

# Problems associated with treatment compliance among type 2 diabetic patients at a tertiary health institution in Nigeria

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## Abstract

This study analyses the problems associated with compliance to treatment among type 2 diabetic patients attending the out-patient clinic in Federal Medical Centre, Owerri, Imo State, Nigeria. It also determines the extent to which patients comply with medications and understand blood sugar control. Data were collected using pre-tested questionnaires from 30 randomly selected subjects. An analysis was done using Statistical Package for Social Sciences (SPSS). Results showed that 30% of the respondents were aged between 40 and 50 years, 63% were married, and 37% had secondary education. Those with a duration of diabetes of more than 5 years totalled 30%. 43% reported on understanding of good glycaemic control, while 33% defaulted in taking medications. Also, 37% agreed that medications should be stopped when they are feeling well, while 40% agreed that compliance was associated with fear of hypoglycaemia. It is important to explore the precursors to treatment adherence behaviour and to carry out interventions that can change negative attitudes toward treatment compliance and promote medical knowledge, which may help improve compliance in the treatment of type 2 diabetes.

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## Introduction

Type 2 diabetes poses a major global health threat and is increasingly common in Asian and African countries.<sup>1</sup> There are about 1.7 million people living with diabetes in Nigeria, and this figure is projected to reach 4.8 million by the year 2030.<sup>1,2</sup> Diabetes and its complications impose significant economic consequences on individuals, families, health systems, and countries. Other risk factors, such as hypertension frequently co-exist with diabetes, and may further increase morbidity and mortality.<sup>3</sup> Diabetes and its complications remain major causes of such morbidity and mortality worldwide,<sup>4</sup> and poor glycaemic control also adversely affects outcome.<sup>5</sup>

Poor adherence to medication is known to be common in type 2 diabetic patients, with adherence rates varying from 30 to 90%.<sup>6</sup> This is likely to lead to an increased complication risk due to poor glycaemic control.<sup>5</sup> This may adversely affect quality of life (QOL),<sup>7</sup> and although the relation between glycaemic control and QOL is controversial,<sup>8,9</sup> there are suggestions that adherence to drug treatment and QOL are linked.<sup>10</sup>

Low compliance in type 2 diabetes can be affected by various factors, including socio-economic status, low education levels, and ethnic origin.<sup>11,12</sup>

Psychological factors are also linked with regimen adherence. Appropriate health beliefs, such as perceived seriousness of diabetes, vulnerability to complications, and efficacy of treatment can predict better adherence. Problems such as anxiety, depression, and fear of hypoglycaemia have also been linked with worse diabetes management in both the young and adults with diabetes.<sup>13</sup> Family and social factors may also affect treatment adherence positively if there is good patient support.<sup>14</sup> Support provided by nurses has also been shown to promote adherence to diet and medications. Another study has shown that having regular, frequent contact with patients on the telephone promoted regimen adherence and achieved improvement in glycemic control.<sup>15</sup>

Many patients with type 2 diabetes do not believe that their condition may adversely affect their future health and life expectancy.<sup>16</sup> Improving patient education and treatment compliance is highly important.<sup>17</sup> This study was therefore designed to assess the current status of treatment compliance in a group of type 2 diabetic patients.

## Patients and methods

The study was carried out at the Federal Medical Centre (FMC), Owerri in Imo State, south-eastern Nigeria. It is a tertiary healthcare provider in the area which offers comprehensive medical services to individuals and maintains their clinical information in a paper-based medical records system. The patients are mainly civil servants, students, and traders, as well as military and paramilitary personnel from different areas in the state.

The target population consisted of outpatients with type 2 diabetes. According to the medical records at the FMC, as at 2008, the total population of patients with type 2 diabetes was approximately 302. This figure is not representative of all people with diabetes in Imo State because people with diabetes were attending other hospitals and clinics in the state. Out of this, 30 patients were randomly selected according to the following inclusion criteria:

- Diagnosed with type 2 diabetes at least 1 year ago.
- Between the ages of 40 and 80 years.
- Regular with appointment schedules at the diabetic clinic.
- Undergoing medical treatment for diabetes.

A well-structured pre-tested questionnaire was used to collect information on the problems associated with compliance to treatment among type 2 diabetic patients. It used open-ended questions so as to allow respondents to supply appropriate answers. The questionnaires were administered and then collected as soon as they were completed.

## Results

There were equal males and females, i.e. 15 (50%) of each. There were nine (30%) within the age range of 40 to 50 years, and eight between 50 to 60 years. Most were married - 19 (63%). There were 15 (50%) artisans and 5 (17%) farmers. Most (27 or 90%) had some level of education and all patients were Christian. The duration of diabetes was <5 years in 21 (70%) and >5 years in 9 (30%). Glibenclamide was used by 16 (54%), metformin 7 (23%), and insulin 7 (23%).

Table 1 shows the responses of the patients to the ten main questions asked regarding knowledge of diabetes and the factors influencing compliance with prescribed medication. The responses are in the form of numbers (with % levels) of patients who strongly agreed, agreed, disagreed, or strongly disagreed with the questions asked.

## Discussion

This study has shown that several factors can affect treatment compliance in type 2 diabetes. Most patients understood the value of blood glucose control, although what exactly were good glucose levels was more variably appreciated. There were 26% who felt that medication could be stopped if patients felt well. A large proportion (70%) believed that fear of hypoglycaemia affected compliance. All agreed that a good doctor-patient re-

### 1. Understanding blood glucose control

Very good	8 (27%)
Fairly good	12 (40%)
Good	7 (23%)
Poor	3 (10%)

### 2. Understanding good blood glucose levels

4–6 mmol/l	2 (7%)
7–10 mmol/l	13 (43%)
10–12 mmol/l	4 (13%)
>12 mmol/l	1 (3%)
Don't know	10 (34%)

### 3. Good control delays complications

Strongly agree	25 (83%)
Agree	5 (17%)
Disagree	0 (0%)
Strongly disagree	0 (0%)

### 4. Medication can be stopped when feeling well

Strongly agree	3 (10%)
Agree	5 (16%)
Disagree	11 (37%)
Strongly disagree	11 (37%)

### 5. Stopping medication will make patient sicker

Strongly agree	10 (33%)
Agree	12 (40%)
Disagree	7 (23%)
Strongly disagree	1 (4%)

### 6. Fear of hypoglycaemia adversely affects compliance

Strongly agree	12 (40%)
Agree	9 (30%)
Disagree	4 (13%)
Strongly disagree	3 (10%)
Don't know	2 (7%)

### 7. Care from family increases compliance

Strongly agree	18 (60%)
Agree	6 (20%)
Disagree	4 (13%)
Strongly disagree	2 (7%)

### 8. Good patient-doctor relationship helps compliance

Strongly agree	26 (87%)
Agree	4 (13%)
Disagree	0 (0%)
Strongly disagree	0 (0%)

### 9. Proximity to home influences compliance

Strongly agree	18 (60%)
Agree	6 (20%)
Disagree	4 (13%)
Strongly disagree	2 (7%)

### 10. Patient is satisfied with treatment

Strongly agree	10 (33%)
Agree	13 (43%)
Disagree	7 (14%)
Strongly disagree	0 (0%)

Table 1 Responses to questionnaire on aspects of diabetes-related knowledge and compliance

lationship helped compliance and 80% believed that strong family support was similarly beneficial. There were 80% who thought that a good proximity to the clinic was helpful for treatment compliance. Overall, 76% were satisfied with their treatment.

Other studies have shown that fear of hypoglycaemia adversely affects compliance,<sup>13</sup> as well as family support,<sup>14</sup> and a good doctor-patient relationship.<sup>16</sup> Proximity to the clinic is generally beneficial, particularly with regard to blood glucose testing, as most patients could not measure their own blood glucose levels.

In conclusion, we found significant problems with treatment compliance knowledge. This is important, as type 2 diabetes is a complex disease with a high burden of complications if not properly managed. Better patient education is needed, ideally by suitably trained nurses. Oral agents, insulin, and glucose-monitoring facilities need to be made more affordable. Family and physician support are, however, cost-neutral and are powerful ways of improving patient support and compliance.

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