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FACTORS RESPONSIBLE FOR POOR COMPLIANCE TO DIETARY REGIMEN AMONG DIABETES PATIENTS AT SIR YAHAYA MEMORIAL HOSPITAL BIRNIN KEBBI NIGERIA

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ABSTRACT

Diabetes mellitus is a maturing cause of disease burden globally. Its management is complex; adherence to dietary regimen is known to play a major role in Glycaemia control. A study on factors responsible for the poor compliance to dietary regimens by diabetic clients has been conducted. In this study, the level of devotion and factors that persuade non-adherence to non-pharmaceutical control among patients with type-2 diabetes were assessed. A study was conducted at the Sir Yahaya Memorial Hospital Birnin Kebbi in Kebbi State, which involved adult patients receiving care at the diabetic clinics. This was a cross-sectional study carried out within the hospital premises. A structured Questionnaire was used to assess the dietary regiment adherence. A total of 120 patients with diabetes were recruited via non random sampling method, 78 (65%) patients are males while 42 (35%) are females. The data were analyzed using proportion. About 45% were not-adherent to their dietary regimen (forgot), 25% took their regimen regularly while 30% took their diet in response to the sign and symptom of the disease. Factors responsible for poor compliance to diet were: diet not palatable 58.3%, diet so expensive 40% while 1.7% reported diet does not improve their condition. The quantity of participants' advocate to dietary regimen was suboptimal. Diet not palatable and expensive nature of the diet was the key predictors of poor devotion. Therefore, strategies for increasing dietary devotion are considered to be essential.

Keywords: Compliance, Dietary regimen, Diabetes

INTRODUCTION

Diabetes mellitus is a metabolic disarray of persistent hyperglycaemia characterized by turbulence to carbohydrate, protein and fats metabolism resulting from complete or relative insulin shortage with dysfunction in organic system (Andrew *et al.,* 2018). Diabetes is a persistent situation that occurs when the body cannot produce adequate insulin or cannot use insulin and individual with high level of glucose in the blood (Asif, 2014). Damage to the biological tissues are results from the blood's gradual accumulation of glucose; leading to life-threatening health problems such as coronary artery and peripheral vascular disease (Mulat *et al*., 2020). It is an endocrine disorder in which there is shortage or lack of insulin production which result to metabolic disorder of carbohydrate, protein and fat characterized by high sugar level in the blood (hyperglycaemia) (Ojha *et al*., 2019). The common types of diabetes are type one (1) and two (2), Type one diabetes is categorized by insulin shortage and a tendency to develop diabetic keto acidosis, whereas type 2 is categorized by inconsistent degrees of insulin resistance, impaired insulin secretion, and too much hepatic glucose production (Aslam *et al.,*2020).

Diabetes mellitus refers to a group of diseases that affect how your body uses blood sugar (glucose) (Ikekpeazu *et al.,* 2011; Muktar *et al.,* 2020). Glucose is vital to the body because it is an important source of energy for the cells that make up muscles and tissues. It's also a brain's main source of fuel Mayo clinic, (2020). A latest prevalence published by the International Diabetes Federation (IDF) was 425 million persons living with Diabetes mellitus (DM) worldwide, with nearly 50% of these undiagnosed Uloko *et al.,* (2018). There is also a rising trouble from the tricky situation of Diabetes with increasing prevalence of this disease Andrew *et al.,* (2018). In Nigeria, the current prevalence of Diabetes mellitus among adults age 20-69 years is reported to be 1.7% Andrew *et al*., (2018).The greatest increase in prevalence of this disorder is expected to occur in Asia and Africa, where most people with the problem will probably be found by 2030Andrew *et al*., (2018). A research showed that three million Nigerians are diabetes patient and the number is growing daily Andrew *et al*., (2018). A study in Jos revealed a prevalence of 10.3% (Alebiosu *et al.,* 2013). Non-cooperation treatment remedy poses a great threat to patient recovery as well as preservation of good health Becker, (1985). The successful management of diabetes mellitus depends on a great level upon firm compliance with treatment regimen Vermeire *et al.,* (2005). Some diabetes patients were re-admitted immediately after they were discharged from the hospital primarily because of non-compliance with their treatment regimen Fallis *et al.,* (2013). Several studies have shown that treatment with lifestyle change or medication can reduce the progression from pre-diabetes to diabetes Beulens *et al.,* (2019). Furthermore, a clinical benefit of early therapy has been demonstrated with reduction in retinopathy and cardiovascular and all cause mortality Boussageon *et al.,* (2011). This evidence suggests that identifying pre-diabetes at an early stage and keeping glucose levels close to normal could change the natural history of the disease Boussageon *et al.,* (2011). After several plans and strategist to solve the problem of non compliance of diabetes treatment, it remains a public health challenge Kane *et al.,* (2013). Moreover, regardless of the highly developed technology in the medical field and management of diabetes patients in terms of drugs and diet, the difficulty of non compliance to prescribed treatment continues to occur among diabetic patients, Chutiyami *et al*., (2016). The difficulties of non compliance

to prescribed treatment lead to a greater concern that result in patient follow up and management Ehwarieme *et al.,* (2018).In Nigeria, just like the rest of the world, the problem of non-compliance in the management of diabetes is being proven beyond reasonable doubt to be as a result of many factors such as: cost of drugs, effect of the drugs, non-palatability of the diet, expensive nature of the diet, diet does not improve the health condition Rätsep *et al.,* (2007). Non-compliance to dietary regimen by diabetic clients is a major problem to some of the patients in our Hospitals today Ehwarieme *et al.,* (2018). Therefore, the main aim of this study is to assess the factors responsible for the poor compliance to dietary regimens by diabetic clients, level of devotion and factors that persuade non-adherence to non-pharmaceutical control among patients with type-2 diabetes at Sir Yahaya Memorial Hospital BirninKebbi, Kebbi State North-western Nigeria.

MATERIALS AND METHODS

Research Design

This design is a cross sectional study aimed at finding out the factors responsible for poor compliance to dietary regimen by diabetic patients who visit and received their treatment at Sir Yahaya Memorial Hospital BirninKebbi, Kebbi State North-western Nigeria.

Research Setting

The study was conducted at the department of Medical out patient's Sir Yahaya Memorial Hospital BirninKebbi, Kebbi State. Medical out-patient department is a unit of medicine department which operates from 8am to 4pm every day except on weekends. It is basis outpatient clinic that attends to adult patients with medical diseases including Diabetes mellitus with daily turn out of about 100 patients. The clinic attends to all medical cases on outpatient basis except those who need emergency care that are referred to Accident and emergency unit. Medical department consist of two consultants, five Medical officers and five Nurses, two record officers and two administration officers. It also provides surgical, O and G, pediatrics, ophthalmology, ear, nose and throat and dental care to patients. It is a 250 bedded secondary health institution.

Study Area and target population

BirninKebbi is a capital of Kebbi State consisting of BirninKebbi Local Government Area. BirninKebbi is mainly populated by Hausa, Fulani, Zabarmawa and Zuru. Other Nigerian tribes in the city include Yoruba, Igbo, Nupe and Ebira NIPC, (2019). The people are predominantly Muslems, with few Christians; the State has four Emirates councils (Gwandu, Zuru, Argungu and Yauri) and twenty-one local governments' areas NIPC, (2019). Majority are farmers, civil servants, traders and Artisans NIPC, (2019). Kebbi State has Hausa, Fulani and Zabarmawa culture NIPC, (2019). Kebbi State has a population of 4,440,050 (NPC & NBS, 2016). It has a total area of 36,800 km^2 and is located in the North-western geo-political zone of Nigeria (NPC& NBS, 2016). The State is bordered by three other States (Sokoto, Zamfara and Niger) and two neighbouring Countries (Benin and Niger republic) NIPC, (2019).The target population comprises those Diabetic patients attending Medical outpatient department of Sir Yahaya Memorial Hospital Birnin Kebbi.

Sample and Sampling Procedure

Simple random sampling technique was used to choose the study participant; 120 patients were selected. The sampling was based on the patients who agreed to participate and those who are attending Sir Yahaya Memorial Hospital Birnin Kebbi. The researchers used a structured questionnaire to gather data from adult patients who were receiving care at the diabetic clinics. Trained interviewers conducted face-to-face interviews with the participants. The study mainly focused on adherence to dietary regimens, and the purpose of the study was clearly explained to each participant. The participants then gave their written informed consent to participate in the study. The data was obtained at Sir Yahaya Memorial Hospital and at the same time, Specialist Hospital Birnin Kebbi. The established questionnaire through the review of literature was given to the supervisor for amendment before it was finally distributed to the clients. There was good accuracy in obtaining the data since it was collected directly from patients through questionnaire and interview. The study was conducted with official permission from the research and ethical committee of Sir Yahaya Memorial Hospital Birnin Kebbi. The Head of the Medical Outpatients department of the Hospital was given an approval letter. The clients were informed about the study and their consent was obtained before their participation. A total of 131 questionnaires were distributed among literate patients, out of which 104 were retrieved. For illiterate patients, 16 questionnaires were not used and instead, an interview was conducted. In total, 120 questionnaires were completed and collected for analysis.

Data Analysis: The research was conducted by ethical standards and official permission was obtained from the research and ethical committee of Sir Yahaya Memorial Hospital Birnin Kebbi. The Head of the Medical Outpatients department of the Hospital was given an approval letter. The participants were properly informed about the study and their consent was obtained before their participation. The data collected from completed questionnaires were analyzed using the statistical package for social science (SPSS). Results were presented in percentages and categorical variables. The research proposal was thoroughly reviewed by the ethical committee of Sir Yahaya Memorial Hospital Birnin Kebbi and ethical clearance was obtained from the Kebbi State Ministry of Health.

RESULTS AND DISCUSSION

Socio-demographic Variable of the Respondents

A total number of one hundred and forty-seven (147) samples were used for the study. One hundred and twenty (120) patients participated fully in the study (81 outpatients and 39 inpatients respectively). Seventy eight 78 (65%) of the clients were males while 42 (35%) were females and 50 (41.6%) clients fall between 46 years and above of age. Civil servants 48 (40%), farmers 32 (26.7%), business people 19 (15.8%), pensioner 19 (15.8%) and Students 2 (1.67%) of the data were obtained respectively. Eighty one 81 (67.5%) were married, 28 (23.3%) widows, 5 (4.17%) divorced, 4 (3.3%) single and 2 (1.67%) widower respectively. Postgraduates were 48 (40%), Diploma/ graduate 30 (25%), Secondary 21 (17.5%), formal education 16 (13.3%) and primary 5 (4.17%) respectively. Islam 102 (85%) while Christians were 18 (15%).

Discussion

According to a cross-sectional study conducted at Sir Yahaya Memorial Hospitals in Birnin Kebbi, less than half of the patients attending diabetic clinics were found to be following their dietary regimen as prescribed. The study identified several reasons for this poor adherence, including the unappealing taste of the prescribed food, the high cost of the diet, and the belief that the diet does not improve their health condition. Additionally, participants cited forgetfulness,

financial constraints, disappearance of symptoms, and busy schedules as the most common reasons for not following their dietary regimen. The findings of this study revealed that highest percentage of patients 50 (41.7%) were 46 years and above and most of them were males 78 (65%). Base on occupation, 48 (40%) of the participants were civil servants. This study also observed that respondents that are married have the highest percentage 81 (67.5%). This is because majority of people in that locality married at early ages due to culture and religion. These findings were supported by Chutiyemi *et al.,* (2016) Maduguri University teaching Hospital.

However, for level of education, respondent with postgraduate's level of education had the highest number 48(40%). For religion factor, majority of the respondents are Muslims 102 (85%), this is because the study area Sir Yahaya Memorial hospital is situated in predominant Muslims. For Knowledge of diabetes factor, disease due to pancreatic problem had the highest respondents 62(51.7%). This is probably because most of the clients in this study are literate (civil servants and postgraduates) they have knowledge on pancreatic gland responsible for production of insulin. Lack of insulin secretion carried the highest participants 70 (58.3%) and the reason may be because the level of the patients' education. Irregularity of follow up 50 (41.7%) is also another result in this study that contributed to poor compliance to dietary regimen. These findings are similar with a study conducted at primary Health centres in the Al Hasa district Saudi Arabia by Ataur *et al.,* (2012). This occurs as a result of financial constraint for transport and forgetfulness of the appointment day, Ataur *et al.,* (2012). Many of the respondents 54 (45%) said forgetfulness contributed to poor compliance to treatment regimen which is similar to the study carried out in University of Ilorin Teaching Hospital by Abdulazeez *et al*., (2014) with 43.18% of the respondents. Studies have shown that forgetfulness is a common cause of patients not adhering to their medication regimen. This could be attributed to a lack of proper health education or insufficient support from family members. To tackle this issue, it's recommended to have more frequent follow-up visits, counselling sessions that involve a family member and even peer group campaigns, as suggested by Ahmad *et al*., (2013) and Shams *et al*., (2016).

Folorunso & Makwin, (2022) reported 64% of the respondents' households had high food dietary diversity while 36% accounted for low household food dietary diversity. About 72(60%) of the patients in our study adhered to recommended dietary regimen. However, sometime this category of clients, whenever they find themselves in ceremonial ground or restaurants, they do not adhere to their dietary regimen. This finding was supported by Harvey & Lawson, (2009). Lack of family support has the highest percentage 75(62.5%). This study had similar result with Chutiyami *et al.,* (2016) (45.2%) from University of Maduguri Teaching Hospital Borno State, North eastern Nigeria. This study is contrary with a study conducted by Ehwarieme *et al.,* (2018) in Owerri; Imo State, Nigeria revealed that 80% of the respondents claim that their families were effectively involved in taking care of them. Diets not palatable have the highest respondents 70 (58.3%) Czarniecka-Skubina *et al*.,(2021). This is another finding that contributed to non compliance to diets simply because clients were used to their normal food with high calories, diets for a diabetic patient, must be low in calories. This low calories food become unpalatable for consumption, therefore brings not adherence to dietary regimen.

CONCLUSION

In conclusion diabetic patients need to follow recommended dietary practices to maintain optimal metabolic control and prevent major complications. Failure to adhere to these practices can lead to higher levels of glucose and cholesterol. Unfortunately, more than half of patients do not follow their dietary regimens, which is a significant public health concern. Therefore, it's crucial to develop effective strategies to educate patients about their dietary requirements and encourage adherence. Health programs on dietary regimen adherence should be carried out for these clients and written next appointment slip should be given to clients not verbally, to avoid forgetfulness.

Table 1: Socio-demographic Variable of the Respondents

Variables	Frequency	Percentages
Age		
Below 29years	5	4.17
30-35	13	10.83
36-40	20	16.6
41-45	30	25
46-above	50	41.67
Total	120	100
Sex		
Male	78	65
Female	42	35
Total	120	100
Occupation		
Farmer	32	26.7
Civil Servant	48	40
Business	19	15.8
Student	2	1.67
Pensioner	19	15.8
Total	120	100
Marital Status		
Single	4	3.33
Married	81	67.5
Divorced	5	4.17

Widow	28	23.3
Widower	2	1.67
Total	120	100
Level of education		
No formal education	16	13.3
Primary	5	4.17
Secondary	21	17.5
Diploma/ graduate	30	25
Postgraduate	48	40
Total	120	100
Religion		
Christianity	18	15
Islam	102	85

Result age, sex, religion,

Table 2: Opinion on diabetes

Categories	Frequency	Percentage (%)
Disease due to pancreatic problem	62	51.7
Disease affect elder	18	15
High blood sugar level diseases	30	25
All of the above	10	8.3
None of the above	0	0
Total	**120**	**100%**

Table 3: Causes of diabetes

Categories	Frequency	Percentage (%)
Excessive sugar intake	35	29.17
Lack of insulin secretion	70	58.3
Heredity	10	8.3
All of the above	5	4.17
None of the above	0	0
Total	**120**	**100%**

Table 4: Signs and symptoms of diabetes

Categories	Frequency	Percentage (%)
Frequent urination	56	46.7
Excessive thirst	30	25
Extreme hunger	24	20
All of the above	10	8.3
None of the above	0	0
Total	**120**	**100%**

Table 5: What delays good prognosis in treatment of diabetes?

Categories	Frequency	Percentage (%)
Regular taking of medication	28	23.3
Dietary modification	25	20.8
Irregularity of follow up	50	41.7
All of the above	17	14.7
None of the above	0	0
Total	**120**	**100%**

Table 6: How often clients take their diets?

Categories	Frequency	Percentage (%)
As prescribed	30	25
In response to the signs of disease	36	30
I do forget to take my prescribed diet	54	45
Total	**120**	**100%**

Table 7: Do you adhere to the recommended dietary regimen?

Categories	Frequency	Percentage (%)
Always	42	35
Sometime	72	60
Not at all	6	5
Total	**120**	**100%**

Table 8: How often do you receive support from your family on dietary regimen?

Categories	Frequency	Percentage (%)
Always	41	34.17
Some times	75	62.5
Not at all	4	3.3
Total	**120**	**100%**

Table 9: Factors responsible for poor compliance to diet

Categories	Frequency	Percentage (%)
Diet not palatable	70	58.3
Diet is so expensive	48	40
Diet does not improve the condition	2	1.67
Total	**120**	**100%**

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