Perception of Students' Preference of Plant Origin Protein to Animal Products in Federal University of Health Sciences, Ila-Orangun, Osun State

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ABSTRACT

The study assessed the perception of students on preference of protein of plant origin to animal products in Federal University of Health Sciences, Ila-Orangun, Osun State, Nigeria. The population for the study was students in Federal University of Health Sciences, Ila-Orangun, Osun State, Nigeria. Descriptive research design was adopted for the study. A multistage random sampling technique was used in the selection of Faculties, Departments and respondents. Data were collected from One thousand two hundred (1,200) respondents through the use of self-designed and validated questionnaire. Test-retest method of reliability was adopted and a reliability co-efficient of 0.89 was obtained using Spearman Brown's correlation co-efficient formula. Two research questions were raised with corresponding hypotheses. Data were analyzed using frequently count, percentages and Chi-square were used in testing the hypotheses at 0.05 level of significance. Findings revealed that majority of the respondents were aware of the sources of protein/components of plant origin and preferred them; the respondents' responses concerning their perception of protein preference of pants origin to that of animals' products were significantly high. Further result showed that there was a significant relationship between students' perception of plant origin protein and that of animals' products. It was concluded that there should be need by the government to create awareness on noise pollution and auditory related diseases in industries' it was recommended that educational institution should intensity efforts on educative enlightenment, work on workshops, debates and seminars. Government and non-governmental organizations should also strengthen efforts in engaging youths in the production of protein of plant origin.

Keywords: Perception, Students, Preference, Plant Origin Protein, Animal Products

INTRODUCTION

Protein is a class in food groups that make up a balanced diet –Proteins are essential for our body functions to and stay healthy. E ating enough protein daily is important for overall health for individuals. Consumption of enough protein of plant or animal sources daily is essential for a healthy living. Protein intake in our diet comes from whole foods (raw, cooked or processed) or formulated food products that contain fraction of protein ingredients derived from animal or plant sources (Cakebread & Loveday, 2022). Consuming the true form of food is always preferred. ProVeg International (2023) and Global food justice alliance (2024) claimed that the source of the protein consumed, either animal or plant, doesn't matter. According Kaitlyn (2023), proteins have high qualities from one another, and are superior to the other but are all proteins in nature.

According to Noiler (2021), animal protein is broadly recognized as having higher nutritional quality than plant-based protein. The considerable and increasing demand for animal protein is focusing attention on the sources of feed protein, their suitability, quality and safety for future supply. Food consumers are increasingly demanding assurances about food safety and production methods throughout the integrated food chains (Food and Agriculture Organization, 2020). MedicalNewToday (2018), noted that rich sources of animal proteins include eggs, fish and seafood, lean meat, poultry, wild game, and dairy products such as milk, yogurt, and cheese while that of plants include Lentils, Beans, Soy Nuts, Legumes, Certain vegetables, e.g. peas and spinach, Grains, e.g. quinoa, Tofu. Protein sources are plentiful from both plants and animals, although the number and type of amino acids within them differ.

Noiler (2021) claimed that in Nigeria, 100g of Ewedu/Jute leaves has about 1.3g of protein and are very rich in calcium. Generally, animal protein sources also supply other important nutrients, including vitamin B12 and a type of iron known as heme iron. Hume iron is more readily absorbed than the iron found in plant foods, which is known as non-heme iron. Plant foods such as beans, peanuts, and wheat are rich in total protein but lack one or more of the essential amino acids. Still, they can be combined to meet daily body's needs. According Redefine Meat (2022) and Global food justice alliance (2024) stated that there are many sources of plant proteins, such as, Beans, nuts, legumes, soya bean products like tofu, tempeh, buckwheat, Ezekiel bread, quinoa, wheat, wild rice-nutritional yeast and chia seeds. But combination in peanut butter sandwich is a tasty example that results in a complete protein source. While other plant protein sources as beans, nuts, legumes, wheat, and wild rice, are too low in essential amino acids (Kaitlyn 2023).

A recent study by Kerry Health and Nutrition Institute (2020), showed that consumption of red meat within recommended portions doesn't increase the risk of heart disease. Eating large amounts of unprocessed red meat is linked with 9% increase in relative risk of heart disease. Eating of fish or lean meats such as turkey and chicken does not have such health risks. Plant protein is the protein from land plant origin. Plant protein according to Talku Talku Magazine (2021) and Cakebread & Loveday (2022), is the most essential plant groups in human protein that are cereal grains, food legumes, oil-seed legumes which are consumed by individuals.ProVeg International (2023) claimed that soybean is a complete protein source which can be used to produce many foods including soy milk, tofu and okara snacks. By classification, albumins, globulins, prolamins and glutelins were the four major classes of proteins that are very important.

The most important functional properties of protein in food include its solubility, water- and fat-binding capacities, gel forming and rheological behaviours (Kerry Health and Nutrition Institute 2020). One of the major benefits of plant protein includes a reduced environmental impact compared to animal proteins. Fiber, zinc, vitamin C, alignment to ethical and elimination of concerns attached to food safety on animal foods are some of the health benefits identified (Health & Nutrition Institute (2020). The Vegan Nigerian (2017) and Cakebread & Loveday, (2022) claimed that Plant-based diet presents many benefits including significant reductions in blood pressure compared with diets rich in animal protein. One study connected plant-based diets rich in nutritious plant foods like whole grains, vegetables, nuts, and seeds with a lower heart disease risk. The nutritive values of various food proteins are to great extent determined by the concentration and availability of the individual are amino acids and total nitrogen (Alves, 2019, Kerry Health and Nutrition Institute 2020).

Perraud, (2022) and Kaitlyn (2023) stated that animal proteins are complete proteins because they contain all nine of the essential amino acids our bodies require. Diets high in red meat are often linked to many health risks. Animal protein increases the risk of heart disease(s), diabetes and stroke. Plant proteins are often full of nutrients, fiber, and antioxidants, all of which are good for health. They help reduce the risk of diseases that red meat is said to increase (Redefine Meat 2022). Xiao, (2023) affirmed that animal proteins enrich human diet with vitamin B12, vitamin D and Zinc. And all these are beneficial for health.

Statement of the Problem

Protein is one of the five food groups that make up a balanced diet – in addition to carbohydrates, fruits and vegetables, dairy and healthy fats. Our bodies need proteins to function effectively well and to stay healthy. Protein sources are numerous from both plants and animals, the rich sources of animal proteins include eggs, fish and seafood, lean meat, poultry, wild game, dairy products such as milk, yogurt, and cheese while that of plants proteins include Lentils, Beans, nuts, legumes, soybean, tempeh, and edamame, buckwheat, quinoa, wheat, wild rice-nutritional yeast, chia seeds, hemp seeds, spirulina. buckwheat, soybeans, nutritional yeast, Soy Nuts, Legumes, Certain vegetables, e.g. peas and spinach, Grains, e.g. quinoa, and Tofu. But this study has not been researched among students in Federal University of Health Sciences, Ila-orangun; hence this study.

Research Objectives

The Research objectives are:

1. Examine the students' awareness of the sources/components of protein of plant origin in Federal

University of Health Sciences, Ila-orangun, Osun State.

2. Determine the perceptions of students' preference of protein of plant origin to that of Animals products in Federal University of Health Sciences, Ila-orangun, Osun State.

Research Hypothesis

$H0_1$: There will be no significant relationship in the perception of students on preference of protein of plant origin to that of Animals products in the study areas.

METHODOLOGY

The study assessed of Level of perception of students on preference of protein of plant origin to animal products. Descriptive research design was used for the study. The population for the study were Students in Federal University of Health Sciences, Ila-Orangun, Osun State, Nigeria. A multistage random sampling technique was used for the study. Simple random sampling technique was used in the selection of four (4) Faculties and three (3) Departments from each faculty while systematic random sampling techniques using departmental list by Levels was used in the selection of one hundred (100) respondents. Through this process, One thousand two hundred (1,200) respondents were selected. Data were collected by the researcher and two research assistants from respondents in the selected Faculties and Departments on the approved date, time and venue. A self-designed and validated questionnaires was used for the study. Test-retest method of reliability was adopted and a reliability co-efficient of 0.89 was obtained using Spearman Brown's correlation co-efficient formula. Two research questions were raised with their corresponding hypotheses. Data were analyzed using frequently count and percentages while Chi-square was used in testing the formulated hypotheses.

RESULTS AND FINDINGS

Research question 1. Are the students of Federal University of Health Sciences aware of the sources/components of protein of plant origin in Ila-orangun, Osun State.

Table 1: Respondents' responses on awareness of sources/components of protein of plant origin.

S/N	Variables	Agree (%)	Disagree (%)
1	Consumption of protein of plant origin daily equally gives amino acids essential for a healthy living.	950 (79.17%)	250 (20.83%)
2	The source of the protein consumed, whether animal or plant, doesn't pose any health concern.	300 (25%)	900 (75%)
3	The chemical, biological, functional, and nutritional components depending on the plant protein source, molecular make-up and structures.	985 (82.08%)	215 (17.92%)
4	Lentils, Beans, nuts, legumes, soybean, tempeh, and edamame, buckwheat, quinoa, wheat, wild rice-nutritional yeast, chia seeds, hemp seeds, spirulina. Buckwheat, soybeans, nutritional yeast, Soy Nuts, Legumes, Certain vegetables, e.g. peas and spinach, Grains, e.g. quinoa, Tofu are sources of Plant protein.	895 (74.58%)	305 ((25.42%)
5	Plant proteins even when combined offer lower nutritional values due to unbalanced amino acid composition.	250 (20.83%)	950 (79.17%)

This table showed that majority of the respondents agreed to items 1, 3, and 4 of the responses regarding awareness of sources/components of protein of plant origin and their preference (animal products.

Research question 2. What are the perceptions of students on preference of protein of plant origin to that of Animals' products in the study areas?

Table 2: Respondents' responses on their perception of preference of protein of plant origin to that of animals' products.

S/N	Variables	Agreed	Disagreed
1,	Beans, nuts, legumes, soybean products like tofu, tempeh, and edamame, buckwheat, wheat, wild rice-nutritional yeast, chia seeds, hemp seeds, spirulina. quinoa, buckwheat and soybeans contain all nine essential amino acids, which are complete protein sources are preferred to those of animal products.	1000 (82.33%)	200 (16.67%)
2..	Fiber, zinc, nutrients, antioxidants, vitamin C and elimination of concerns attached to food safety on animal foods are some of the health benefits of plant protein.	950 (79.17%)	250 (20.83%)
3.	Plant proteins may not necessarily provide availability of regular supplies of appropriate quality and quantity, cost-effective, production methods and food safety than animal proteins	950 (79.17%)	250 (20.83%)
4..	Diets high in red meat are often linked to an increased risk of heart disease, diabetes and stroke. People eating a vegetarian diet also tend to have lower body weight, lower cholesterol levels, cancer, and death from heart disease than people who eat meat.	986 (82.17%)	214 (17.83%)
5..	Plant proteins may not be acceptable to wealthy population of consumers.	260 (21.67%)	940 (78.33%)

On this table above, majority of the respondents agreed to items 1, 2, 3, and 4 showing their perception of preference of protein of plant origin to that of animals' products. Except item 5 that the respondents who disagreed that the plant proteins may not be acceptable to wealthy population of consumers.

Hypothesis Testing

Hypothesis 1: There is no significant relationship between students' perception of plant origin protein and that of animal products.

Table 3: X^2 Calculation on relationship between students' perception of plant origin protein and that of animals products.

Table Value	Level of Significance	Df	Calculated Value	Decision
9.49	0.05	4	2,146.60	Rejected

Table 4 presented a higher Table value of 9.49 as against the calculated value of 2,146.60. This revealed that the hypothesis which stated that there is no significant relationship between students' perception of plant origin protein and that of animals was rejected. This implies that a significant relationship exist between students' perception of plant origin protein and that of animals. Their decision could have probably been influenced by their exposure in the field of Human Nutrition.

DISCUSSION OF FINDINGS

One of the findings stated that majority (79.17%) of the respondents agreed that consumption of enough protein of plant or animal sources daily were essential for a healthy living. Rather than focusing on consuming one or

the other, it may be better to focus on eating a varied diet rich in both nutrient-dense plant proteins and lean animal products.

It was equally established that a combination of certain plant proteins will measure up to the expected rate needed to provide a good protein source for humans and can contribute to a balanced diet. Majority (75%) of the respondents disagreed with the statement that the source of the protein consumed, whether animal or plant, doesn't pose any health concern. This response was in similar with the claims made by Food and Agriculture Organization, (2020) that linked red meat consumption to an increased risk of heart disease and stroke and that diets high in red meat are often linked to an increased risk of heart disease, diabetes and stroke. People eating a vegetarian diet also tend to have lower body weight, lower cholesterol levels, cancer, and death from heart disease than people who eat meat.

A total respondents of (82.08%) which was majority agreed that the chemical, biological, functional, and nutritional components depending on the protein source, molecular make-up and structures this was in agreement with the finding of Talku Talku Magazine (2021) and Cakebread & Loveday, (2022) that protein sources can vary greatly in the types of amino acids they contain and that the chemical, biological, functional, and nutritional components depending on their source, molecular make-up and structures. Lentils, Beans, nuts, legumes, soybean, tempeh, and edamame, buckwheat, quinoa, wheat, wild rice-nutritional yeast, chia seeds, hemp seeds, spirulina. buckwheat, soybeans, nutritional yeast, Soy Nuts, Legumes, Certain vegetables, e.g. peas and spinach, Grains, e.g. quinoa, Tofu are sources of Plant protein. Also, a total of 74.58% equally agreed that Lentils, Beans, nuts, legumes, soybean, tempeh, and edamame, buckwheat, Ezekiel bread, quinoa, wheat, wild rice-nutritional yeast, chia seeds, hemp seeds, spirulina. Ezekiel bread, quinoa, buckwheat, soybeans, nutritional yeast, chia seeds, and hemp seeds Soy Nuts, Legumes, Certain vegetables, e.g. peas and spinach, Grains, e.g. quinoa, Tofu are sources of Plant protein. This was also in line with the assertions made by ProVeg International (2023) that there are many sources of plant proteins, such as, Beans, nuts, legumes, soybean products like tofu, tempeh, and edamame, buckwheat, Ezekiel bread, quinoa, wheat, wild rice-nutritional yeast, chia seeds, hemp seeds, and spiraling.

A total of 20.83% of the respondents only agreed that plant proteins even when combined offer lower nutritional values due to unbalanced amino acid composition (e.g. lack of some Essential Amino Acids, such as lysine), and slow or reduced digestibility due to their molecular structures. This finding was in contrast with those of Global food justice alliance (2024) who claimed that combination in peanut butter sandwich is a tasty example that results in a complete protein source and that though wheat used in baking bread is low in amino acid lysine, peanuts are rich in it, resulting in a complete protein meal or snack. Pea protein and soybeans are complete plant protein sources.

A total of (82,33%) of respondents on the table above agreed that Beans, nuts, legumes, soybean products like tofu, tempeh, and edamame, buckwheat, Ezekiel bread, quinoa, wheat, wild rice-nutritional yeast, chia seeds, hemp seeds, spirulina. Ezekiel bread, quinoa, buckwheat, soybeans, nutritional yeast, chia seeds, and hemp seeds contain all nine essential amino acids, meaning they are complete protein sources. This was in line with the claims made by Kaitlyn (2023), that Beans, nuts, legumes, soyabean products like tofu, tempeh, and edamame, buckwheat, Ezekiel bread, quinoa, wheat, wild rice-nutritional yeast, chia seeds, hemp seeds, spirulina are sources of plant protein. They added that Pea protein and soybeans especially are complete plant protein sources.

Majority of the respondents (79.17%) likewise equally agreed that Fiber, zinc, nutrients, antioxidants, vitamin C, alignment to ethical and elimination of concerns attached to food safety on animal foods are some of the health benefits of plant protein. This finding was in consonance with that of The Vegan Nigerian (2017), Kerry Health & Nutrition Institute (2020) who expressed that fiber, zinc, vitamin C, alignment to ethical and elimination of concerns attached to food safety on animal foods are some of the health benefits and that the growing demand for protein informed the rising interest in plant proteins.

The minority of the respondents (20.83%) disagreed with the statement that Plant proteins may not necessarily provide availability of regular supplies of appropriate quality and quantity, cost-effective, production methods and food safety than animal proteins which was in line with the claims Talku Talku Magazine (2021), Cakebread & Loveday (2022) and Global food justice alliance (2024) who expressed that proteins from plant sources have

attracted increased interest as consumers increasingly look for plant-based food options, for sustainability, availability of regular supplies of appropriate quality and quantity, cost-effective, production methods and food safety, health and ethical reasons.

In addition 82.17% respondents agreed that diets high in red meat are often linked to an increased risk of heart disease, diabetes and stroke. People eating a vegetarian diet also tend to have lower body weight, lower cholesterol levels, cancer, and death from heart disease than people who eat meat. This was in agreement with the affirmation made by Redefine Meat (2022), Kaitlyn (2023), that diets high in red meat are often linked to an increased risk of heart disease, diabetes and stroke.

CONCLUSION

Based on the finding of this study, it was concluded that:

Majority of the respondents was aware of the sources of protein/components of plant origin and that their perception of protein preference of pants origin to that of animal products was highly significant. Finally, there was a significant relationship between students' perception of plant origin protein and that of animal products.

RECOMMENDATIONS

Based on the finding of this study the following recommendations were made:

1. Current research findings and innovations on large scale production of protein of plant origin should be made available to students' right from Secondary school level.
2. Educational institution at all levels should intensify efforts on educative enlightenment workshops, debates and seminars on healthy human diets
3. Advertisement on social media in relation to food issues should be censured by government regulatory bodies.
4. Government and non-governmental organizations should intensify efforts in engaging youths in industrial large-scale farming for the production of protein of plant origin and be made to be more available, accessible and at very low cost in Nigeria.

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