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Determinants of Dietary Regimen Adherence Among Diabetic Mellitus Patients in Osogbo, Osun State, Nigeria

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Abstract:

Diabetes mellitus (DM) is a metabolic disease characterized by increased in the level of glucose in the blood (hyperglycaemia) resulting from defects in insulin secretion, insulin action or both. DM remains a universal significant health problem despite enormous research being undertaken on this field. It requires most time self-management and long -time therapies. The objective of this study was to investigate those factors influencing dietary regimen adherence among diabetic patients in Osogbo, Osun State. A descriptive cross-sectional study design was used. Research instrument used for data collection sought for data on socio-demographic characteristics; knowledge on diabetes mellitus, level of adherence to dietary regimen and factors influencing dietary regimen adherence. The data collected were coded and analysed using SPSS version 28. The findings of the study revealed that almost all (100%) of the respondents have good knowledge on diabetes mellitus as the presence of increased blood sugar level, and more than half of the target population (72.9%) adhered to their recommended dietary regimen as prescribed by the dietician. From the foregoing study, it is evident that majority of diabetic patients in Osogbo were knowledgeable on the incidence of DM, and their level of adherence was good. The respondents also identified factors influencing dietary regimen adherence as patient's knowledge, high cost of treatment, monthly income, foods and diets prescribed in the hospital, family support and income, forgetfulness, among others. Thus, in order to enable strict adherence to dietary regimen, continuous education of the patients on the importance of adherence to dietary regimen and the consequences of non-adherence whenever they go for clinical appointments and

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assessment of the level of non-adherence to dietary regimen should be done from time to time.

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Introduction

Diabetes mellitus (DM) has significantly contributed to medical mortality and morbidity worldwide, especially in developing countries like Nigeria. In 2020, an estimated 5.4 million people died from the consequences of high fasting blood sugar, with more than 80% of these deaths occurring in low- and medium-income countries globally (WHO, 2021). According to the World Health Organization (WHO), in 2021, an estimated 24.7 million adults in Africa were suffering from diabetes which resulted in 344,000 deaths and nearly 2.8 billion dollars was budgeted and spent on the disease management, prevention and by countries in the region (WHO, 2021).

Studies in Nigeria have reported that the prevalence of diabetes varies across different zones of the country but ranges from 2.2 - 9.8% (Chinenye et al., 2018, Omorogiuwa, et al., 2019). The diabetes statistics of the International Diabetic Federation (IDF) showed that Nigeria has the highest number of people living with diabetes and impaired fasting glucose (IFG) in Africa (WHO, 2021). Diabetes Mellitus is the commonest endocrine-metabolic disorder in Nigeria similar to peoples' experience in other parts of the World (Chinenye et al., 2019). Diabetes mellitus (DM) is a group of metabolic disorders characterized by a chronic hyperglycemic condition resulting from defects in insulin secretion, insulin action or both (Ozougwu, et al., 2013). It is a group of metabolic disorder in which the body has a deficiency of and/or a resistance to insulin (Omorogiuwa, et al., 2019).

It is the most common endocrine disorder and is an insidious disease, with the risk of developing it increases with age. It is a variable disorder of carbohydrate metabolism caused by a combination of hereditary and environmental factors and usually characterized by inadequate secretion or utilization of insulin, by excessive urine production, by excessive amounts of sugar in the blood and urine and by thirst, hunger and loss of weight (Menke, et al., 2016). The term "diabetes mellitus" refers to a group of diseases that affect how the body uses blood glucose, commonly called blood sugar glucose, which is vital to one's health because it's an important source of energy for the cells that make up the muscles and tissues.

In view of the rate at which diabetes is now increasing, especially in the developing countries and with its short term and long- term complications, there is urgent need for diabetic patients to adhere to and maintain their management regimen. This will help to achieve diabetic management goals, retard the progress of diabetic complications and improve patient quality of life. Currently there is no known cure for diabetes but the major element in diabetes care is good glycaemic control which is achieved by strict adherence to medication, informed dietary modification, appropriate physical exercise and other instructions (Eckland 2013).

In medicine, adherence describes the degree to which patients correctly follows medical advice. Most commonly, it refers to medication or drug adherence, but it can also apply to other situations such as medical device use, self-care such as adequate diet, self-directed exercises, or therapy sessions. Both the patient and the health-care provider affect adherence, and a positive physician-patient relationship is the most important factor in improving adherence, although the high cost of prescription medication also plays a major role (Olufemi & Samuel, 2015). Efforts to improve adherence have been aimed at simplifying medication packaging, providing effective medication reminders, improving patient education, and limiting the number of medications prescribed simultaneously. Current studies show a great variation in terms of characteristics and effects of interventions to improve medicine adherence (Omole, et al., 2017). It is still unclear how adherence can consistently be

improved in order to promote clinically important effects (Omole, et al., 2017). Poorer health outcomes and higher healthcare costs result when patient does not adhere to recommended medication and lifestyle changes such as exercise, smoking cessation or prescribed non pharmacologic interventions such as physical therapy or dietary plans (Eckland, 2013).

Dietary regimen adherence problems are common in individuals with diabetes, making glycemic control difficult to attain. If diabetic management goals are to be achieved, all determinants and circumstances that predispose or contribute to patients' non-adherence to regimen should be part of the health care givers' concern (Okolie, et al., 2018). They further identified those determinants influencing dietary regimen adherence to include socio-demographic factors such as: gender, age, marital status, educational level and occupation; psychosocial obstacles such as: non-affordability of prescribed diet, frustration due to the restriction, limited spousal support, feelings of deprivation, feeling that temptation is inevitable, difficulty in adhering in social gatherings and difficulty in revealing to host that one is diabetic; health care providers obstacles were: poor attitude of health workers, irregular diabetes education in clinics, limited number of nutrition education sessions/ inability of the patients to estimate the desired quantity of food, no reminder post cards or phone calls about upcoming patient appointments and delayed start of appointment / time wasting in clinics (Okolie, et al., 2018). Hence, this study therefore aimed at investigating those determinants influencing dietary regimen adherence among diabetic patients in Osogbo, Osun State. The study specifically:

1. determined the level of knowledge of diabetes mellitus among diabetic patients;
2. examined the level of dietary regimen adherence among diabetic patients; and
3. identified those determinants of dietary regimen adherence among diabetic patients;

Research Method

The study was a descriptive cross -sectional study that investigated those determinants of dietary regimen adherence among diabetic patients in Osogbo, Osun State, Nigeria. The study population includes diabetic patients visiting diabetic clinic in General Hospital, Osogbo, Osun State. The Diabetic clinic operates on Monday to Friday, 8am - 2pm every week. All patient attending Diabetics Clinic on Clinic days who met the inclusion criteria were eligible to take part in the sampling procedure. Convenience sampling procedure was employed to select the study participants. All available diabetic patients who consent by filling the informed consent form were allowed to participate. In all, the total sample size used was 272 respondents.

Eligibility for participating in the study was based on:

1. being a diabetic patient within the age range of 20 years and above;
2. consenting diabetic patients;
3. diabetic patients currently attending the clinic when this study was conducted;

Diabetic patients that were not eligible to participate in the study include:

1. any diabetic patient who does not meet the inclusion criteria listed above; and
2. non-consenting diabetic patients.

The instrument used for data collection was a questionnaire divided into four sections A, B, C and D. Section A sought for socio-demographic characteristics of the respondents which included their occupation and level of income. Section B consisted of items to determine respondent's level of knowledge about cause, prevention and management of diabetes mellitus. Section C consisted of items to determine the level of adherent to dietary regimen among diabetic mellitus patient while section D consisted of items on the determinants of dietary regimen adherence among diabetic mellitus patients.

The instrument was validated by experts in Tests and Measurement and was pre-tested at a General Hospital outside the sampled facility. Necessary corrections made were effected before the final instrument was administered. The reliability of the items in the questionnaire was determined using Alpha Cronbach statistics which yielded a reliability coefficient value of 0.81.

Each of the respondents was given consent form to read and digest so as to consent to voluntary participation. Respondents were not provided with incentive but were motivated with writing materials to fill the questionnaire and no money was expected or demanded by the researcher or his assistant over respondents' participation.

Processing of the data involved sorting, cleaning and coding of the questionnaire. Serial number was written on each questionnaire for easy identification and recall of any instrument that might be missing or not properly answered. Appropriate scoring was done and data were coded. Data analysis was done using Statistical Package for Social Science Software (Version 28). The data were analysed using descriptive statistics.

Results

Socio-Demographic Characteristics

Table 1a: Age

Age	Frequency	Percentage
35-44	69	23.1
45-54	92	30.8
55-64	64	21.4
65-74	61	20.4
75-84	13	4.3
Total	299	100

From the table above 92(30.8%) of the respondents were within the age bracket 45-54years while 69(23.1%) of them were within age 35-44years followed by 64(21.4%), 61(20.4%) fell within the age bracket 65-74years and the remaining 13(4.3%) are within the age range of 75-84 years

Table 1b: Sex

Sex	Frequency	Percentage
Male	71	23.7
Female	228	76.3
Total	299	100.0

Results from the table above revealed that majority of the respondents 228(76.3%) are female while the remaining 71(23.7%) of them are male

Table 1c: Marital status

Marital status	Frequency	Percentage
Single	39	13.0
Married	200	66.9
Divorced/separated	54	18.1
Widowed/widower	6	2.0
Total	299	100.0

Majority of the respondents 200(66.9%) are married while 54(18.1%) of the were divorced/separated followed by 39(13%) of them that are still single while the remaining 6(2.0%) of them are widowed/widower.

Table 1d: Level of education

Level of education	Frequency	Percentage
Quranic/Islamic	9	3.0
Primary	111	37.1
Secondary	97	32.4
Tertiary	82	27.4
Total	299	100.0

From the table above, 111(37.1%) of the respondents had primary education, followed by 97(32.4%) of them that has secondary education,82(27.4%) of the had tertiary education while the remaining 9(3.0%) had only Islamic education

Table 1e: Ethnic group

Ethnic group	Frequency	Percentage
Yoruba	164	54.8
Igbo	120	40.1
Hausa	15	5.0
Total	299	100.0

It was found that majority of the respondents 164(54.8%) belonged to the Yoruba ethnic group while 120(40.1%) of them belonged to the Igbo ethnic group, and the remaining 15(5.0%) are from the Hausa ethnic group.

Table 1f: Religion

Religion	Frequency	Percentage
Christianity	197	65.9
Muslim	102	34.1
Total	299	100.0

From the table above, 197(65.9%) of the respondents are Christians while the remaining 102(34.1%) of them are Muslims

Table 1g: Occupation

Occupation	Frequency	Percentage
Unemployed	18	6.0
Farmer	41	13.7
Trading and business	53	17.7
Artisan	42	14.0
Civil servant	19	6.4
Student	55	18.4
Self employed	71	23.7
Total	299	100.0

Results from the table above revealed that 71(23.7%) are self-employed while 55(18.4%) of them were students followed by 53(17.7%) of them that are into trading and business, 42(14.0% of them are artisans, 41(13.7%) of them are farmers, also 19(6.4%) of them are civil servants and the remaining 18(6.0%) of them are unemployed.

Table 1h: Monthly Income

Monthly income	Frequency	Percentage
Less than #50,000	76	25.4
More than #50,000	223	74.6
Total	299	100.0

Majority of the respondents 223(74.6%) revealed that they earn more than #50,000 while the remaining 76(25.4%) earn less than #50,000

Objective 1: Respondents' level of knowledge about cause, prevention and management of Diabetes Mellitus

Table 2a: Do you know that Malfunction of the isletl Langerhan in the pancrease resulting in low and inadequate production of insulin in the disease called diabetes Mellitus

Options	Frequency	Percentage
Yes, I know	172	57.5
No, I don't know	56	18.7
I cannot recollect	43	14.4
I will inquire	28	9.4
Total	299	100.0

From the table above, quite a number of the respondents 172(57.5%) revealed that they know that malfunction of the islet of Langerhans in the pancreas resulting in low and inadequate production of insulin in the disease called diabetes Mellitus while 56(18.7%) of them do not know followed by 43(14.4%) of them that revealed that they couldn't recollect and the remaining 28(9.4%) of them said they will inquire

Table 2b: Which type of diabetes mellitus (DM) disorder were you diagnosed of? Please specify

Options	Frequency	Percentage
Type 1 DM	256	85.6
Type 2 DM	43	14.4
Total	299	100.0

In the table above, it was revealed that a greater majority 256(85.6%) has type 1 DM while the remaining 43(14.4%) of them has they type 2 of diabetes mellitus.

Table 2c: Do you know that diabetes mellitus is a deadly and life-threatening disease?

Options	Frequency	Percentage
Yes, I know	154	51.5
No, I don't know	57	19.1
I am not sure	86	28.8
I will inquire	2	0.7
Total	299	100.0

Results from the table above showed that quite a number of the respondents 154(51.5%) were aware that diabetes mellitus is a deadly and life-threatening disease while 86(28.8%) of them were not sure followed by 57(19.1%) of the respondents that revealed they do not know that diabetes mellitus is a deadly and life-threatening disease and the remaining 2(0.7%) stated that they will make enquires as regards that

Table 2d: Do you know that diabetes mellitus can be inherited from parents to their children?

Options	Frequency	Percentage
Yes, I know	162	54.2
No, I don't know	67	22.4
I am not sure	51	17.1
I will inquire	19	6.4
Total	299	100.0

A greater majority of the respondents 162(54.2%) stated that they were aware that diabetes mellitus can be inherited from parents to their children while 67(22.4%) of them stated that they do not know followed by 51(17.1%) of the respondents who said that they were not sure and the remaining 19(6.4%) of the respondents stated that they will inquire whether or not diabetes mellitus can be inherited from parents to their children.

Table 2e: Do you know that patient with diabetes mellitus passes urine frequently at night and their urine smell of ketone (presence of sugar)?

Options	Frequency	Percentage
Yes, I know	132	44.1
No, I don't know	57	19.1
I can't remember	110	36.8
Total	299	100.0

132(44.1%) of the respondents stated that they were in the know of the fact that patient with diabetes mellitus passes urine frequently at night and their urine smell of ketone(presence of sugar) while 110(36.8%) of the respondents couldn't remember followed by 57(19.1%) of the respondents who stated that they do not know that patient with diabetes mellitus passes urine frequently at night and their urine smell of ketone(presence of sugar)

Table 2f: Do you know that patient with diabetes mellitus experiences thirst and are sometimes dehydrated?

Options	Frequency	Percentage
Yes, I know	164	54.8
No, I don't know	50	16.7
I can't recollect	73	24.4
I will inquire	12	4.0
Total	299	100.0

Majority of the respondents stated that they know that patient with diabetes mellitus experiences thirst and are sometimes dehydrated, while 73(24.4%) of them couldn't recollect whether or not patient with diabetes mellitus experiences thirst and are sometimes dehydrated followed by 50(16.7%) of the respondents who stated that they do not know that patient with diabetes mellitus experiences thirst and are sometimes dehydrated and the remaining 12(4.0%) sated that they will inquire.

Table 2g: Do you know that incessant alcohol consumption and tobacco smoking are among the risk factor of diabetes mellitus disorder?

Options	Frequency	Percentage
Yes, I know	138	46.2
No,I don't know	46	15.4
I can't recollect	67	22.4
I will inquire	48	16.1
Total	299	100.0

From the above table, a greater majority of the respondents 138(46.2%) stated that they know that incessant alcohol consumption and tobacco smoking are among the risk factor of diabetes mellitus disorder, while 67(22.4%) stated that they couldn't recollect followed by 48(16.1%) of them who stated that they will inquire and the remaining 46(15.4%) doesn't know that incessant alcohol consumption and tobacco smoking are among the risk factor of diabetes mellitus disorder.

Table 2h: Do you know that poor adherence to dietary regimen leads to rapid disease progression?

Options	Frequency	Percentage
Yes, I know	173	57.9
No, I don't know	28	9.4
I can't recollect	30	10.0
I will inquire	68	22.7
Total	299	100.0

The table above shows that quite a number of the respondents 173(57.9%) were aware that poor adherence to dietary regimen leads to rapid disease progression while 68(22.7%) stated that they will inquire followed by 30(10.0%) of them that stated that they couldn't recollect whether or not poor adherence to dietary regimen leads to rapid disease progression.

Table 2i: Do you know that dietary regimen adherence is a life-long therapy and treatment for people suffering from diabetes mellitus?

Options	Frequency	Percentage
Yes, I know	142	47.5
No, I don't know	70	23.4
I can't recollect	25	8.4
I will inquire	62	20.7
Total	299	100.0

A greater majority of the respondents 142(47.5%) stated that they know that dietary regimen adherence is a life-long therapy and treatment for people suffering from diabetes mellitus followed by 70(23.4%) of them that stated that they do not know while 62(20.7%) of the respondents said they will inquire and the remaining 25(8.4%) couldn't recollect.

Table 2j: Do you know that clinical sign of Diabetes Mellitus is the presence of increased blood sugar level?

Options	Frequency	Percentage
Yes, I know	299	100.0
Total	299	100.0

The table above showed that all the respondent were fully aware that clinical sign of Diabetes Mellitus is the presence of increased blood sugar level

Objective 2: Adherence to Dietary Regimen among Diabetic Mellitus Patients.

Table 3a: Since you have commenced the recommended dietary regimen, have you been adhering strictly to it as prescribed by the dietician?

Options	Frequency	Percentage
Yes,	218	72.9
No,	41	13.7
I can't recollect	40	13.4
Total	299	100.0

A greater majority of the respondents 218(72.9%) stated that they have been adhering strictly to the recommended dietary regimen followed by 41(13.7%) of them who stated that they have not been adhering strictly to the recommended dietary regimen and the remaining 40(13.4%) of the respondents couldn't recollect whether or not they have been adhering strictly to the recommended dietary regimen

Table 3b: If No, how many times have you missed the therapy in the past one month?

Options	Frequency	Percentage
Once	17	5.7
Twice	12	4.0
Seven times	12	4.0
Total	41	100.0

Out of the 41(13.1%) that stated that they do not adhere strictly to the recommended dietary regimen, 17(5.7%) of them stated that they have missed the therapy once in the past one month while 12(4.0%) of them stated they have missed it twice in the past one month and the remaining 12(4.0%) have missed it seven times in last one month.

Table 3c: What are the reasons for missing the therapy?

Options	Frequency	Percentage
Side effect	3	1.0
Forgetfulness	10	3.3
High cost of regimen	21	7.0
Traditional belief	1	0.3
Depression	6	2.0
Total	41	100.0

21(7.0%) of them stated that the high cost of regimen was the reason for missing their therapy, while 10(3.3%) attributed forgetfulness as the reason for missing their therapy, 2% of them stated that depression was their reason for missing the therapy 3% and1% of them

attributed side effect and traditional belief respectively as their reason for missing the therapy

Table 3d: Do you eat meal at regular time per day

Options	Frequency	Percentage
Yes I do	149	49.8
No, I don't	72	24.1
I can't recollect	78	26.1
Total	299	100.0

A greater majority of the respondents stated that they eat their meals at regular time per day while 78(26.1%) of them stated that they couldn't recollect whether or not they eat their meals at regular times per day and the remaining 72(24.1%) said they do not know

Table 3e: Since you started taking your dietary regimen, has your health been improved?

Options	Frequency	Percentage
Yes I have	203	67.9
No, I have not	96	32.1
Total	299	100.0

A greater majority of the respondents 203(67.9%) stated that their health has improved since they started taking their dietary regimen while the remaining 96(32.1%) stated that their health has not improve since they started taking their dietary regimen

Table 3f: Have you been visiting the clinic for medical check ups

Options	Frequency	Percentage
Yes I have	203	67.9
No, I have not	96	32.1
Total	299	100.0

The table above shows that majority of the respondents 203(67.9%) have been visiting the clinic for medical check-ups while the remaining 96(32.1%) have not been visiting the clinic for medical check-ups.

Table 3g: Do you know that diabetic patients who adhere to dietary regimen persistently and adequately can live as long as any other person?

Options	Frequency	Percentage
Yes I do	212	70.9
No, I don't	36	12.0
I will inquire	50	16.7
Total	299	100.0

Quite a number of the respondents 212(70.9%) stated that they know that diabetic patients who adhere to dietary regimen persistently and adequately can live as long as any other person while 50(16.7%) of them stated that they will inquire and the remaining 36(12.0%) of them stated they do not know.

Objective 3: Determinants of dietary regimen adherence among diabetic mellitus (DM) patients

Table 4a: Do you think the cost of diet therapy of Diabetes mellitus is expensive and unaffordable?

Options	Frequency	Percentage
Yes I do	184	61.5
No, I don't	115	38.5

Total	299	100.0

A greater majority of the respondents 184(61.5%) stated that they think the cost of die therapy of Diabetes mellitus is expensive and unaffordable while the remaining 115(38.5%) of the me said they do not think so

Table 4b: Do you think that where to fetch diabetic diets are easily accessible?

Options	Frequency	Percentage
Yes I do	204	68.2
No, I don't	95	31.8
Total	299	100.0

Quite a number of the respondents 204(68.2%) stated that diabetic diets are easily accessible while the remaining 95(31.8%) said the diabetic diets are not easily accessible

Table 4c: Do you have easy and confidential access to your diabetic treatment?

Options	Frequency	Percentage
Yes I do	209	69.9
No, I don't	19	6.4
I can't recollect	71	23.7
Total	299	100.0

209(69.9%) of the respondents said they have easy and confidential access to your diabetic treatment while 71(23.7%) couldn't recollect and the remaining 19(6.4%) of them do not have easy and confidential access to your diabetic treatment

Table 4d: Do you think your monthly income is sufficient for you to maintain a healthy lifestyle?

Options	Frequency	Percentage
Yes I do	231	77.3
No, I don't	68	22.7
Total	299	100.0

Majority of the respondents 231(77.3%) claimed that their monthly income is sufficient for them to maintain a healthy lifestyle while the remaining 68(22.7%) said their monthly income is not sufficient for them to maintain a healthy lifestyle

Table 4e: Do you attribute dietary non-adherence to the present poor economic situation, economic recession and poverty?

Options	Frequency	Percentage
Yes I do	216	72.2
No, I don't	83	27.8
Total	299	100.0

216(72.2%) of the respondents stated they attributed dietary non-adherence to the present poor economic situation, economic recession and poverty while the remaining 83(27.8%) do not attribute dietary non-adherence to the present poor economic situation, economic recession and poverty.

Table 4f: Do you attribute your non-adherence to dietary regimen due to financial constraints?

Options	Frequency	Percentage
Yes I do	160	53.5
No, I don't	139	46.5
Total	299	100.0

A greater majority of the respondents 160(53.5%) attributed their non-adherence to dietary regimen due to financial constraints while the remaining lesser minority 139(46.5%) does not attribute their non-adherence to dietary regimen due to financial constraints.

Table 4g: Does your religious and cultural belief influence your dietary requirements?

Options	Frequency	Percentage
Yes I do	52	17.4
No, I don't	247	82.6
Total	299	100.0

Majority of the respondents 247(82.6%) stated that religious and cultural belief do not influence their dietary requirements while the remaining 52(17.4%) of them attributed religious and cultural belief as one factor that influence their dietary requirements

Table 4h: Does your socio economic status influence dietary regimen adherence?

Options	Frequency	Percentage
Yes It does	269	90.0
No, It doesn't	30	10.0
Total	299	100.0

From the table above, it can be seen that majority 269(90%) of the respondents attributed socioeconomic status as a factor that influences their dietary regimen while the remaining 30(10%) does not attribute socioeconomic status as a factor that influences their dietary regimen

Table 4i: Do you think that preparation of diabetic diets is time consuming?

Options	Frequency	Percentage
Yes I do	232	77.6
No, I don't	67	22.4
Total	299	100.0

Quite a number of the respondents thinks that preparation of diabetic diets is time consuming and the remaining 67(22.4%) of the respondents thinks otherwise

Table 4j: Do you think that foods and diets prescribed in the hospital should be strictly adhered to?

Options	Frequency	Percentage
Yes, I do	119	39.8
No, I don't	66	22.1
I can't recollect	12	4.0
I will inquire	102	34.1
Total	299	100.0

119(39.8%) of the respondents stated that they think that foods and diets prescribed in the hospital should be strictly adhered to while 102(34.1%) stated that they will inquire followed by 66(22.1% of the respondents that stated that they you not think that foods and diets prescribed in the hospital should be strictly adhered to and the remaining 12(4.0%) of the respondents couldn't recollect.

Table 4k: Do you think treatment of diabetes mellitus is cumbersome and complex?

Options	Frequency	Percentage
Yes I do	110	36.8
No, I don't	189	63.2

Total	299	100.0

A greater majority of the respondents stated that they do not think treatment of diabetes mellitus is cumbersome and complex while the remaining 110(36.8%) of them stated that they think treatment of diabetes mellitus is cumbersome and complex

Table 4l: Do you think that community support is important in the treatment of diabetes mellitus

Options	Frequency	Percentage
Yes I do	238	79.6
No, I don't	61	20.4
Total	299	100.0

From the table above it can be seen that majority of the respondents 238(79.6%) think that community support is important in the treatment of diabetes mellitus while the remaining 61(20.4%) of the respondents do not think that community support is important in the treatment of diabetes mellitus.

Table 4m: Do you attribute forgetfulness to influence non-adherence to dietary regimen

Options	Frequency	Percentage
Yes I do	238	79.6
No, I don't	61	20.4
Total	299	100.0

Quite a number of the respondents 238(79.6%) stated that they attribute forgetfulness to influence non-adherence to dietary regimen and 61(20.4%) of them does not attribute forgetfulness to influence non-adherence to dietary regimen

Table 4n: Do you think that effective communication between health professionals and their patients influences dietary regimen adherence?

Options	Frequency	Percentage
Yes I do	299	100.0
Total	299	100.0

From the table above, all the respondents affirm that they think that effective communication between health professionals and their patients influences dietary regimen adherence.

Discussion

Quite a number of the respondents 172(57.5%) stated that they are aware that the malfunction of the islet of Langerhans in the pancreas resulting in low and inadequate production of insulin is the disease called diabetes Mellitus while 56(18.7%) do not know. More than 80% of the respondents has type 1 DM while the remaining 43(14.4%) is with type 2 diabetes mellitus. Furthermore, more than half of the study respondents 154(51.5%) were aware that diabetes mellitus is a deadly and life-threatening disease while 86(28.8%) of them were not sure followed by 57(19.1%) of the respondents that revealed they do not know that diabetes mellitus is a deadly and life-threatening disease. A greater majority of the respondents 162(54.2%) stated that they were aware that DM can be inherited from parents to their children while 67(22.4%) of them stated that they do not know followed by 51(17.1%) of the respondents who said that they were not sure. From the above table, a greater majority of the respondents 138(46.2%) stated that they know that incessant alcohol consumption and tobacco smoking are among the risk factor of diabetes mellitus disorder, while 67(22.4%) stated that they couldn't recollect followed by 48(16.1%) of them who stated that they will inquire and the remaining 46(15.4%) doesn't know that incessant

alcohol consumption and tobacco smoking are among the risk factor of diabetes mellitus disorder. A greater number of the respondents 142(47.5%) stated that they know that dietary regimen adherence is a life-long therapy and treatment for people suffering from diabetes mellitus followed by 70(23.4%) of them that stated that they do not know while 62(20.7%) of the respondents said they will inquire and the remaining 25(8.4%) couldn't recollect.

A greater majority of the respondents 218(72.9%) stated that they have been adhering strictly to the recommended dietary regimen followed by 41(13.7%) of them who stated that they have not been adhering strictly to the recommended dietary regimen and the remaining 40(13.4%) of the respondents couldn't recollect whether or not they have been adhering strictly to the recommended dietary regimen, this is however in line with the study by Omole et al. (2017) where 63.8% of the total DM patients were unable to follow doctor's recommendation regarding diet. Out of the 41(13.1%) that stated that they do not adhere strictly to the recommended dietary regimen,17(5.7%) of them stated that they have missed the therapy once in the past one month while 12(4.0%) of them stated they have missed it twice in the past one month and the remaining 12(4.0%) have missed it seven times in last one month. 21(7.0%) of them stated that the high cost of regimen was the reason for missing their therapy, while 10(3.3%) attributed forgetfulness as the reason for missing their therapy, 2% of them stated that depression was their reason for missing the therapy 3% and1% of them attributed side effect and traditional belief respectively as their reason for missing the therapy. This is however in line with studies conducted by Omole et al. (2017), Kassahun et al (2016) and Ajibade et al. (2018).

A greater majority of the respondents 203(67.9%) stated that their health has improved since they started taking their dietary regimen while the remaining 96(32.1%) stated that their health has not improve since they started taking their dietary regimen .furthermore majority of the respondents 203(67.9%) have been visiting the clinic for medical check-ups while the remaining 96(32.1%) have not been visiting the clinic for medical check-ups. Also quite a number of the respondents 212(70.9%) stated that they know that diabetic patients who adhere to dietary regimen persistently and adequately can live as long as any other person while 50(16.7%) of them stated that they will inquire and the remaining 36(12.0%) of them stated they do not know.

A greater majority of the respondents 184(61.5%) stated that they think the cost of diet therapy of Diabetes mellitus is expensive and unaffordable. Quite a number of the respondents 204(68.2%) stated that diabetic diets are easily accessible while the remaining 95(31.8%) said the diabetic diets are not easily accessible. 209(69.9%) of the respondents said they have easy and confidential access to diabetic treatment while 71(23.7%) couldn't recollect and the remaining 19(6.4%) of them do not have easy and confidential access to diabetic treatment. Majority of the respondents 231(77.3%) claimed that their monthly income is sufficient for them to maintain a healthy lifestyle while the remaining 68(22.7%) said their monthly income is not sufficient for them to maintain a healthy lifestyle. Also more than seventy per cent of the respondents stated they attributed dietary non-adherence to the present poor economic situation, economic recession and poverty while the remaining 83(27.8%) do not attribute dietary non-adherence to the present poor economic situation, economic recession and poverty.

A greater majority of the respondents 160(53.5%) attributed their non-adherence to dietary regimen due to financial constraints while the remaining lesser minority 139(46.5%) does not attribute their non-adherence to dietary regimen due to financial constraints. This is also

in line with a study conducted by Divya (2015) where it was found that majority of the study population attributed non-adherence of dietary regimen due to financial constraints. Majority of the respondents 247(82.6%) stated that religious and cultural belief do not influence their dietary requirements while the remaining 52(17.4%) of them attributed religious and cultural belief as one factor that influence their dietary requirements. Quite a number of the respondents thinks that preparation of diabetic diets is time consuming and the remaining 67(22.4%) of the respondents thinks otherwise. 119(39.8%) of the respondents stated that they think that foods and diets prescribed in the hospital should be strictly adhered to while 102(34.1%) stated that they will inquire followed by 66(22.1%) of the respondents that stated that they you not think that foods and diets prescribed in the hospital should be strictly adhered to and the remaining 12(4.0%) of the respondents couldn't recollect.

All of the respondents affirm that they were satisfied with the overall support they get from the health care providers, this however is in line with a study conducted by Omole et al. (2017) in which all of the respondents were satisfied with the overall support they get from the health care providers Quite a number of the respondents 238 (79.6%) stated that they attribute forgetfulness to influence non-adherence to dietary regimen and 61(20.4%) of them does not attribute forgetfulness to influence non-adherence to dietary regimen.

Conclusion

It is quite evident from this study that diabetes is a progressive disease and pharmacological treatment is essential to maintain glycemic control and reduce adverse related problems. Even though adherence to medications leads to beneficial outcomes, non-adherence to medications in patients is often poor and there are numerous reasons for poor adherence including inadequate patient knowledge and awareness about the importance of adherence in the diabetes management age, social and psychological factors, the complexity of the medication regimen, cost of medication and negative treatment perceptions. Poor communication between doctor and patient, and attitude of health workers can also affect adherence.

Recommendation

Based on the results of the findings in this study, the following recommendation /suggestions were made:

1. Continuous education of the patients on the importance of adherence to dietary regimen and the consequences of non-adherence whenever they go for clinical appointments and assessment of the level of non-adherence to dietary regimen should be done from time to time.
2. There is a need to improve patient adherence by improving the health care system and health education to patients and their families.
3. A reminder system should be devised in-order to assist the patients in taking their dietary regimen on daily basis in a timely manner.
4. Measures to increase patient satisfaction and counteract a lack of adherence must be multifactorial; strategies should include a reduction in the complexity of the prescription regimen, educational initiatives, improved doctor–patient communication, reminder systems and reduced costs.

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