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INFLUENCE OF NUTRITION EDUCATION ON THE HEALTH STATUS OF DIABETES MELLITUS PATIENTS IN LAGOS STATE

by

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Abstract

It was estimated that more than 240 million people worldwide suffer from diabetes and this number could double by the year 2025 which could be the beginning of a global epidemic. The purpose of the study was to determine diabetes prevalence and influence of nutrition education on its management. Survey research design was adopted. Three research questions were put forward. The sample consisted of 70, respondents 30 medical personnels and 40 diabetic patients from Yaba Military Hospital were randomly sampled. Two questionnaires validated by experts and with reliability coefficient of 0.76 and 0.73 were used to collect data from respondents. Data collected were analyzed with frequency counts, Percentage, Mean statistic and t-test and ANOVA. The findings revealed a significant difference in the prevalence of diabetes mellitus among male and female diabetic patients. ($P < 0.05$). The result revealed that about 69% of the sufferers of diabetes were males. The findings revealed no significant difference in the opinion of medical personnel on the influence of nutrition education on diabetic patients ($p > 0.05$). It also showed that nutrition education had positive effects on the health status of the respondents. It is concluded that a good knowledge of nutrition has positive attributes on the management of diabetes. Based on the findings, it was recommended among others that diabetic patients should submit themselves to adequate nutrition programme to aid management as soon as they are diagnosed. They are also advised to get themselves well informed about the disease to be able to manage their health and live a healthier life.

Introduction

Diabetes is one of non-communicable diseases disease that is acknowledged as a major silent Killer, which occurs all over the world irrespective of age or sex. According to Australia International Diabetes Institutes (2004), diabetes as a disease, is one of the most challenging health problems of the 21st century. This disease results when the amount of sugar in the blood is too high (Kuti, 2001) resulting mostly from the inability for the body to produce an important hormone, 'insulin' which may be of genetic origin. Insulin is usually produced by the islets of Langerhans cells of the pancreas and helps to keep the body's blood sugar within normal limits. It is one of the major causes of premature death particularly in patients who are careless and do not follow their management regimen.

In the years past, diabetes was not commonly seen as a disease of people under 40 years (Goland, Moran, Bundy & Becker 2013). But according to Rubenstein (2003), it is becoming a disease of the young. The implication of this is that the average age for the onset of diabetes is indeed dropping seriously. Experts have argued that diabetes, in addition to being genetically disposed, the body weight and environmental genetic disposition also play a major role in the cause. One major consensus among most medical experts is that the major cause of diabetes is due to changes in food habits and eating patterns over the last 20 years. According to William (2008) of the US Centre for Disease Control and Prevention, the changes in food habits include: increased reliance on food consumed outside the home;

- increased consumption of soft drinks, and fast foods; and
- reduction of physical education in schools, and elimination of recess at school.

By implication, diabetes may be said to be a function of the nature of food consumed, when and how it is consumed. Experts report that diabetes cannot be reversed and understandably, are concerned about its prevalence. According to Goland et.al (2013) and Awale, Tezuka, Banskota, Andyana, & Kadota, (2003), approximately 160 million people worldwide are afflicted with diabetes, and each year some 800,000 new cases are diagnosed. Despite this, millions who suffer from the disease are ignorant of the disease's etiology and management.

In Nigeria presently, there is no reliable statistic of the disease yet still, thousands of people have this disease and may not visit the hospital. The prevalence and the severity of this disorder has necessitated this study in Lagos.

Statement of the Problem

Diabetes is common among both the young and the old. It occurs when the body cannot metabolise glucose. When this takes place, a number of vital mechanisms breakdown in the human system resulting into a lot of life threatening conditions. In Nigeria, where poverty is very prevalent, people consume anything that comes their way. It may not be surprising that proper education about what, how and when to eat is unknown. This has possibly led to a lot of people having diabetes in Nigeria. The health implications are alarming and in spite of the enlightenment efforts by health personnel, the level of awareness is still minimal. This is why the study was carried out to determine the influence of Nutrition Education on the nutritional status of diabetic patients visiting Yaba Military Hospital, Lagos.

Purpose of the Study

The main purpose of the study was to determine influence of nutrition education on the nutritional status of diabetes patients in Yaba Military hospital. The specific purpose of this study include: -

1. to determine whether there is a difference in prevalence of diabetes among male and female diabetics patients.
2. determine the opinion of diabetic patients, on the influence of nutrition education on the them?
3. determine medical personnel view on the influence of nutrition education on the diabetic patients.

Research Questions

1. Is there any difference in the prevalence of diabetes among male and female patients?
2. What is the opinion of diabetic patients, on the influence of nutrition education on them?
3. What is the opinion of medical personnel, on the influence of nutrition education on diabetic patients?

Hypothesis

Research questions 1 and 3 were formulated into hypotheses and tested at 0.05 level of significance:

H₀: There is no significant difference in the prevalence of diabetes mellitus among male and female diabetic patients.

H0₂: There is no significant difference in the opinion of medical personnel on the influence of nutrition education on diabetic patients.

Significance of the Study

The findings from this study will likely be of significance to:-

The diabetic patients, Medical personnel, Medical researchers, the masses, Nutritionists and other health personnel.

The finding if adequately disseminated will be useful to diabetic patients as it will help them to discover the causes of their disorder, and its effect. It will also help them to prepare dishes that will make them fit to cope with the disease and symptoms by controlling their nutrition.

The results of this study will likely be useful to medical personnel. Such as medical doctors, nurses and the likes as it will equip them on to know the extents and the impact of nutritional education on the nutritional status of Nigerian diabetic patients. It will likely help them to prescribe the appropriate regime (diet and medical) and suggest adequate and to be administered. It will also help them to know the appropriate diet as diet therapy to the patients of diabetes.

The results will also likely be of immense use and benefits to nutritionists. It will help them to know the effects of their foods on diabetic patient. It will in turn help them to recommend and give appropriate food to their patients within individual context.

Methodology

Design of the Study

The study adopted survey research design. The study sought the opinion of experts, such as nurses, doctors and dieticians/nutritionists, on the effects of nutrition education on the nutritional status of diabetic mellitus patients. Survey research helps to provide opinion of people by collecting information from a representative sample to describe the population from which the sample was selected.

Population of the Study

The population for this study comprised 100 registered in and out patients who are diabetic patients of the Yaba Military Hospital Lagos. The second set 49 persons in the cadre of medical doctors, nurses and nutritionists who are all employees of the hospital and on duty during the period of this investigation. Also, the in patients and out- patients are those that patronize the hospital during the period of the investigation.

Sample and Sampling Technique

The sample size was 70 people. (40 in and out patients and 30 staff of the hospital). The studied sample comprised 40 in and out patients that attended the hospital. 20 each of in and out patients. The 40 patients were selected with the use of random sampling technique based on the list of diabetic patients provided by the hospital. The sample also comprised 30 staff of the hospital which included medical doctors, nurses, and nutritionists (dieticians). The 30 staff were sampled.

Instrumentation

Two personally designed questionnaires were the instruments used for data collection. The questionnaire contains 20 items altogether. The first questionnaire was for the patients. While the other was for the hospital staff and titled Patients Nutritional Status Questionnaire (PANSQ) and Medical Staff Questionnaire on Nutritional Status of Patients (MSQNSP). The two questionnaires consisted of two sections each. The first section has to do with the bio-data information of the respondents (sex, age, duration of disease) while the second sections sought information on the influence of nutrition education on diabetic patients. The second part of the questionnaires consisted of all set of opinion statements followed by a list of five point Likert scale which serve as likely answer to the opinion statements, these include: strongly agree (SA)-5, Agree (A)-4, Neutral (N)-3, Disagree (D)-2, and

Strongly Disagree (SD)-1. The respondents were instructed to tick the most appropriate option as far as is applied to them.

Validation of the Instruments

The two instrument used for collecting data were validated by 3 experts before usage to ensure that they measured the intended administered purpose. The experts helped to standardize the two questionnaires by offering suggestions that were incorporated in the final instrument for use.

Reliability of the Instruments

The reliability of the instruments was also pre-determined before their administration for the main study. This was done in form of a pilot study where 10copies of each of the two questionnaires were pilot-tested using then split half method on 10 diabetic mellitus patients and 10 medical staff in Lagos University Teaching Hospital

The data collected from the pilot test were analysed statically using spearman Brown's reliability coefficient of the instruments which were 0.76 and 0.83, respectively.

Method of Data Collection

The two instruments were administered by the research crassisted by two of the hospital staff to the respondents and collected upon completion.

Method of Data Analysis

The data collected were analyzed with Frequency (F), Percentage (%) and Mean ($\bar{x}$)

Standard Deviation and t-test of Independence and ANOVA.

Data Analysis and Presentation

Research Question 2: What is the opinion of diabetic patients, on the influence of nutrition education on them?

Table 1: Opinion Diabetic Patients about Influence of Nutrition Education on them

S/N	Possible Effects of Nutrition Education	N	f	$\bar{X}$	SD	Remark
1.	The nutrition education that I received from the hospital has helped me to change my eating habit.	39	29 (74%)	3.14	2.08	Agree
2.	The nutrition education I received has helped to improve my health.	39	30 (77%)	3.66	2.04	Agree
3.	The nutrition education I received from the hospital has reduced the rate at which I use drugs.	39	27 (69%)	3.63	3.35	Agree
4.	The nutrition education I received helps to reduce the sugar level my system.	39	28 (72%)	3.91	2.31	Agree
5.	The nutrition education has helped me to reduce the quantity of food and drink I take.	39	26 (67%)	3.81	1.11	Agree
6.	The nutrition education has helped to decrease my frequency of visits to the hospital.	39	33 (85%)	3.84	1.05	Agree
7.	Due to nutrition education I am stronger and not hospitalised.	39	24 (62%)	3.63	2.33	Agree
8.	I find it easy to adjust to the nutrition education Recommendations.	39	15 (39%)	1.73	3.02	Disagree

Table 1 contains the opinion of the diabetics about their perceived effects of nutrition education on them. In almost all the items. The mean of their opinion is above average of 3.00. This shows their extent of agreement with the items. This implies that the nutrition education had positive effects on the diabetics.

Hypothesis testing:

Research questions 1 and 3 were formulated into hypotheses and tested at 0.05 level of significance as follows:

Hypothesis One: There is no significant difference in the prevalence of diabetes mellitus among male and female diabetic patients.

Table 2: t-test analysis of difference in the prevalence of diabetes mellitus among male and female diabetic patients.

Group	N	Mean($\bar{x}$)	Standard Deviation	df	t-cal	P(2-tailed)
Male	27	2.5185	.509	37	1.059	.001
Female	12	1.3333	.492			
Total	39					

$\alpha = 0.05$

Table 2 showed a calculated t value of 1.059 which is significant at .001, since the P value of .001 is less than the alpha level of ($P < 0.05$), this implies that the observed difference between the mean for male and female diabetic patients was significant. So the null hypothesis which states that 'There is no significant difference in the prevalence of diabetes mellitus among male and female diabetic patients' was rejected. Consequently, there is a significant difference in the prevalence of diabetes mellitus among male and female diabetic patients. Table 2, also shows that 27(69%) of the respondents randomly sampled were males while the other 31% were females as only 39 out of the 40 questionnaires administered were recorded.

Hypothesis Two: There is no significant difference in the opinion of medical personnel on the influence of nutrition education on diabetic patients.

Table 3: ANOVA on difference in the opinion of medical personnel on the influence of nutrition education on diabetic patients.

	Sum of Squares	Df	Mean Square	F	Sig(2-tailed)
Between Groups	15.324	13	1.179	1.751	.162
Within Groups	8.750	13	.673		
Total	24.074	26			

$\alpha = 0.05$

Table 3 shows an F-value of 1.751 and a p-value of .162, testing at an alpha level of 0.05, since the p-value is greater than the alpha level, ($P > 0.05$) the null hypothesis which states that 'There is no significant difference in the opinion of medical personnel on the influence of nutrition education on diabetic patients' is accepted. Consequently, There is no significant difference in the opinion of medical personnel (nurses, doctors and dietitians/nutritionists) on the influence of nutrition education on diabetic patients of Yaba Military Hospital Lagos.

Summary of the Findings

This study revealed that:-

1. The nutrition education received by the diabetic patients had a lot of positive effects on them. In

the opinion of the patients, some of the influence included:-

- * change in their eating habits (74%)
 - * improve on their the diabetic condition (77%)
 - * reduction of the rate of drugs usage (69%)
 - * reduction in their frequency of visits to the hospitals (85%);
- 2 The result of t-test in table 2 revealed that there is a significant difference in the prevalence of diabetes mellitus among male and female diabetic patients of Yaba Military Hospital Lagos, ($P < 0.05$). The finding shows that diabetes mellitus is much more prevalent among males than females.
 3. The result of ANOVA in table 3 revealed that there is no significant difference in the opinion of medical personnel (nurses, doctors and dieticians/nutritionists) on the influence of nutrition education on diabetic patients of Yaba Military Hospital Lagos, ($P > 0.05$).

Discussion of Findings

This study was carried out to determine the effects of Nutrition Education on the health status of diabetic mellitus patients. The genesis of the study was due to the fact that diabetics mellitus is becoming much more prevalent disease than most known disease worldwide. Also, a lot of medical and research report have it that diabetes mellitus, which used to be common among the aged now strike any age. It is even becoming more prevalent among children and teenagers.

The study shows that 27(69%) of the respondents randomly sampled were males while the other 31% were females as only 39 out of the 40 questionnaires administered were recorded.

The finding of the study revealed that the nutrition education/counseling provided to the sufferers of diabetes patients seems to be adequate and comprehensive enough. This is indicated by the fact that most of the sampled respondents agreed to this. This is buttressed by the fact that the respondents agreed that;

- nutrition education received has helped them to change the type of food they eat;
- it has helped to improve their health;
- it has helped to reduce the sugar level in their system; and
- it has also helped to reduce the frequency at which they visit the hospitals for check-ups.

The above finding is in line with that of Kahn (2000), Stuart (1998) and Edgren (2004). Edgren for example asserted that “many diabetics have gained improved health through dietary counseling and good routine exercise”. As a result of dietary education, some diabetics, at least for a time, to discontinue insulin therapy.

In another study by Becker (2002), it was revealed that people with Type I diabetes who kept strict control of their blood sugar levels through adherence to dietary counseling “had drastic reduction in the occurrence of diabetic eye, kidney and nerve diseases”. The study reveals further that the risk of eye disease (retinopathy) for instance, was cut by 76%. Those with Type 2 diabetes who keep tight control of their sugar levels through adherence to dietary counseling enjoy similar benefits.

The findings of hypothesis one revealed that there is a significant difference in the prevalence of diabetes mellitus among male and female diabetic patients. ($P < 0.05$). The finding shows that diabetes mellitus is much more prevalent among males than females. This findings is not in consonant with Adejoh, (2014) who discovered in his study that a total of 54% of the respondents were women, whereas 46% were men. A lot of research findings reviewed in this study do not show any significance difference in the prevalence of diabetes among male and female sufferers. However, the Journal of the American Association as cited in Awale, et.al (2003) which reported on a an extensive study involving only women asserted that men appear to be more proved to the disease because they eat more voraciously and also drink at about the same rate.

The findings of hypothesis two there is no significant difference in the opinion of medical personnel (nurses, doctors and dietitians/nutritionists) on the influence of nutrition education on health status of diabetic patients of Yaba Military Hospital Lagos. ($p > 0.05$)

This study shows that medical experts are to some extent in agreement about the effects of nutritional education on health status of diabetic patients. This implies that the counseling /nutrition education had the following positive effects on the patients among others: It helped to improve the blood sugar level of most diabetic patients. It helped to reduce the weight of obese patients and the adjustment of diabetics to nutrition counseling helps to reduce depression among them. This disagrees with the study of Adejoh, (2014) who showed that, even though some respondents had high diabetes knowledge, some of them still had low management status. This finding is not in line with the study by Bautista-Martinez et al. (2008) that the acquisition of diabetes-related knowledge is not enough to increase compliance with diabetes treatment. The study is in consonance with Murata, et al (2003) who discovered that individuals will not carry out a health-related behavior unless they have at least a minimal level of health motivation and knowledge, see themselves as vulnerable and the condition as threatening. The implication of the finding is that diabetes knowledge is an important factor on how patients will follow their management plan but should not be seen as an end in itself

Recommendations

Based on the finding resulting from the study, the following recommendations were made:

- (a) As diabetics mellitus is an irreversible bodily disorder that cannot be prevented once it occurs in the body, it is therefore suggested that its sufferers should submit themselves to a program of treatment as soon as they are diagnosed to be diabetic.
- (b) The major cause of diabetes as revealed by a lot of studies are the changes in food habits and activity patterns. To reduce the risk of contracting diabetes, the following are suggested to both the sufferers and non sufferers.
 - * As much as possible avoid reliance on food consumption outside the home.
 - * Do not skip breakfast.
 - * Reduce drastically your consumption of soft drinks and fast foods;
 - * Subject yourself to compulsory physical exercises;
- (c) Stay away from junk food and stay fit
- (d) Above all, the study has shown that nutritional education plays a very significant role in changing the nutritional status of diabetes sufferers. Education generally is the process of bringing about expected changes in individuals. The more the diabetic patients get themselves informed about the disease, the better equipped they will be to manage their health and increase their prospects of living a longer, healthy life. Effective education must however be accompanied with patience.

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