

## Original Research Article

# Factors and conditions that influence noncompliance to medical regimen among diabetic patients treated in federal medical centre Owerri

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## ABSTRACT

**Background:** Diabetes mellitus poses a major global health threat worldwide. Compliance to prescribed regimen helps to reduce complications and death, but the rate of compliance has been consistently low in developing countries. This study therefore identified factors and conditions that influence compliance to medical regimen among diabetic patients treated in federal medical centre Owerri.

**Methods:** Descriptive survey design was adopted. A convenience sampling technique was used to recruit all the 68 diabetic patients receiving treatment in the out-patients' male and female wards. Data were collected using administered questionnaire. Data were analyzed and presented with percentages, tables and graphs.

**Results:** The result showed low level of compliance among 37 (54.4%) of the diabetic patients treated in federal medical center Owerri. Factors that influenced compliance as indicated by the respondents include; drugs that are taken for a long time 23 (33.8%), long waiting time before seeing a doctor as well as the distance covered to the facility and diet restriction 22 (32.3%) respectively. Other factors that contributed to poor compliance included: inability to afford monitoring machine 16 (23.5%), and unaffordability of diabetic drugs 15 (23.5%). Majority (73.5%) of the patients suggested good communication as the best measure to promote patient's compliance.

**Conclusions:** This study identified that several factors contributed to lack of diabetic patients' compliance to medical regimen and that only good communication can encourage patients' compliance. Therefore, good communication between the health care givers and diabetic patients should be encouraged.

**Keywords:** Compliance, Medical regimen, Diabetic patients, Monitoring

## INTRODUCTION

Diabetes mellitus is a syndrome characterized by many disorders where there's increased blood glucose concentration due to lack of insulin. It is a common and growing health problem worldwide. As at 2013, 371- 382 million people have Diabetes worldwide. Type 2 diabetes constitute about 90% of all the cases. This will translate to 8.3% of the adult population with equal rates in both men and women. In 2014, the international diabetes

federation estimated that diabetes resulted in 4.9 million deaths.<sup>1-3</sup>

The world health organization (WHO) estimated that diabetes resulted in 1.5 million deaths in 2012, making it the 8th leading cause of death. Diabetes mellitus especially type 2 diabetes poses a major global health threat and is increasingly common in Asian and African countries but there's no country in the world that does not bear some burden from diabetes. There are about 1.7

million people living with diabetes in Nigeria and this figure is projected to reach 4.8million by the year 2030.<sup>4,6</sup> Globally, there are an estimated 371 million adults living with diabetes. To put this number into perspective, if all the people with diabetes form a country, it would be third largest in terms of population after China and India. This shows that four out of every five people with diabetes live in low- and middle-income countries, where health systems are struggling to keep pace with the growing burden of non-communicable diseases.<sup>7-9</sup> Therefore, there is absolute need for diabetic patients to adhere to their medical regimen so as to reduce diabetic complications.

Studies have revealed that factors like low economic status, rapid cultural changes, low educational status, aging and rapid urbanization, strictly influence the extent to which diabetic patients adhere to their medical regimen. The poorer and less educated the diabetic patients, the less likely they will observe the medical regimen. The need for diabetic patients to strictly observe the medical regimen should not be underestimated because diabetes complications impose significant economic consequences on the patients, families and the health systems of any country. Diabetes and its complications remain the major cause of morbidity and mortality worldwide and poor glycaemic control also adversely affects treatment outcome. Poor adherence to medication is common with type 2 diabetic patients who cannot afford to maintain strict diet. Studies have found such adherence rates to vary from 30% to 90%. Therefore, diabetic patients are advised to effectively coordinate all treatment regimens.<sup>10-12</sup>

The diabetic patient is ultimately responsible for managing his or her own care and to prevent complications. As such, the patient must have adequate knowledge and other facilitating factors that will enable the patient achieve compliance to therapeutic regimen. The rate of non-compliance in patients with chronic diseases especially diabetes mellitus in developing countries including Nigeria is alarming. The problem is that the long-term treatment of diabetes mellitus has contributed to 50% non-compliance and in some cases the rate is higher. The rate of non-compliance from strict diet varies from 25% to 65%, but insulin administration alone is 20% while oral medications range from 65% to 85%. Therefore, if the patients fail to adhere to the treatment plan religiously, the intended benefits of the treatment plans will not be realized.<sup>13,15</sup>

Studies have identified other factors that affect compliance or non-compliance of prescribed medication among diabetic patients. Factors that affect non-compliance among diabetic patients were viewed as patients-centred therapy related and health care system related. Other factors identified include social, economic and disease factors. However, emotional supports from nurses promoted patients' adherence to their diet and medications. It has been noted that patients only adhere to treatment regimen when under the following conditions,

when the regimen makes sense to them, when it seems effective, when they believe the benefits will exceed the costs, when they feel the regimen will not affect their social life and when they are sure of getting supportive care.<sup>16-18</sup> Therefore, nurses should assist diabetic patients to understand the benefits of treatment compliance so as to reduce the complications arising from non-compliance. Studies have observed that if patients are given the relevant education during and after treatment, that the proportion of patients' admission as a result of diabetic complications will be reduced.<sup>19,20</sup> Therefore, this study assessed the factors and conditions that influence compliance to medical regimen among diabetic patients treated in federal medical centre Owerri. Improving patients' education and treatment compliance is important in reducing mortality and morbidity from diabetic complications. The study aimed to examine ways in which patients' compliance to medical regimen could be enhanced.

## METHODS

The study was a cross-sectional descriptive study carried out in federal medical center Owerri between January to March 2020. The study used a total sample of 68 diabetic patients receiving treatment in the out-patient and medical wards of the federal medical centre Owerri at the time of study. These wards consist of male and female patients. This hospital, as a referral centre, is highly patronized by clients from surrounding towns, cities, villages and other primary and secondary health facilities. It offers standard and quality care to the patients, with highly qualified and specialized personnel working in it.

All the patients with co-morbidities were excluded from the study. This is to minimize the influence of other treatment regimens. Therefore, only patients who were treated for diabetes were included in the study. A structured questionnaire was administered by the researchers. The questionnaire consisted of 8 items on the demographic characteristic of the respondents and 9 items based on treatment compliance. Inferential statistics were used in the analysis of data. Here, data are presented in tables and graphs.

### *Reliability of instrument*

The instrument was pilot- tested using split- half reliability test method to ensure internal consistency, using 20 diabetic patients from the General Hospital Owerri. The data obtained were subjected to Cronbach's alpha and Spearman- brown coefficient test. The Guttman split- half coefficient was 0.603 which showed that the instrument was reliable.

## RESULTS

The results of this study have been presented with frequency Tables, percentages, and graphs as shown below.

Table 1 shows that the respondents within the ages of 21-40 were 33 (48.5%), 41-60 were 28 (41.2%), 61-80 were 6 (8.8%) while 81-100 was 1 (1.5%). The respondents were made up of 26 (38.2%) males and 42 (61.8%) females. As regards to educational status 5 (7.4%) had no formal education, 14 (20.6%) primary, 6 (8.8%) secondary while 43 (63.2%) had tertiary.

**Table 1: Social demographic profile of the respondents (n=68).**

	Frequency	Percentage (%)
<b>Age (in years)</b>		
20-40	33	48.5
41-60	28	41.2
61-80	6	8.8
81≤	1	1.5
<b>Gender</b>		
Male	26	38.2
Female	42	68.1
<b>Marital status</b>		
Single	9	13.2
Married	48	70.6
Separated/divorced	3	4.4
widowed	8	11.8
<b>Educational status</b>		
Non-formal	5	7.4
primary	14	20.6
Secondary	6	8.8
Tertiary	43	63.2
<b>Occupation</b>		
Student	4	5.9
Civil service	37	54.4
Self-employed	20	29.4
unemployed	7	10.3
<b>Monthly income</b>		
0-50,000	19	27.9
51,000-100,000	35	51.5
101,000-150,000	10	14.7
151,000 – above	4	5.9
<b>Residential area</b>		
Rural	20	29.4
Urban	48	70.6
<b>Number of years of diagnosis</b>		
1-3	20	29.4
4-6	27	70.6
7≤	21	-

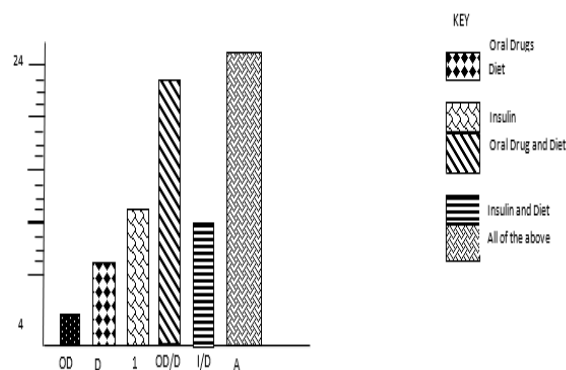
For occupations of the respondents, 4 (5.9%) were students 37 (54.4%) civil servant, 20 (29.4%) Self-employed, and others 7 (10.3%). Table 1 shows that 9 (13.2%) of the patients were single, 48 (70.6%) married, 3 (4.4%) divorced/separated and 8 (11.8%) were widows. Their monthly income was 19 (27.9%) for 0-50, 000, 35 (51.5%) for 51,000-100,000, 10 (14.7%) for 101,000-150, 000 while 4 (5.9%) earn 151,000 and above. About

20 (29.4%) of the respondents live in the rural area while 48 (70.6%) live in the urban area. The duration of the patients' diagnosis for diabetes is contained in (Table 1).

**Objective 1**

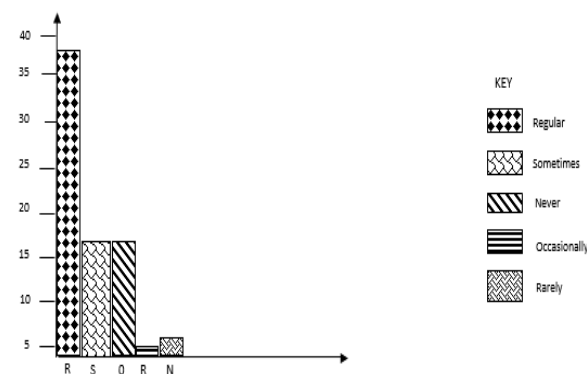
To identify the level of medical regimen compliance among diabetic patients.

Figure 1 above shows that 2 (2.9%) of the respondents used oral drugs only, 6 (8.8%) of them use diet only, 13 (19.1%) use insulin only, 22 (32.4%) of the respondents use oral drugs and diet, 11 (16.2%) use insulin and diet while 14 (20.6%) of them combine oral drugs diet and insulin.



**Figure 1: The methods of treatment for the respondents.**

Figure 2 above reveals the level of compliance of the participants to their prescribed medical regimen. Here, 37 (54.4%) of the respondents took their prescribed treatment regularly, 13 (19.1%) said sometimes, 13 (19.1%) said occasionally, 2 (3.30%) said rarely and 3 (4.4%) said never.



**Figure 2: Compliance with medical regimen.**

**Objective 2**

To ascertain the common factors influencing compliance with medical regimen among diabetic patients.

Table 2 shows how drugs influence noncompliance to medical regimen among diabetic patients. From the findings, 23 (33.8%) of the patients said that the drugs that are taken for a long time influenced their noncompliance.

**Table 2: Drugs as factor for influencing non-compliance.**

Drugs related factors	Frequency	%
Diabetic drugs are expensive	15	22.0
Drugs are taken for a long time	23	33.8
Route of taking the drugs	7	10.3
Drugs disturb me each time I take them	8	11.8
Drugs are too many	8	11.8
I always forget to take them	7	10.3
Total	68	100

**Table 3: Medical appointments as factor for influencing noncompliance.**

Medical appointments as factor	Frequency	%
I live far away from the hospital	16	23.5
There is no hospital in my area	1	1.5
I wait for a long time before seeing the doctor	22	32.3
Doctors & nurses do not explain anything to me	5	7.4
I do not understand what the doctors say	1	1.5
None of the above	23	33.8
Total	68	100

**Table 4: Self-management factors that influence compliance.**

Self-management related Factors	Frequency	%
I do not understand what and what not to do to manage my diabetes.	9	13.2
I do not have blood sugar monitoring machine	16	23.5
I do not know how to use/read blood sugar monitoring machine	11	16.2
I cannot afford the blood sugar monitoring machine.	7	10.3
I do not like doing exercise	4	5.9
Caring for my foot is time consuming	7	10.3
None of the above	14	20.6
Total	8	00

Table 3 contains patients' views on how medical appointment can influence patients' compliance. From the Table, 22 (32.3%) of the patients said long waiting time before seeing the doctor contributed to their noncompliance.

From this (Table 4) 16 (23.5%) of the patients accepted that they lack knowledge on how to manage diabetes.

**Table 5: Diet factors that Influence noncompliance.**

Diet related factors	Frequency	%
I am always hungry and the quantity of food I am asked to take is not enough.	22	32.4
I do not like the type of food recommended for me.	25	36.8
The foods are not always available	16	23.5
My religious beliefs do not accept the diet	2	2.9
My culture does not accept the diet	3	4.4
Total	68	100

Table 5 illustrates how diets influence patients' compliance to medical regimen. From the table 5, 25 (36.8%) said they do not like the type of food recommended for them.

**Objectives 3**

To determine the methods of promoting patient's compliance with medical regimen.

**Table 6: Patients suggestions on measures to promote patient's compliance.**

Suggestions	Frequency	%
Good therapeutic relationship between patient and Healthcare providers	18	126.5
Written instructions and pictograms of medical labels should be provided	9	13.2
Patient should be educated concerning their illness and medical regimen	24	32.5
Social support should be provided	16	23.5
Others specify	1	1.5
Total	68	100

Table 6 contains details of the views of the patients on how to promote compliance. 24 (35.3%) of the respondents said that patients should be educated on their illness and medical regimen.

The Table 7 shows that most respondents 50 (73%) suggested good communication between the patient and healthcare providers will promote patients' compliance to medical regimen.

Table 8 shows that a good number of the patients 61 (89.7%) suggested that improving patient's finance will promote patients' compliance to medical regimen.

**Table 7: Good communication as a measure to promote patient compliance.**

Response category	Frequency	%
Yes	50	73.5
No.	18	26.5
<b>Total</b>	<b>68</b>	<b>100</b>

**Table 8: Relationship between patients' financial status and compliance to medical regimen.**

Response category	Frequency	%
Yes	61	89.7
No	7	10.3
<b>Total</b>	<b>68</b>	<b>100</b>

### Summary of findings

The findings of this study are that the respondent's compliance to therapeutic/ medical regimen was very poor; a good number of them gave the reason for non-compliance to the expensive nature of the drugs, and long waiting hours in the hospital. Long waiting hours made majority of the respondents not to keep medical appointment; not liking the type of food and quantity recommended made others not to comply with the medical regimen; a good number of the respondents believed that providing relevant education on the patients' health condition, giving social support and assisting the patients by augmenting the prices of the drugs will increase compliance.

## DISCUSSION

The result of the study in table 1 showed that the highest age of the respondents was those between the ages of 20–40 (F=33, 48.5%) showing that diabetes mellitus was common among the young age groups of the respondents. This could be as a result of the type of diet and lifestyles they adopt. Most youths tend to have inclinations for eating more of refined foods and engage in sedentary lifestyles than the older adults. The fact that majority of the respondents 42 (61.8%) were females while males were 26 (38.2%) confirm our finding that youths, especially females engage more in consuming refined foods than males. This finding has also been observed in the findings of.<sup>7,15</sup> This may be responsible for the wide gap in the proportion of females with diabetes when compared with that of males in this study.

Also realizing that those with tertiary education 43 (63.2%), those with enhanced income 35 (51.5%), and the civil servants 37 (54.4%) were more in number than others, still confirm the earlier finding that the educated indulge in foreign ways of feeding and lifestyle to the utter neglect to the traditional method of feeding and lifestyles which appear more protected against diabetes mellitus than the foreign methods of feeding. This finding showed that the more educated and enhanced the income of individuals, the more diabetic they will be. This finding agrees with that of and goes to support the idea that traditional foods and lifestyles which seem protective against many non-communicable diseases including diabetes are now neglected.<sup>3,9</sup> Majority of the participants 48 (70.6%) live in the urban areas while 20 (29.4%) in the rural areas showing that place of residence influences the extent to which individuals develop diabetes mellitus. The more an individual lives in the urban area, the more likely the individual will develop diabetes mellitus.

The finding revealed poor compliance as only 37 (54.4%) of the respondents complied regularly with the prescribed medical regimen. This finding supports the findings of the cross-sectional surveys which found rate of compliance among diabetic patients as 67.9%.<sup>2,10</sup> However, one of the major reasons for the diabetic patients' non-compliance to medical regimen was the strict diet and the quantity they are advised to consume. A good number of them complained of not being satisfied each time the recommended quantity of food is consumed. The patients, by complaining of hunger after eating the recommended quantity of food, calls for proper education of the patients so as to enlighten them on the benefits of diet restrictions.

Not keeping medical appointments, not having blood sugar monitoring machine and the problem of self-management were part of the factors that contributed to the patients' non-compliance. Patients' difficulty in self-management shows lack of proper health education to the patients on how to manage their health conditions. It may not be easy to expect the patients to adhere to medical regimen without providing them with proper orientation. The fact that the patients complained that the drugs were expensive and also taken for long time reveals the socio-economic status of the patients as well as how they regard compliance to their medical regimen important in the overall management of their health conditions.

## CONCLUSION

Therefore, there is need for diabetic patients to have good communication with the healthcare givers. Written instructions, pictograms on medicine labels, and counseling about medication would be very useful in improving patients' compliance.

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