alter their eating habits for healthy living and good health. Dietary guidelines are

sets of advisory statements that give dietary advice to the population in order to promote overall nutritional well-being and address all diet-related disease conditions (Food and Agricultural Organization (FAO)/WHO, 1998). The United States Department of Agriculture (USDA) and the United States Department of Health and Human Services developed dietary guidelines for Americans and a food guide pyramid as an outline for daily food choices based on the dietary guidelines. In 1999, the Federal Ministry of Health (FMH), Nigeria, in collaboration with the WHO, issued food-based dietary guidelines for Nigeria (FMH/WHO, 1999). These guidelines are similar between countries and tend to emphasise adequacy, variety, less fat, more fiber, and more fruits and vegetables (Gibney, Kearney, & Kearney, 1997). Limited success in the adoption of the guidelines by the general public has been reported (Townsend, 2004). There appears to be a sizeable gap between what is currently being achieved in terms of people's eating behaviours and the recommended dietary guidelines. This gap may be partly attributed to a lack of functional food knowledge and dietary guidelines or to determinants of financial status such as the price and availability of healthy foods. Attitudinal variables such as the perceived benefits of and barriers to healthy eating could account for the difference between what people consume and what they are advised to consume.

Food is a major contributor to good

health, and so, during the first 50 years of the 20th century, scientific focus was on the identification of essential nutrients in the prevention of nutritional deficiency diseases. Functional foods are foods that provide health beyond the benefits of nutrients. According to the International Foods of Nutritional Deficiency Beyond Basic Information Council (IFIC) (2002), functional foods are "foods that are similar in appearance to the conventional foods consumed as part of the usual diet with demonstrated physiological benefits and/or to reduce the risk of chronic diseases beyond basic nutritional functions." Functional foods include foods such as tomatoes, red grape, watermelon, paw-paw, garlic, ginger, corn, whole wheat, fish, sea foods, leafy vegetables, cucumber, onion, melon, cabbage, carrot, orange, and walnut. One of the consequences of urbanisation and rural development is the apparent change in lifestyle and dietary habits. The neglect of the traditional "African" foods that provide high levels of dietary fibre in favour of the refined "Western" foods has been implicated

in the rising incidence of chronic diet-related non-communicable diseases such as obesity, diabetes, stroke, hypertension, cancer, liver problems, and coronary heart disease (Schmidhuber & Shetty, 2005). Considerable evidence reveals that phytochemicals are found in edible plant foods such as onions, garlic, and citrus foods. contribute to disease resistance as well as improve performance. Functional foods such as soy and berries have reduced the risk of urinary tract infection when consumed, while tree nuts and fatty fish reduce the risk of coronary heart disease, cardiac death, and fatal or nonfatal myocardial disease. The World Health Organization (2003) stated that functional foods contain antioxidants. These are compounds that protect cells from the damaging effects of free radicals. An example of an antioxidant is iycopene, which is found in red varieties of guava, papaya, and pink tomatoes; and lycopene, which is found in red varieties of watermelon, guava, papaya, pink grapefruits, and tomatoes. Lycopene products, according to the council, have a great impact on lowering the risk of cardiovascular diseases in men and other forms of cancer. Every plant, whether poisonous or not, has some cosmetic or medical use that was well understood before the development of the chemical industry. Herbal teas and syrups were used as remedies for specific complaints such as catarrh, ulcers, fever, skin diseases, cancers, and others. Ukoh, Aviomoh, and Ojo (2004) stated that sweet basil was used to prevent vomiting. They also stated that lemon juice and hops were used for earaches, chestnuts were used for irritating coughs, and cowslip was used to induce sleeplessness. The dissemination of information in nutritional health can best be achieved by creating awareness of the concepts of functional foods and their correlation to the concept of degenerative diseases for healthy living.

Statement of the Problem

Records obtained from the Central Hospital, Agbor, Asaba, and Kwale from 2010 to 2012 revealed that cases of degenerative diseases are on the increase. The hospital records also show an increase in degenerative diseases and mortality rates over the years. Most of the Victims of degenerative diseases prefer treatment through the use of medicine to functional foods. This could be due to a lack of awareness that these degenerative diseases are diet-related diseases. A lot of people make use of herbal treatments, expensive vitamin pills, and food supplements to prevent and treat degenerative diseases, which can ordinarily be taken

care of by adequate utilisation of functional foods. Some Nigerians resort to traditional herbal treatments when faced with the problem of degenerative diseases. The use of herbal treatment, for instance, is very detrimental to their health because often times the herbs used for medication are mixed with illicit gin, which brings about a more serious condition and eventually death. Poor dietary patterns in most communities have been put forward as another major cause of degenerative disease and mortality. A poor dietary pattern is characterised by a high intake of saturated fats, sodium, and refined sugar with a relatively low intake of unsaturated fats, whole grains, legumes, fruits, vegetables, and herbs. Many Nigerians still lack awareness of and utilisation of functional foods. The concept of functional foods is receiving little or no attention among the Nigerian populace, despite the health care campaign by the World Health Organization (WHO) and UNICEF. Most consumers view food merely as a means of satisfying hunger or providing the essential building blocks for the maintenance or repair of body tissue, but it should be viewed as a primary vehicle to transport us along the road to optimal health and wellness. The questions that arise from the foregoing include: are college students aware of the health claims of functional foods as a measure for preventing and controlling degenerative diseases, and how adequate are their meal patterns?

Research Questions

1. What is the level of awareness of the concept of functional foods?
2. What is the level of utilisation of functional foods in combating degenerative diseases?
3. What is the source of information on the use of functional foods and their benefits?
4. What are the factors influencing respondents' choices of functional foods?

Purpose of the Study

The purpose of the study is to investigate the role of awareness of the need for functional food utilisation in combating degenerative disease among College of Education Agbor staff and students. This study specifically investigated:

1. Level of functional food awareness
2. Level of utilisation of functional foods in combating degenerative diseases
3. The sources of information on the utilisation of functional foods and their benefits
4. factors influencing respondents' choices of functional foods.

Methodology

The study adopted a descriptive survey design. The population of this study is academic staff and students. The population of this study was made up of 7060 academic staff, non-academic staff, and students. The population consists of 304 academic staff, 874 non-academic staff, and 5882 students. The sample size of S1ze consisted of 300 respondents, 158 (53%) males and 142 (47%) females, aged 18.5–58 years. The stratified random sampling technique was used to select the ILO respondents used in the study from the college community. The instrument used in this study was a questionnaire titled "Role of Functional Foods Awareness in Combating Degenerative Diseases Questionnaires" (IFFACDDQ). The instrument was validated through expert judgment. The reliability of the instrument was established using the Pearson Product Moment Correlation Coefficient (r), and it was found reliable at 0.85. Three hundred and thirty (330) questionnaires were randomly distributed in the college to academic staff, non-academic staff, and students in the ratio of their populations. Out of the three hundred and thirty questionnaires that were distributed, three hundred were retrieved. Informed consent of the respondents was obtained before questionnaires were given out for completion. A four-point scoring scale of Strongly Agree (4 points), Agree (3 points), Disagree (2 points), and Strongly Disagree (one point) was used to collect data. The research questions were answered using mean ratings and standard deviation, percentage, and the analysis of variance.

Presentation of Results

Responses to functional food awareness questions and the level of utilisation of functional foods in combating degenerative diseases were

analysed based on the modified four-point scale. Frequencies, percentages, means, and standard deviations were used in the calculation. A student t-test was used to compare group means. An analysis of variance (ANOVA) was used to detect differences in means. Their ages ranged from 18 to 56 years, with a mean age of 33.6 + 12.8 years. As many as 49% of the respondents were single, 38% were married, and only 3% were widowed, separated, or divorced. The position of the respondents in the households showed that 26 were fathers, 28% were mothers, and other adults were in the majority (46%). Household sizes are comprised of 5-7 members (43%), 2-4 members (19%), 10 or more members (20%), and 8-9 members (18%). The respondents' lowest educational attainment was secondary education (26%), and the majority (74%) had tertiary education. As many as 42% of the respondents were students, 27% were academic staff, and another 31% were non-academic staff. Income per month varied between N25,000.00 and above N130,000.00. As many as 26% of the respondents earned between N25,000.00 and N130,000.00 per month. Only 4% earned over N200,000.00.

Table 1: Functional food awareness of males and females

S/N	Items	Males	Female	T-value
1	There are biological components in food that have the potential to reduce the risk of chronic diseases, which are known as functional foods	2.81±0.60	2.83±0.65	-0.29
2	Functional foods are foods that can provide health benefit over and above basic nutrition	2.54±0.91	2.86±0.89	-3.01*
3	Functional food are foods that are similar in appearance to the conventional foods consumed as part of the usual diet	1.54±0.88	1.46±0.90	1.07*

4	The lack of awareness of nutritional principles is a likely cause of degenerative diseases.	2.40±0.90	2.18±0.73	-2.29*
5	Functional foods include foods such as fruits and vegetables, herbs and spices, fish and sea foods, foods with high fibre etc	3.36±0.91	3.78±0.73	-4.3*
6	Functional foods contain antioxidants and these are compounds that protect cells from the damaging effects of free radicals	3.87±0.77	3.62±0.65	13.04*
	Overall mean (x)	2.77±0.83	2.78±0.78	-0.21

Out of the four functional food questions posed to the respondents, 18.3% had 4-6 correct responses (good functional food awareness), 45% had 3, and 36.7% had 2 correct responses (poor functional food awareness). Table 1 shows no significant ($p > 0.05$) difference between the overall means of functional food awareness of males (2.77 + 0.83), and females (2.78 + 0.78). On average, respondents answered three questions correctly and missed three others.

TABLE 2: Respondent's level of utilization of functional foods in combating degenerative diseases

S/N	Items	Males	Female	S	F-value
1	My financial status is one of the causes for my not utilizing functional foods	3.48±0.65	3.35±0.78	3.23±0.96	2.40*
2	My dependence on low meat, low fat and starchy foods is a good strategy for preventing degenerative diseases	3.78±0.49	3.56±0.61	3.51±6.76	5.02*
3	Garlic and ginger have been widely recognized	3.22±0.64	3.39±0.57	3.05±0.96	5.24*

	as an agent for the prevention of cardiovascular and other metabolic diseases				
4	The use of high quality foods without medication can control and lower the risk of degenerative diseases among adults	3.00±0.91	3.06±0.90	3.17±0.95	0.91
5	My age is a barrier to my not utilizing functional food	2.62±0.98	2.37±0.79	2.54±1.06	1.60
6	Constant consumption of confectionaries (sweets, cakes, sugars) is a likely cause my experiencing degenerative diseases	3.39±0.82	3.25±0.79	2.28±0.89	0.71
7	Adulthood is the most could deprive adults of adequate nutrition, which eventually result in degenerative diseases	2.43±0.88	2.57±0.96	2.22±0.99	3.75*
8	My utilizing whole grain breakfast diet is associated with my low risk of heart failure	3.35±0.87	3.39±0.72	3.16±0.80	2.42

Key: S = Student

As Academic Staff

* = Significant (p<0.05)

Respondents were asked to rate their level of utilisation of functional foods in combating degenerative diseases. The data indicated that 14.7% out of 300 responses rated the quality of their diet as "good" or "excellent," and 53.4% rated their diet as "fair." The rest (32.9%) rated the quality as poor or very poor.

The responses to the items indicated more females than males selected less fatty foods (46.7% vs. 42.3%), more vegetables (61.3% vs. 39%), variety and balance, and fresh, natural foods (63% vs. 33%) are characteristics of healthy eating. Analysis of variance should reveal significant differences in the level of utilisation of functional foods among academic staff, non-academic staff, and students. Students' utilisation of functional foods in combating degenerative diseases was statistically ($p < 0.05$) lower than that for academic and non-academic staff. The academic staff saw becoming fit (physical fitness) as a higher benefit than others. Non-academic staff scored lives longer than others.

Table 3: Respondent source of information on functional food

Items	Frequency	Percentage (%)
Friends/relations	93	31.0
Health professional	62	20.7
Television	45	15.0
Textbooks	38	12.7
Radio	24	8.0
Newspaper	18	6.0
Lecture note	12	4.3
Magazines	5	1.7
ADA agents (Extension workers)	3	0.6
Total	300	100

Table 3 shows that 31.0% of the respondents got their information on healthy eating from friends and relations. Others got information from health professionals (20.7%), textbooks (12.7%), television (15.0%), Newspaper (6.0), lecture note (4.3), magazine (1.7%) and ADP (Extension) agents (0.6%)

Factors	Frequency	Percentage (%)
Food habit	62	20.7
Price of food (cost)	51	17.0
Taste of food	46	15.3
Prescribed diet	31	10.3
Presentation of packaging	25	8.3

Convenience	21	7.0
What my family or spouse will eat	19	6.3
Slimming effect	15	5.0
Quality and freshness	13	4.3
My cultural or religious background	10	3.3
Nutrition facts	5	1.7
Do not know	2	0.7
Total	300	100

Table 4 shows that food habits influenced the majority (20.7%) of the respondent's choice of food (15.3%), factors selected by less than (17.0%), and taste of food (10%), including "quality and freshness" (4.3) and nutrition facts (1.7%). 0.7 percent of the respondents did not know the factors that influenced their food choice.

Discussion of Results

Findings on the prevalence of diet-related non-communicable diseases in developed and developing countries call for an assessment and understanding of the general public's knowledge about food, nutrition, and health (Byers & Marshal, 2001).

This study has provided basic information on the functional food diverseness of the Agbor College of Education community and the level of utilisation of functional foods in their family diet as well as their perceived benefits of a healthy diet. This information has a bearing on the development of programmes to improve people's diets. The study will also benefit those in home economics and nutrition education by helping them target messages more effectively, which will in turn lead to effective health promotion. Over 85% of the respondents rated their diet or that of their families as "fair," "poor," or "very poor," which reflects the Nigerians' economic adjustment and difficulties of the present time. Families adapt to the situation of eating quality, low-status, and low-priced foods. This observation is in line with Ene-Obong (2000), who reported a link between low income and poor diet.

The frequent selection of less fat, more fruits and vegetables, variety, balance, and fresh natural foods as characteristics of healthy eating by males and females is not surprising. Women are often responsible for purchasing food, and they universally play a major role in home food preparation and serving (United Nations Administrative Committee on Coordination (ACC)/Sub-committee on Nutrition (SCN) (ACC/SCN, 2000). Moreover, women have more opportunities to receive nutrition education during antenatal clinic visits. The taste of food was selected as one of the three most important influences on food choice, and it was selected more frequently by males than females. This supports the saying that "the way to a man's heart is through his stomach." The study found that men rated taste as being the most important determinant of food choice, and when trying to persuade people to change to healthier diet programmes, it obviously appeals to their present sense of taste. Food habits and command considerable consideration for females. The selection of quality, freshness, and nutrition as less important factors in food choice could be a reflection of the level of functional food awareness of food respondents.

Conclusion

This paper draws the following conclusions: it is an axiom that the well-being of families is the well-being of a society. This is better appreciated when we consider the problem of degenerative diseases. In a bid to curb the growing menace of degenerative diseases coupled with an ageing health conscious population, which will translate into reduced life expectancy, there is therefore a need to investigate the technological advances that will encourage the utilisation of functional foods. Awareness of the concept and benefits of utilising functional foods in combating degenerative diseases can only be achieved through a system of information, and this is what the research study was out to accomplish. The results revealed that only a few members of the college community were aware of some functional food items, and they agreed that a good meal pattern could enhance health. The findings revealed that the majority of the college community was not aware of the concept of "functional foods." The result of the study shows a low level of utilisation of functional foods among the staff and students. Some functional foods were found to be utilised ignorantly as part of the family diet. They were not utilised for the purpose of preventing or combating degenerative diseases. The study

also revealed that the staff and students prefer the use of medicine in combating degenerative diseases to the use of functional foods. Despite the scientific evidence of the benefits of functional foods, the findings of this study revealed that the majority of the respondents lacked awareness of the benefits of utilising functional foods in combating degenerative diseases. Utilizing

The result of the study on the sources of information on the benefits of utilising functional foods shows that the teachers were aware of the components of foods but lacked knowledge of the concept of foods that are classified as functional foods. The findings also revealed that the teachers have varied sources of information, but mainly through friends and relatives, health professionals, radio and TV advertisements, and the testimonies of users and beneficiaries of health foods rather than functional foods. The result on the fifth variable, which states that degenerative diseases are a common phenomenon among ageing adults, revealed that teachers agreed actualization, pressure of work, deprivation of adequate nutrition, lack of exercise, and adaptation of modern health damaging lifestyles were common causes of degenerative disease among ageing adults. The result showed very low utilisation of the listed functional foods. The funding revealed that of the listed functional foods, only fish, tomato, onion, orange, and banana were consumed by half (50%) of the staff and students. The variable on the types of degenerative diseases experienced by the respondents showed that of the listed degenerative diseases, high blood pressure, muscle degeneration, ulcers, and diabetes were prevalent, and cancer was the least on the table.

Recommendations

Based on the findings of this study, the following recommendations were made:

1. Nutrition experts should organise conferences, seminars, and workshops for staff and students in the college community in order to create awareness on the concept and benefits of utilising functional foods in combating degenerative diseases.
2. The government (local, state, and federal) should provide canteens where functional foods are prepared and served to members of the

staff and to students of the college. They should also appoint health officers who will inspect the people who manage the canteens. This will help to ensure the utilisation of functional food items in such an environment.

3. The awareness of the benefits of utilising functional foods should be publicised in the College of Education and Agbor communities. This study should be continually advertised through radio and television interactive sessions. The nutrition radio programme can be improved and extended to other colleges of education in the state.
4. Short-term nutritional-health training programmes should constantly be organised in the area of study for members of staff and health workers to ask questions and receive explanations on ways of using functional foods.
5. The government should encourage professionals in the field of nutritional health to publish simple print materials (pamphlets, manuals, newsletters, and internet features) as well as research findings within the context of the utilisation of functional foods. This will encourage the staff and students to obtain such materials and read them for the benefit of keeping abreast of the appropriate functional food strategies.
6. The health authorities should ensure that academic-oriented promotions and the mass media are actively involved in creating more awareness of functional food usage in society. The government should go further to combat misleading advertisements and curb functional food quackery, which has become a problem in recent times. study should be
7. Therefore, it should be replicated in a wider society for a better understanding of people's awareness of the benefits of utilising functional foods in combating degenerative diseases. Functional food education, if directed to all cadres of society, is strongly advocated. Practical measures to increase the income of the poor in our society will go a long way in improving the diet quality of family foods. Adequate and correct knowledge about healthy diets is a pre-requisite for individuals to adopt healthy dietary behaviours.

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