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Effects of Nutrition Education on Knowledge of Energy Giving Food Needs of Diabetic Patients in Teaching Hospital in Anambra State Nigeria.

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ABSTRACT :

This study determined the effect of nutrition education on the knowledge of energy giving food needs of diabetic patients in general hospitals in Anambra State. Three purpose, research questions and two hypotheses. Quasi-experimental pretest-posttest non control group design, the area of the study was Anambra State using Chukwuemeka Odumegwu Ojukwu Teaching Hospital. Sixty- seven diabetic patients were used for the study. The instrument for data collection was a Knowledge Test on the Effect of Energy Giving Food Education (KTEEGFE); the validation of the instrument was determined by the help of three experts. The reliability of the instrument was established by the use Kuder Richard son (K-R20) method which gave a reliability coefficient of 0.61. The data was collected and analysed using SPSS. Mean and standard deviation was used to analyse the research questions while ANOVA was used to test the hypothesis at 0.05 level of significant. The results of the study showed that after the programme, the diabetic patient's knowledge of nutritional health needs increased as showed in their mean gain knowledge scores for energy giving foods. The female diabetic patients were had a mean gain knowledge in energy giving foods also diabetic patients with first degree had more knowledge i.e. mean gain knowledge score more that groups. Based on the findings it was recommended among others; Health education should be provided in local languages so that educated and not so educated would understand so education and be able to apply them.

(KEYWORDS: Diabetes, Nutrition Education and Energy Food)

Introduction

Diabetes mellitus is also one of the diseases suffered as a result of excessive intake of a particular type of food nutrient.

According to World Health Organization (2023), Diabetes is a chronic disease that occurs either when the pancreas does not produce enough insulin or when the body cannot effectively use the insulin it produces. Insulin is a hormone that regulates blood glucose. WHO (2023) further noted that hyperglycaemia, also called raised blood glucose or raised blood sugar, is a common effect of uncontrolled diabetes and over time leads to serious damage to many of the body's systems, especially the nerves and blood vessels.

World Health Organization, (2023), observed that in 2014, over the world, 8.5 percent of adults aged 18 years and older had diabetes also, 2019, diabetes was the direct cause of 1.5 million deaths and 48 percent of all deaths due to diabetes occurred before the age of 70 years. Another 460 000 kidney disease deaths were caused by diabetes, and raised blood glucose causes around 20 percent of cardiovascular deaths. Between 2000 and 2019, there was a 3 percent increase in age-standardized mortality rates from diabetes. In lower-middle-income countries, the mortality rate due to diabetes increased 13 percent.

With the increase of diabetes as stated by WHO (2023), there is need for nutrition education among diabetic patients since diabetes is a nutritional health problem and can be prevented if people are aware of what it is all about. Education is the transmission of knowledge, skills, and character traits and manifests in various forms. Education is a powerful agent of change, and improves health and livelihoods; contributes to social stability and drives long-term economic growth. According to Global Partnership for Education, (2024), education is also essential to the success of every one of the seventeen sustainable development goals. Education on nutrition is very important and can also be a change agent to effectively reduce the incidence of diabetes in our society.

Firstly, Nutrition is the process of consuming, absorbing, and using nutrients needed by the body for growth, development, and maintenance of life. WHO (2024), explained that nutrition is a critical part of health and development. Better nutrition is related to improved infant, child and maternal health, stronger immune systems, safer pregnancy and childbirth, lower risk of non-communicable diseases (such as diabetes and cardiovascular disease), and longevity (WHO 2024). Nutrition is the study of nutrients in food, how the body uses them, and the relationship between diet, health, and disease (Natalie, 2020). Proper nutrition helps keep energy levels up and protects against many aggregated illnesses and diseases like heart disease, cancer, and diabetes (Mallika, 2024). Mallika also stated that the most basic level, nutrition is about eating a regular, balanced diet. Good nutrition helps fuel the body. The foods one eat supply the nutrients the body needs to maintain ones brain, muscle, bone, nerves, skin, blood circulation, and immune system. Proper nutrition also helps protect one from illness and disease, such as heart disease, diabetes, cancer, and osteoporosis. All these call for proper nutrition education to help especially people suffering from diabetes live a healthy life even with the disease.

Purpose of the Study

The purpose of this study was to determine the effects of nutrition education on knowledge of energy food needs of diabetic patients attending teaching hospitals in Anambra State. Specifically, the study determined;

1. mean knowledge scores of the diabetic patients attending teaching hospitals in Anambra State on consumption of energy giving food before and after nutrition education.
2. mean knowledge scores of the diabetic patients attending teaching hospitals in Anambra State on consumption of energy giving food before and after nutrition education based on their gender.
3. mean knowledge scores of the diabetic patients attending teaching hospitals in Anambra State on consumption of energy giving food before and after nutrition education based on their educational levels.

Research Questions

The following research questions guided the study;

1. What is the mean knowledge scores of the diabetic patients attending teaching hospitals in Anambra State on consumption of energy food before and after nutrition education?
2. What is the mean knowledge scores of the diabetic patients attending teaching hospitals in Anambra State on consumption of energy food before and after nutrition education based on their gender?
3. What is the mean knowledge scores of the diabetic patients attending teaching hospitals in Anambra State on consumption of energy food before and after nutrition education based on their educational levels?

Hypotheses

The following hypotheses was formulated and tested at 0.05 level of significance;

1. There is no significant difference in the mean knowledge scores of the diabetic patients attending teaching hospitals in Anambra State on consumption of energy food before and after nutrition education based on their gender.
2. There is no significant difference in the mean knowledge scores of the diabetic patients attending teaching hospitals in Anambra State on consumption of energy food before and after nutrition education based on their educational level.

METHODS

A quasi-experimental research design was used for the study (Nworgu, 2015). The area of this study was Anambra State of Nigeria. The population of this study consisted of 67 diabetic Patients in Anambra State. The instrument for data collection was a Knowledge Test on the Effect of Energy Giving Food Education (KTEEGFE). The test items of the (KTEEGFE) were assessed for reliability using Kuder Richardson 20 statistical method. The reliability of the item was analyzed using Kuder Richard (K – R 20) method and the value gotten was 0.61. The data collected was analyzed using means and standard deviation. Also, analysis of variance (ANOVA) was used to test the hypotheses at 0.05 level of significance.

RESULTS

Research Question one

What are the mean knowledge scores of diabetic patients attending teaching hospitals in Anambra state on consumption of energy foods before and after exposure to nutrition education?

Table 1

Mean knowledge and Standard Deviation Scores of Diabetic Patients Attending Teaching Hospitals in Anambra state on Consumption of Energy Foods Before and after exposure to nutrition education

Exposure to Nutrition Education	N	M	SD	MG
Before Exposure (Pretest)	63	5.73	1.25	0.86
After Exposure (Posttest)	63	6.59	1.13	

The mean scores displayed in Table 1 shows that the mean knowledge on consumption of energy foods of diabetic patients attending teaching hospitals in Anambra state before exposure to nutrition education was 5.73 while and the mean knowledge after being exposed to nutrition education was 6.59. This indicates a mean gain of 0.89 in knowledge of the consumption of body-building food. This suggests that nutrition education of diabetic patients attending teaching hospitals in Anambra state increased their knowledge of the consumption of energy foods.

Research Question two

What are the mean knowledge scores of male and female diabetic patients attending teaching hospitals in Anambra state on consumption of energy foods before and after exposure to nutrition education?

Table 2

Mean knowledge and Standard Deviation Scores of Male and Female Diabetic Patients Attending Teaching Hospitals in Anambra state on Consumption of Energy Foods Before and after exposure to nutrition education

Exposure to Nutrition Education	Male (n=12)			Female (n=51)		
	<i>M</i>	SD	MG	<i>M</i>	SD	MG
Before Exposure (Pretest)	6.00	1.48	0.75	5.67	1.19	0.88
After Exposure (Posttest)	6.75	0.87		6.55		

Table 2 displays the mean knowledge of the consumption of energy foods based on the gender of diabetic patients attending teaching hospitals in Anambra state. While the mean knowledge of male patients before exposure to nutrition education was 6.00, their mean knowledge was 6.75 after the exposure which gave a mean gain score of 0.75. For the female diabetic patients, the mean knowledge prior to nutrition education was 5.67 while that of the mean knowledge after exposure was 6.55. This indicates a mean gain of 0.88. The mean gain scores of male and female diabetic patients suggest that female patients had more mean gain in the knowledge of the consumption of energy foods.

Research Question three

What are the mean knowledge scores of diabetic patients of different educational levels attending teaching hospitals in Anambra state on consumption of energy foods before and after exposure to nutrition education?

Table 3

Mean knowledge and Standard Deviation Scores of different educational levels of Diabetic Patients Attending Teaching Hospitals in Anambra state on Consumption of Energy Foods Before and after exposure to nutrition education

Exposure to Nutrition Education	<1 st Degree(n=25)			1 st Degree (n=34)			Postgraduate(n=4)		
	<i>M</i>	SD	MG	<i>M</i>	SD	MG	<i>M</i>	SD	MG
Before Exposure (Pretest)	5.52	1.00	0.84	5.85	1.13	0.94	6.00	1.15	0.25
After Exposure (Posttest)	6.36	1.22		6.79	1.01		6.25	1.73	

The results displayed in Table 3 show that the before their exposure to nutrition education, diabetic patients with less than 1st degree education had mean knowledge of consumption of energy foods of 5.52 and a posttest mean knowledge of 6.36 which indicates a mean gain of 0.84. Those with 1st degree had pretest mean knowledge of 5.85 and a posttest mean knowledge of 6.79, and a mean gain of 0.94. Diabetic patients with postgraduate qualification had pretest mean knowledge of 6.00 and a posttest of 6.25 which gives a mean gain of 0.25. The mean gain scores indicate that those with 1st degree had the highest mean gain from exposure to nutrition education, followed by patients with less than 1st degree educational qualification.

Hypothesis one

There is no significant difference in the mean knowledge scores of diabetic patients attending teaching hospitals in Anambra state on consumption of energy foods before and after exposure to nutrition education?

Table 4

Repeated Measures ANOVA on Mean Knowledge on Consumption of Energy Foods of Diabetic Patients Attending Teaching Hospitals in Anambra by Gender and Educational Level

Source of Variation	SS	df	MS	F	<i>p</i>	Remark
Pretest vs Posttest	8.03	1	8.03	6.04	0.017	S
Pretest vs Posttest * Gender	0.92	1	0.92	0.69	0.409	NS
Pretest vs Posttest * Educational Level	2.27	2	1.14	0.03	0.969	NS

Error	75.73	57	1.33
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The repeated measures ANOVA result presented in Table 4 reveals that there was a significant difference in the mean knowledge scores of diabetic patients attending teaching hospitals in Anambra state regarding the consumption of energy foods before and after exposure to nutrition education, $F(1, 57) = 6.04, p = 0.017$. Since the p-value was less than 0.05 level of significance, the null hypothesis was rejected.

Hypothesis two

There is no significant difference in the mean knowledge scores of male and female diabetic patients attending teaching hospitals in Anambra state on consumption of energy foods before and after exposure to nutrition education.

There is no significant interaction between gender and nutrition education on the mean knowledge scores on consumption of energy foods of diabetic patients attending teaching hospitals in Anambra state.

From Table 4, the result on the interaction between gender and nutrition education on the mean knowledge of consumption of energy foods reveals that there was a no significant interaction between gender and nutrition education on the mean knowledge on consumption of energy foods of diabetic patients attending teaching hospitals in Anambra state, $F(1,57) = 0.69, p = 0.409$. The null hypothesis was not rejected since the p-value was greater than 0.05. This suggests that male and female diabetic patients benefitted equally from the nutrition education.

Hypothesis three

There is no significant difference in the mean knowledge scores of diabetic patients of different educational levels attending teaching hospitals in Anambra state on consumption of energy foods before and after exposure to nutrition education.

There is no significant interaction between educational level and nutrition education on the mean knowledge scores on consumption of energy foods of diabetic patients attending teaching hospitals in Anambra state.

The results of repeated measures ANOVA presented in Table 4 shows that there was no significant interaction between educational level and nutrition education on the mean knowledge on the consumption of energy food of diabetic patients attending teaching hospitals in Anambra, $F(1,57) = 0.03, p = 0.969$. The null hypothesis was not rejected since the p-value was greater than 0.05. This suggests that diabetic patients of different educational levels benefitted equally from the nutrition education.

Discussion of findings

Knowledge of diabetic patients on consumption of energy foods.

The findings of the study on the knowledge of diabetic patients on the consumption of energy foods showed that there was an increase in knowledge in the type of energy food to be consumed by diabetic patients after their exposure to the education programme on nutrition. Although they had good knowledge about the consumption of energy goods but their knowledge after the programme increased significantly and this could be attributed to the treatment given to them in form of education programme on nutrition.

Likewise; the findings on the diabetic patients' knowledge based on gender, female diabetic patients had more mean gain knowledge of the consumption of energy foods. More than the male patients. Female as a gender being a social being interacts with each other and this might be increasing their knowledge and their quest not to die and leave their family stranded might also make them look out for knowledge on what to eat to stay healthy especially, food like energy foods. Also for knowledge of diabetic patients on different educational levels; those patients with first degree had the highest means gain knowledge after the exposure to nutrition education. This increase could also be attributed to their level of education. For the null hypothesis on the general knowledge of diabetic patients on consumption of energy foods, the null hypothesis of not significant difference was rejected because there was a significant improvement in their knowledge after the education programme. Also the null hypothesis of no significant difference for gender among diabetic patients for consumption of energy foods was not rejected; the same with hypothesis for diabetic patients based on their educational level was also not rejected. The findings of this study was supported by the findings in the study conducted by Diddana et. al (2018), that the increase in nutritional knowledge of the participants showed a great improvement and high statistical significance at end line.

Conclusion

The diabetic patient after the programme had an increase mean gain knowledge of the consumption of energy giving foods that are required of a diabetic patient showing that there was a positive effect of the programme on their knowledge of energy giving foods. Female diabetic patient had higher mean gain knowledge scores; For educational levels the diabetic patients with first degree had higher means gain knowledge scores.

Recommendations

1. Government should also help make policy on food price of energy giving foods in the market so that diabetic patient can afford and have access to quality nutrition.
2. Health education should be provided in local languages so that educated and not so educated would understand so education and be able to apply them.

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