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PERCEIVED FACTORS AFFECTING COMPLIANCE TO TREATMENT REGIMEN AMONG CLIENTS WITH DIABETIC MELLITUS IN SELECTED HOSPITALS IN BENIN CITY

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Abstract

Diabetes is a global health issue as it is a metabolic disease that affects individuals of all ages. The success of long term maintenance therapy for diabetes mellitus depends largely upon the patient's compliance with a therapeutic plan. This study investigated the factors affecting level of compliance with treatment regimen among clients with diabetes mellitus in selected hospital in Benin City, Edo state. A descriptive cross sectional design was in a total of three hundred and six (306) diabetic patients selected using the convenient sampling technique. The instrument for data collection was a self-constructed questionnaire. Data collected was analyzed using descriptive statistic in Statistical Package for Social Sciences (SPSS) version

21. Results from the study showed that side effects of the medications (2.81 ± 0.944), Lack of finance (2.93 ± 0.878) Lack of family support (2.77 ± 0.938), Waiting time in the hospital before being attended to(2.78 ± 0.946) Unavailability of the medication in the hospital(2.63 ± 0.914), Bad attitude of health personnel(2.68 ± 0.938), Diabetic medications and investigations too expensive (2.77 ± 0.993) are some of the factors indentified. Furthermore there was no significant difference in the factors affecting compliance to diabetic treatment regimen between the hospitals (p = 0.144). Also there was no significant relationship (p=0.105) between the effect of family support and rate of compliance. However there was a significant difference in the effect of family support between the two hospitals (p = 0.000). Therefore it is recommended that government should subsidized drugs and laboratory investigation for diabetic's patient as well made the drugs available in the government owned pharmacy.

Key Words: Non-compliance, compliance, diabetic patient, diabetes treatment regimen

INTRODUCTION/BACKGROUND

Diabetes mellitus is one of the major health problems worldwide and a principal cause of death in developing countries especially Nigeria. Diabetes mellitus is an endocrine disorder in which there is deficiency or lack of insulin production, leading to metabolic disorders of carbohydrates, protein and fat characterized by high sugar level in the blood (hyperglycaemia), degenerative vascular changes and neuropathy [1]. In spite of advanced technology in the medical field and the management of diabetic clients in terms of drugs and diet, the problem of non-compliance to prescribed therapy continues to occur among diabetic clients. This attitude of non-compliance has called for a greater concern in the follow- up of clients to treatment and the overall response to the diabetic management in our hospitals. In 2000, WHO reported that, at least 171 million people worldwide suffer from diabetes, that is; 2.8% of the population and it was estimated that by 2030, this number will almost double.

Diabetes mellitus occurs throughout the world but is more common (especially type 2) in the more developed countries. The greatest increase in prevalence is however, expected to occur in Asia and Africa, where most clients will probably be found by 2030 [2]. Improving patient compliance should therefore be of particular interest to all health care providers in health institutions. Compliance has been defined as the extent to which individuals follow the instructions they are given for prescribed treatments [3]. Compliance with a prescribed therapeutic regimen is a complex health behaviour and can reduce morbidity or mortality of chronic illness where information provided to the patient increases their knowledge and understanding of the risk factors for their illness and teaches preventive behaviours like exercises, smoking cessation, dietary changes, medication and stress management[4]. Barriers to non-compliance include attitude and

belief of individuals which explains the health behaviours of such individuals [5]. The perceived cause of such health behaviours are greatly influenced by culture, religion and level of education among other factors [6]. Non-compliance can be due to factors that are patient-centred, therapy-related, health care system related. The patient-centred factors can be demographic (age, gender, educational level and marital status) and psychological (patients belief and motivation towards the therapy, negative attitude, patient-prescriber relationship, understanding of health issues and patients knowledge [7].

In a cross sectional descriptive study on factors that are responsible for non compliance to diabetic treatment in the outpatient clinic of the university of Ilorin teaching hospital, Nigeria. Results stated that patients with medium financial status had the greatest percentage (71.7%) that are non compliant with treatment regimen, also forgetfulness was the most common reason for non compliance among the diabetic patients used in the study. about 43.18% admitted to skipping doses of their medications at one time or the other. Others include cost of drugs, side effects of drugs the fears of hypoglycaemia and weight gain [8].

Similarly a cross sectional descriptive study to investigate the factors that affect the level of non compliance to diabetic treatment in university of Maiduguri teaching hospital, Borno north eastern Nigeria reveals that more than half of the total number of clients (57.6%) considered lack of money as the major barrier to compliance with treatment regimen while others opined that the food recommended was expensive and dietary restriction impedes compliance to treatment regimen respectively. The study also revealed that majority (55.2%) of the clients considered poor attitude of health personnel as the major barrier for irregular visit to the hospital as against 38.4% who

claimed that it is transportation and 6.4% believe that traditional medicine use is an obstacle to return to health centres for treatment [9]. Also, a cross sectional descriptive study on the factors that affect the level of non compliance to treatment regimen among diabetic clients in Doon Government hospital, Dehradu, Uttarakhnad, India, showed that majority of the clients that were non compliant were from the lower socio-econmic strata who also possessed a poor educational background, self employed or held low income designations in work places [10]. In addition, a study in Zagazig University Hospital, Zagazig City, Egypt on the factors that affect the level of non compliance to treatment regimen among diabetic clients, showed that diet restriction (31.3%), cost of medication (68.8%), exercise (55%) ,and lack of finance (75%) were responsible for non compliance to their therapeutic regimen [11],.

Furthermore, a study in University of Medical Sciences in Birjand Iran, on the factors that are responsible for non compliance of diabetic patients to their therapeutic regimen revealed that 46.7% stopped taking their medication due to no recovery, forgetting to take their medications (91.9%), feeling hassled about sticking to treatment plan (4.5%), lack of family support (33.3%) which increased their level of non compliance to therapies [12]. In another study to determine the relationship between compliance of diabetic patients and social demographic characteristics in Egypt, results revealed that about 52.7% of the females complied with treatment regimen while 27.5% did not, 42.2% of the participant who are illiterate did not comply with their therapies, 40% of the participants s who were unemployed did not comply while about 50% of those with sufficient income were compliant with treatment regimen [11]. Similar finding were also reported in Uganda [13]

In a cross sectional study among diabetic patients attending university of Maiduguri teaching hospital, Borno state, north eastern Nigeria to determine the effect of family support on the compliance of diabetic patients. Results revealed that lack of family support impedes compliance to treatment regimen. The study revealed that (45.2%) claimed that their families were not in support of their health while 38.3% claimed that they had adequate family support [9]. Also, in Owerri, Imo state, Nigeria study conducted on the effects of family support on patients' compliance revealed that 80% claimed that their families were adequately involved in their care, while 19.6% claimed that they do not have their family support [14]. Furthermore, it was reported in Oshogbo in Nigeria in a study on the effect of family support on diabetic client's compliance that 67.5% of the respondents had good interpersonal relationship with their families who are very much involved in their care while 30% did not have effective relationship with their families and so were not actively involved in their therapeutic care [15].

However, a study which accessed the effect of family support on the compliance of diabetic clients in king Saudi University, showed that 40.7% of the clients have families who are actively involved their care while 59.3% were not fully supported by their families in their treatment. The clients who had families that supported them had better compliance than those who were not supported by their families [16]. More also a study conducted in the outpatient department of University of Nigeria Teaching Hospital, Enugu on the effect of family support on the compliance of diabetic patients, revealed that lack of family support were not significantly associated with non compliance to treatment. However, some of the respondents claimed that their families were not actively involved in their care, but they were still complaint to their treatment plan while 37.2% claimed they did not get the support of their family members which made them non compliant [17].

Statement of the problem

Non-compliance can lead to increased morbidity and mortality rates of diabetic patients. Non-compliance imposes an immense financial burden on modern health care system as well as imposing personal costs on the individual patient. Non-compliance affects the health care system as a whole leading to lack of treatment benefits, extra visits to the doctor greater burden on the health team, unnecessary hospitalization, reduced efficacy or failure of recommended interventions with detrimental effects on the patient's health. Non-compliance can affect the patient psychologically emotionally, financially (increased financial burdens), socially spiritually, physically (end-organ complications, higher obesity, decreased physical activity) and affects the general well being of the individuals. Knowing the factor that affect compliance is one of the key to combating non compliance. Though studies are abound on compliance to diabetic treatment and its factors there are dearth of empirical studies on this in this part of the country especially in Edo state. Hence the need for this study

Purpose of the study

The purpose of this study is to assess factors affecting compliance to treatment regimen among clients with diabetes mellitus in selected hospitals in Benin City, Edo state.

Objectives of the study

The Objectives of this study is to;

1. Assess factors affecting level of compliance with treatment regimen among clients with diabetes mellitus in selected hospitals in Benin City, Edo state.

2. To find out the effect of family support on the level of compliance to diabetic treatment regimen among the patients in the selected hospitals.

Research hypothesis

1. There is no significant difference in the factors affecting compliance with treatment regimen among the patient s in the selected hospitals.

Significance of the study

The results of the study will reveal factors contributing to non compliance of diabetic treatment regiment among patients in the selected hospital, this will help the health care institutions in developing strategies in combating such factors there improving compliance. Furthermore this study will add to an existing body of knowledge on factors compliance among diabetic patients and will also serve as secondary data for further researches.

MATERIALS AND METHODS

Research design, the researcher adopted a cross- sectional research design.

Research setting, University of Benin Teaching hospital and Central hospital, Benin City were purposely selected for this study..

University of Benin Teaching hospital (UBTH): is a tertiary health facility located on the Benin Lagos Express-way ,in Egor Local Government Area of Edo state ,Benin City and came into being in 1973 following the enactment of an edict (number 12). As the sixth of the its generation teaching hospitals in Nigeria. It was established to complement her sister institution, University of Benin and to provide secondary and tertiary care to the then Mid-western Region (now Edo and Delta state) and it's environs. *Central hospital:* was created in 1902 by the then colonial masters who were owned by the British government before independence under the colonial master. It is a government hospital located in the serene centre of Benin, on Sapele road, Oredo Local

Government Area of Edo state, Benin City. **Target population**, the target population comprised of 415 and 497 diabetic patients both males and females attending the out - patient department in the University of Benin Teaching hospital and Central hospital, Benin city respectively. This population was gotten by taking a retrospective review of daily attendance to the outpatient diabetic clinic in both hospitals from January to July 2017. This review shows an average monthly attendance of 415 and 497 in both hospitals respectively. Making the total population to 912. See table below

Table 1: distribution of target population

Setting	Average monthly attendance from January to July 2017.
University of Benin teaching hospital	415
Central hospital	497
Total	912

Sample size

A sample size of three hundred and nine (306) was used for the study. This was gotten from the total population of 912, using Taro Yamane, (1967) formula as shown below

$$n = \frac{N}{1 + N(d)^2}$$

where n = sample size, N = population size, d = level of precision (confidence interval)

N = 912, d = 0.05

Thus = 912/1+912(0.05)2

n = 912/1+912*0.0025

n = 912/1+2.28

n = 912/3.28

n = 278

10% Attrition rate =27.8

278 +27.8 =305.8

= 306, Therefore, sampling size is 306.

Sampling technique, convenient sampling techniques was used

Instrument for data collection; the instrument was a self-structured questionnaire comprising of three sections: **Section A:** Comprises of 7 items of Demographic data of the participants. **Section B:** comprises of 7 items close ended questions on factors affecting compliance to therapeutic regimen using 4-point lirket scale. These factors will be classified as poorly dependent factors or highly dependent factors, based on the average mean score of each of the items using 2.5 as decision rule.

Section C: comprises of 5 items close ended questions on the effect of family support on compliance and will be classified as having poor effect when the average mean score is below 1.5 and having good effect when the average mean score is above 1.5.

Validity of the instrument, validity of the instrument was ensured by two consultant endocrinologist from the selected hospital and an expert in measurement and evaluation from University of Benin.

Reliability of the instrument, this was done by administering 20 of the questionnaire to similar respondents with same characteristics in another hospital. Data generated was analysed using split-half method and the cronbachs Alpa scored was 0.780 which shows that the instrument is reliable and can be used for the study.

Method of data collection

Two research assistants, a male and a female nurse who worked in the selected hospital were recruited. They were trained by the principal researcher on how to administer the questionnaire. The researcher and the assistants visit the hospital on the various clinic

days to obtain data from the respondent after due explanation of the purpose of the study to them. Questionnaires were distributed to them while waiting for their turn to see the doctor or after seeing the doctor to ensure that their major aim of coming to the clinic was not obstructed or denied. Immediately after filling the questionnaire they are retrieved from them.

Method of data analysis, the researcher used descriptive statistics. Statistical Package for Social Sciences (SPSS) version 21 was used to analyse the data.

Ethical consideration

Ethical consideration, ethical clearance with the no ADM/E22/A/VOL VII/1455 was obtained from the ethical and research committee of the University of Benin Teaching Hospital, Benin City, after a thorough reviews the proposal by the committee. Consent of the respondents was sort for before proceeding and confidentiality was held in high esteem.

RESULTS

Section A: Demographic analyses

The table 2 shows that majority 168 (56.0%) are between the ages of 21 – 40 years which is the highest, 67 (22.3%) are between 1 – 20 years, 54 (18.0%) are in the 41 – 60 years range, while the lowest 11 (3.7%) are in the age group 61 – 8 years. Majority 196 (65.3%) of the respondents are females, most of the respondents in this study are single 199 (66.3%) with only 75 (25.0%) married and 26 (8.7%) divorced. 174 (58.0%) of the respondents had tertiary education, this is followed by secondary school with 85 (28.3%), the least was primary education 15 (5.0%). Occupation had majority 91 (30.3%) as students, this was followed by 69 (23.0%) who are self-employed and 35

(11.7%) unemployed. Majority 241 (80.4%) of the respondents are Christians. 134

(44.7%) are of the Edo ethnic group.

Table 2: Demographic characteristics of respondents

Variable	Frequency	Percent
Age		
1 - 20 yrs	67	22.3
21 - 40 yrs	168	56.0
41 - 60 yrs	54	18.0
61 - 80 yrs	11	3.7
Mean(SD)	31±14.84	
Sex		
Male	104	34.7
Female	196	65.3
Marital Status		
Single	199	66.3
Married	75	25.0
Divorced	26	8.7
Level of Education		
Primary	15	5.0
Secondary	85	28.3
Tertiary	174	58.0
No formal education	26	8.7
Occupation	\\	
Government employee	49	16.3
Non-government employee	56	18.7
Self-employed	69	23.0
Student	91	30.3
Unemployed	35	11.7
Religion		
Christian	241	80.4
Muslim	41	13.7
ATR	18	6.0
Ethnic group		
Edo	134	44.7
Igbo	63	21.0
Yoruba	52	17.3
Delta	51	17.0

OBJECTIVES ONE: Factors responsible for non-compliance to diabetic treatment regimen

Table 3: Factors responsible for non-compliance to diabetes treatment among the general respondents

	Variable	SD	D	A	SA	Mean	Std. D	Remark
1	Side effects of the medications	41 (13.7)	44 (14.7)	146 (48.7)	69 (23.0)	2.81	0.944	High factor
2	Lack of finance	20 (6.7)	67 (22.3)	128 (42.7)	85 (28.3)	2.93	0.878	High factor
3	Lack of family support	31 (10.3)	81 (27.0)	114 (38.0)	74 (24.7)	2.77	0.938	High factor
4	Waiting time in the hospital before being attended to	38 (12.7)	60 (20.0)	132 (44.0)	70 (23.3)	2.78	0.946	High factor
5	Unavailability of the medication in the hospital	36 (12.0)	93 (31.0)	117 (39.0)	54 (18.0)	2.63	0.914	High factor
6	Bad attitude of health personnel	39 (13.0)	78 (26.0)	123 (41.0)	60 (20.0)	2.68	0.938	High factor
7	Diabetic medications and investigations are too expensive	37 (12.3)	78 (26.0)	101 (33.7)	84 (28.0)	2.77	0.993	High factor

2.5 & above = highly dependent factor, 2.49 & below Poor dependent factor

Table 3 shows the general factor for non-compliance to diabetic treatment regimen by respondents. The analysis revealed that items 1 to 7 (2.81 ± 0.944, 2.93 ± 0.878, 2.77 ±

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0.938, 2.78 ± 0.946, 2.63 ± 0.914, 2.68 ± 0.938, 2.77 ± 0.993 respectively) were high dependent factor for non-compliance to diabetic treatment regimen.

Table 4: Factors responsible for non-compliance to diabetes treatment among UBTH respondents

	Variable	SD	D	A	SA	Mean	Std. D	Remark
1	Side effects of the medications	23 (16.4)	26 (18.6)	74 (52.9)	17 (12.1)	2.61	0.903	High factor
2	Lack of finance	10 (7.1)	29 (20.7)	66 (47.1)	25 (25.0)	2.90	0.859	High factor
3	Lack of family support	15 (10.7)	45 (32.1)	48 (34.3)	32 (22.9)	2.69	0.944	High factor
4	Waiting time in the hospital before being attended to	10 (7.1)	32 (22.9)	68 (48.6)	30 (21.4)	2.84	0.842	High factor
5	Unavailability of the medication in the hospital	14 (10.0)	37 (26.4)	53 (37.9)	36 (25.7)	2.79	0.941	High factor
6	Bad attitude of health personnel	23 (16.4)	32 (22.9)	59 (42.1)	26 (18.6)	2.63	0.970	High factor
7	Diabetic medications and investigations are too expensive	17 (12.1)	38 (27.1)	49 (35.0)	36 (25.7)	2.74	0.977	High factor

2.5 & above = Highly dependent factor, 2.49 & below Poor dependent factor

Table 4 shows the factor for non-compliance to diabetic treatment regimen by respondents in UBTH. This result followed the trend of the general report, as items 1 to

7 (2.61 ± 0.903, 2.90 ± 0.859, 2.69 ± 0.944, 2.84 ± 0.842, 2.79 ± 0.941, 2.63 ± 0.970, 2.74 ± 0.977 respectively) were highly dependent factor for non-compliance to diabetic treatment regimen.

Table 5: Factors responsible for non-compliance to diabetes treatment among Central Hospital respondents

	Variable	SD	D	A	SA	Mean	Std. D	Remark
1	Side effects of the medications	18 (11.3)	18 (11.3)	72 (45.0)	52 (32.5)	2.99	0.945	High factor
2	Lack of finance	10 (6.3)	38 (23.8)	62 (38.8)	50 (31.3)	2.95	0.896	High factor
3	Lack of family support	16 (10.0)	36 (22.5)	66 (41.3)	42 (26.3)	2.84	0.931	High factor
4	Waiting time in the hospital before being attended to	28 (17.5)	28 (17.5)	64 (40.0)	40 (25.0)	2.72	1.028	High factor
5	Unavailability of the medication in the hospital	22 (13.8)	56 (35.0)	64 (40.0)	18 (11.3)	2.49	0.869	Poor factor
6	Bad attitude of health personnel	16 (10.0)	46 (28.7)	64 (40.0)	34 (21.3)	2.72	0.911	High factor
7	Diabetic medications and investigations are too expensive	20 (12.5)	40 (25.0)	52 (32.5)	48 (30.0)	2.80	1.008	High factor

2.5 & above = Highly dependent factor, 2.49 & below Poor dependent factor

Table 5 shows that items 1 to 7 (2.99 ± 0.945, 2.95 ± 0.896, 2.84 ± 0.931, 2.72 ± 1.028, 2.72 ± 0.911, 2.80 ± 1.008 respectively) were high dependent factor for non-compliance to diabetic treatment regimen except for item 5 (2.49 ± 0.896) which was a poorly dependent factor.

Table 6: Level of factors associated with non-compliance to diabetes treatment regimen by respondents

Variable	Frequency	Percent
General respondents		
Poorly dependent factor	81	27.0
Highly dependent factor	219	73.0
UBTH respondents		
Poorly dependent factor	35	25.0
Highly dependent factor	105	75.0
Central Hospital respondents		
Poorly dependent factor	46	28.7
Highly dependent factor	114	71.3

The above table shows general rate of compliance of respondents, 81 (27.0%) said the items listed were poorly dependent factors, while majority 219 (73.0%) said are highly dependent factor. In UBTH respondents the same trend of the general population, were 35 (25.0%) had poorly dependent factors and 105 (75.0%) had highly dependent factor to treatment regimen. A similar trend was also recorded for the central hospital respondents with 46 (28.7%) having poorly dependent factors, while 114 (71.3%) having highly dependent factors to treatment regimen.

Table 7: Relationship between Levels of factors associated with non-compliance and demographic characteristics of respondents

Variable	Level of Factor		Total	χ²
	Poorly Dependent	Highly Dependent		
Age				
1 - 20 yrs	10 (12.3)	57 (26.0)	67	
21 - 40 yrs	43 (53.1)	125 (57.1)	168	
41 - 60 yrs	28 (34.6)	26 (11.9)	54	0.000
61 - 80 yrs	0 (0.0)	11 (5.0)	11	
Sex				
Male	32 (39.5)	72 (32.9)	104	
Female	49 (60.5)	147 (67.1)	196	0.284
Marital Status				
Single	39 (48.1)	160 (73.1)	199	
Married	29 (35.8)	46 (21.0)	75	0.000
Divorced	13 (16.0)	13 (5.9)	26	
Level of Education				
Primary	3 (3.7)	12 (5.5)	15	
Secondary	24 (29.6)	61 (27.9)	85	
Tertiary	41 (50.6)	133 (60.7)	174	0.037
No formal education	13 (16.0)	13 (5.9)	26	
Occupation				
Government employee	11 (13.6)	38 (17.4)	49	
Non-government employee	16 (19.8)	40 (18.3)	56	
Self-employed	26 (32.1)	43 (19.6)	69	0.300
Student	20 (24.7)	71 (32.4)	91	
Unemployed	8 (9.9)	27 (12.3)	35	
Religion				
Christian	59 (72.8)	182 (83.1)	241	
Muslim	15 (18.5)	26 (11.9)	41	0.137
ATR	7 (8.6)	11 (5.0)	18	
Ethnic group				
Edo	31 (38.3)	103 (47.0)	134	
Igbo	22 (27.2)	41 (18.7)	63	
Yoruba	13 (16.0)	39 (17.8)	52	0.351
Delta	15 (18.5)	36 (16.4)	51	

Table 7 above showed a significant relationship with the age of respondents (p=0.000), marital status and level of education (p=0.000 and 0.07) respectively. Sex, occupation, religion and ethnic group did not show significant relationship (p=0.284, 0.300, 0.137 and 0.351) respectively.

Table 8: Difference in factors of non-compliance to diabetic regimen between respondents of UBTH and Central hospital

Variable	Hospital	Mean	SD	F	Sig.	t
Factors of non-compliance	UBTH	1.75	0.435	2.145	0.144	0.728
	Central Hospital	1.71	0.454			

The table that there is no significant difference in the factors of non-compliance to diabetic treatment regimen between the hospitals (Sig. = 0.144).

OBJECTIVE TWO: Effect of family support of respondents to compliance with diabetic treatment regimen

Table 9: Effect of family support on compliance to diabetes treatment among the general respondents

	Variable	Yes	No	Mean	Std. D	Remark
1	Is your family fully involved in your care	212 (70.7)	88 (29.3)	1.29	0.456	Good effect
2	Do you have good interpersonal relationship with your family that affects your level of compliance	207 (69.0)	93 (31.0)	1.31	0.463	Good effect
3	Do your family have adequate knowledge of diabetic treatment regimen	202 (67.3)	98 (32.7)	1.33	0.470	Good effect
4	Do your family play active role in ensuring that you comply to the treatment plan	218 (72.7)	82 (27.3)	1.27	0.446	Good effect
5	Do the support you get from your family improve your level of compliance to treatment regimen	230 (76.7)	70 (23.3)	1.23	0.424	Good effect

*Mean of 1.5 & above = poor effect, 1.49 & below Poor effect, *yes good effect no poor effect

The knowledge of diabetes was tested and is shown in the table above. 212 (70.7%) said their family is fully involved in their care, 207 (69.0%) said they have good interpersonal relationship with their family which affects their care. 202 (67.3%) said they family have adequate knowledge of diabetic treatment regimen, 218 (72.7%) said their family play an active role in ensuring they comply with their treatment regimen. Those that said the support they get from their family improve their level of compliance were 230 (76.7%).

Table 10: Level of effect of family support to compliance

Variable	Frequency	Percent
General respondents		
Poor Effect	72	24.0
Good Effect	228	76.0
UBTH respondents		
Poor Effect	22	15.7
Good Effect	118	84.3
Central Hospital respondents		
Poor Effect	50	31.3
Good Effect	110	68.8

The above table shows the various level of the effect of family support to compliance to diabetic treatment regimen. For the general effects of the respondents, 72 (24.0%) had poor effect, while majority 228 (76.0%) had good effect on compliance to diabetic treatment regimen. The effect of the UBTH respondents also follow the same trend of the effect of the general population, which revealed 22 (15.7%) with poor effect and 118 (84.3%) with good effect on compliance to diabetic treatment regimen. A similar upward trend was also recorded for the central hospital respondents with 50 (31.3%) having poor effect, while 110 (68.8%) with good effect on compliance to diabetic treatment regimen.

Table 11: Relationship between effect of family support on rate of compliance and knowledge of diabetes among respondents.

Variable	Effect of Family Support		Total	χ2
	Poor Effect	**Good Effect**		
Compliance				
Poor compliance	50	134	184	0.105
Good compliance	22	94	116	

The results shows that there was no significant relationship (p=0.105) between the effect of family support and rate of compliance.

HYPOTHESIS: There is no significant difference in the factors affecting compliance to treatment regimen among the patient s in the selected hospitals

Table 12: Difference in the effect of family support on compliance of UBTH and Central hospital

Variable	Hospital	Mean	SD	F	Sig.	t
Effect of family support	UBTH	1.84	0.365	44.583	0.000	0.3186
	Central Hospital	1.69	0.465			

The table shows that there is a highly significant difference in the effect of family support between the two hospitals (Sig. = 0.000).

DISCUSSION OF FINDINGS

Findings from the study show that 196 (65.3%) females and 104 (34.7%) males. The study revealed that majority (56.0%) of the respondents is between the ages of 20 – 80 years with a mean age of 31±14.84years. Singles in the study are 66.3%, tertiary level of education comprised of 58.0%. Few (30.3%) of the respondents are students, 80.4% of the respondents are Christians while 44.7% of the respondents are Edo. Jansirani, in Indian reported same higher female to male ratio of 55%, and a relatively high level of unemployment of 33% but a lower level of literate respondents as only 5% of them were graduates [18]. Samia differs with the findings of this study as they reported a

higher male (65%) to female (35%), and mean age of 50 with majority (65%) of the samples being illiterate only 5% had secondary education [19]. Also, Kalyango in Uganda reported that the average age of the participants were 50 years and more than half were females (69.9%) ,about half had primary education as the highest level of education attained (48.5%) ,only (58 8%),of them were employed [13]. One thing stand out in the findings of this study compared to others, is the high level of literacy reported, it shows that people in this part of this country are academically advantage.

The study reveal various factors affecting compliance to diabetic treatment regimen among the respondents in the selected hospital these include side effects of the medications (2.81 ± 0.944), Lack of finance(2.93 ± 0.878) Lack of family support(2.77 ± 0.938), Waiting time in the hospital before being attended to (2.78 ± 0.946) Unavailability of the medication in the hospital(2.63 ± 0.914), Bad attitude of health personnel(2.68 ± 0.938), Diabetic medications and investigations are too expensive (2.77 ± 0.993). Abdulazeez in Ilorin Nigeria, reported forgetfulness as the most common reason for non compliance among the diabetic patients used in the study. Other factors include admitted to skipping doses of their medications (43.18%), cost of drugs, side effects of drugs, the fears of hypoglycaemia and weight gain [8].

Simililarly, Chutiyami in North eastern Nigeria, reported that more than half of the total number of clients (57.6%) considered lack of money as the major barrier to compliance with treatment regimen, (55.2%) of the clients considered poor attitude of health personnel as the major barrier for irregular visit to the hospital as against 38.4% who claimed that transportation and 6.4% who believe in traditional medicine as obstacle to return to health centres for treatment [9]. In addition, Nadia in Egypt showed that diet restriction (31.3%), medication side effect (68.8%), and lack of finance (75%) were responsible for non compliance to their therapeutic regimen [11]. Finding from this study and other empirical studies agrees that lack of fiancé is one of the major factors affecting compliance among dietetic patients, most especially these period of economic distress and supper inflation the country is currently experiencing. This call for major concern and proactive action from the government to avoid losing more patients to the deadly complications arising for non compliance to diabetic treatment. Also of concern is the attitude of the health care professionals which according to the respondents are not encouraging and are rather more of a discouragement to them. Hospital

management and all stalk holders in the health care sector should as a matter of urgency re-orient their staff attitude towards better service to the patients.

However, significant difference was not found among the factors affecting compliance to diabetic treatment regimen between the hospitals (p = 0.144). This implies that the same factors affecting the respondents in UBTH were the same factors affecting the compliance in the respondents in central hospital. Also there was no significant relationship (p=0.105) between the effect of family support and rate of compliance. Nevertheless, a highly significant difference in the effect of family support between the two hospitals (p = 0.000) was found. With the respondents in UBTH having more family support than that of central hospital. Opara, in Enugu agrees with the findings of this index study, they showed that lack of family support were not significantly associated with non compliance to treatment as some of the respondents claimed that their families were not actively involved in their care, but they were still complaint to their treatment plan [17]. It can be inferred that even though family support is very important factor when gainfully employed, having adequate knowledge of treatment regimen and having the needed financial power is more important factor to compliance than family support.

However, this finding differs from that of Chutiyami, Borno state, Nigeria who revealed that lack of family support impedes compliance to treatment regimen [9]. Also not supporting the findings of this index study is Nwaokoro in Owerri, Imo state Nigeria, who reported that 80% claimed that their families were adequately involved in their care, which positively affects their compliance [14]. Same was also reported by Folaranmi in Oshogbo Nigeria, where 67.5% of the respondents had good interpersonal relationship with their families who are very much involved in their care [15] and Mohamed in Egypt finds positive correlation between family support and compliance was also reported [16].

Implication for health care professionals

Findings from the study show that health care professionals especially nurses have a great role to play in ensuring that patients comply with their treatment regimen as some of the factors identified can be improved on through consistent health education aimed at attitudinal change that will foster good compliance among the patients and that of the health care professionals.

Conclusion

Non compliance to diabetic treatment regimen has been attributed to factors such as side effect of medication, lack of finance, attitude of health care professionals among others. More is needed to be done by all parties involved in the management of diabetic c patients including the government to ensure this obstacle is reduce to the barest minimum.

Recommendation

- Government should subsidize the cost of management of diabetes, e.g. drugs and laboratory investigations

- More community health facilities should be established to reduce the travelling distance of these patients going for check-up.

- Government in conjunction with the health facility should ensure the pharmacy of the government-owned hospitals is well stocked to reduce the burden of searching for prescribed medications in private pharmacy at exorbitant prices.

- Medical personnel should try and shorten the waiting time for these patients when they visit the clinic and try to encourage the patients.

- Attitudinal change among health care professional is highly needed with regards to management of diabetic patients.

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