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Patients' Perception of Quality of Diabetes Care Received in Ibadan, Nigeria

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Abstract

Diabetes Mellitus (DM) is one of the diseases of public health concerns of the 21st century with rising burden in developing countries. The evaluation of care for diabetes from patients' perspective an important indicator of measuring quality of health services and improving treatment approaches but data of the nature are scarce in Nigeria. The study therefore investigated Patients' Evaluation of the Quality of Diabetes care (PEQD) in Ibadan. This descriptive cross-sectional study recruited 384 diabetic patients from three hospitals where specialised services are offered in Ibadan. A semi-structured pre-tested questionnaire was used to collect data. A 42-point PEQD questionnaire scale was used to collect data and a score of >21 was rated as good Perceived Quality of Care (PQC). Data were analysed using descriptive statistics, chi-square test and logistic regression set at 5% level of statistical significance. Mean age of respondents was 62.5 + 10.8 years and mean diabetes duration was 8.4 + 7.6. Majority (58.3%) of the respondents didn't know the type of diabetes they had. Patients aged less than 60 years were less likely to PQC received as good (OR: 0.21; CI: 0.05 – 0.91) compared to those who were above 60 years. More than half (55.0%) of the respondents perceive quality of care as good. Patients' assessment of the quality of diabetes care received was perceived good. There is need to sustain current satisfactory services in diabetic care and institutionalize periodic survey patients' satisfaction to provide feedback for future quality improvement.

Keywords

Diabetes mellitus; non-communicable diseases; Quality of care; Ibadan

INTRODUCTION

Diabetes Mellitus (DM) is one of the emerging diseases of public health concerns of the 21st century. Diabetes remains a major global public health challenge that has been identified as one of the leading risk factors for other chronic non-communicable diseases' morbidity and mortality as well as all-cause mortality (WHO 2002; Chobanian *et al*. 2003). Estimates from

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the (International Diabetes Foundation (IDF) 2013), shows that 382 million people were living with diabetes globally with Africa bearing 4.9% of this burden. According to IDF (2015) more than 321,100 deaths in the Africa Region could be attributed to diabetes; 79.0% of those deaths occurred in people under the age of 60, the highest proportion of any region of the world. In Nigeria, the prevalence of DM has varied from 0.65% in rural to 11.0% in urban areas (Chinenye *et al.* 2012) and more than doubled over the past two decades (Balogun & Gureje 2013) and estimates. In sub-Saharan Africa, where resources are often lacking and governments may not prioritise screening for diabetes, the proportion of people with diabetes who are undiagnosed is as high as 90% in some countries (IDF 2013). According to global estimates for 2010 and 2030 the prevalence of diabetes in Nigeria in 2010 was 4.7% and is projected to be 5.5% in 2030 when compared with world population (Shaw *et al.* 2010).

Quality of diabetes care is critical to achieving successful diabetes treatment outcomes. From literatures, studies that examine patients' satisfaction on the quality of diabetic care received are scarce in Nigeria, with more and more studies on prevalence and poor knowledge of the disease among patients and people at risk (Chinenye & Young 2011; Osuji *et al.* 2012; Mezie-Okoye 2013; Jasper *et al.* 2014). The importance of incorporating the perspective of the patient when evaluating and designing health care programs which is centred on the factors associated with patients' perceived quality of diabetes care, is now widely recognized, most especially in the developed countries (Hekkink *et al.* 2003; Oluwole *et al.* 2013). Patient-based assessments of medical care are being used to measure the quality of health care (Ajayi *et al.* 2005; Peltzer 2009).

Patients perceive and assess the quality of care being received in different dimensions like medical personnels attitude, interpersonal relationship of health workers waiting time, communication between doctors and patients, next appointment date, respect for patients opinion during consultations, respect for patients preference and so on (Faxelid *et al.* 1997; Lesley 1999; Akande 2002; Jenkinson *et al.* 2002; Margolis *et al.* 2003; Oyo-Ita *et al.* 2007; Bleich *et al.* 2009; Doubova *et al.* 2009; Tung & Chang 2009; Sambo *et al.* 2010). Several studies have identified prolonged waiting times as the main component of patient dissatisfaction which affects the perceived quality of care (Ademola-Popoola *et al.* 2005; Eze & Okaro 2006; Chisholm & Askham 2006; Ariba *et al.* 2007; Tung & Chang 2009). In Nigeria, several studies stated that respondents complained of long waiting time between one to four hours to see their doctor and consultants (Ademola-Popoola *et al.* 2005; Eze & Okaro 2006; Sambo *et al.* 2010).

Evidence from Pera (2011), however, suggests that in the assessment of health care services, patients often feel left out regarding their health and therefore not able to provide feedback as a result of not being listened to, respected, trusted and included in decision making. Assessment of quality of diabetes care can help health care providers reappraise current practices and ensure patients always get the best form of care. Kerr (2008) noted that it is important to capture important elements of how patients with chronic disease perceive the quality of care received when looking at how to implement measures to assess patients' perspectives of quality of care.

Unfortunately, as observed by Ridgeway *et al.* (2013), till date only few studies have collected routine, real-time information about diabetes care and management, and the available information are mostly available for developed countries. In Nigeria, the "landmark Diabcare study" conducted in 2008 that determined the status of diabetes care in Nigeria had a major flaw in the outcome assessment. The study failed to evaluate patients' perception of medical care received and treatment satisfaction; rather only clinical and laboratory profiles were used to evaluate the quality of care (Chinenye *et al.* 2012). Hence, the inferences from that study to the effect that sub-optimal glycaemic control, prevalent hypertension, not meeting blood pressure targets, and prevalent chronic complications of DM among most Nigerian diabetic patients may be indicative of this methodological flaw. This is because studies have shown that satisfaction with medical care is associated with glycaemic control and risk of DM complications (Pouwer & Snoek, 2002).

Patients' experiences with the health system will determine their attitude toward health institutions; determine their return visit, compliance with treatment and achievement of better treatment success (Olumide 1997). Therefore monitoring of patients' experiences of health care can provide organizations with a yard stick against which to measure the quality of their services (Coulter & Ellins 2006). It becomes imperative therefore to conduct studies which document DM patients' perception of the quality of medical care in various health facilities in sub-Saharan African countries like Nigeria which suffers a disproportionate burden of the disease, possesses fragile health care systems and where such studies are largely lacking. This study was designed to assess diabetic patients' evaluation of the quality of diabetes care and its factors in hospitals in Ibadan metropolis. It is hoped that findings from this study would improve diabetes health care services and close the gap between health care providers' and patients' towards the quality of diabetes care and management services delivered in health facilities in Nigeria.

MATERIALS AND METHODS

Ethical consideration

This study was approved by relevant ethics review committee. A pre-survey visit was made to the study sites during which discussions were held with the administrators and heads of diabetes clinic in all three hospitals. Patients were enlightened about the survey and eligible respondents gave written informed consent and signed the informed consent form. Confidentiality was assured and participation in the study was totally voluntary without any compulsion. Withdrawal from the study had no consequences.

Study design, setting—The study was a cross sectional research design and was conducted among diabetic adults accessing care in endocrinology units of three (3) health care facilities [University College Hospital (UCH), Michael Bella Hospital (MBH), and Our Lady of Apostle (OLA)] within Ibadan Metropolis. UCH is a tertiary hospital, MBH is a private hospital and OLA is a missionary hospital in Ibadan, Oyo State, Nigeria. These three hospitals have highly specialized clinics in Ibadan for diabetic patients.

Sampling size, technique, and inclusion criteria—The study recruited Three hundred and eighty-four (384) consenting adults aged ≥18 years with confirmed diagnosis of

type 1 or 2 diabetes by a health care practitioner at least 12 months before commencement of the study were enrolled. Also pregnant women were excluded from the study.

Data Collection

A pre-tested questionnaire was used in obtaining information from respondents. The questionnaire was pre-tested at a private specialist hospital in Ibadan, to establish the validity of the instruments. The data were analysed using SPSS version 20 and reliability of the instrument was assessed using Cronbach's alpha for internal consistency which gave a value of 0.7 indicating a good degree of internal consistency. Necessary changes were however made thereafter to increase the validity and reliability of the questionnaire before final administration to the study respondents. Data on 4 key areas were obtained including socio-demographic characteristics, history of illness, practices relating to diabetes care/medication, and Patients Evaluation of Quality of Diabetes (PEQD). It was translated into Yoruba language which is the dominant local means of communication among respondents for individuals who are more comfortable with the local language. Respondents were assisted in filling the questionnaires by trained research assistants.

Assessment of quality of diabetes

The PEQD questions were adapted from Pouwer & Snoek (2002). The PEQD has 14 different questions covering different aspect of diabetes care including waiting times, clarity of information, emotional support, usefulness of information received, and opportunity to share decisions with the medical personnel. It evaluated quality of diabetes care on a scale a 3-point scale (1 [poor], 2 [fair], and 3 [good]) and domains were computed as a score.

Data Analysis

Data summary was achieved using frequencies, proportions, means and standard deviations; while association were evaluated using Chi-square test. Logistic regression was used to identify factors associated with patients' evaluation of diabetes care and diabetes medication satisfaction. Bivariate and multivariate tests analyses were interpreted at 5% level of significance and 95% Confidence Interval (CI).

Duration of diabetes care was summarized and a cut-off of value of 8 was used to dichotomize it. Socioeconomic status (SES) was computed in binary form, extraction of variables was done using principal component analysis (PCA) and scree plot. The system extracted 6 variables, which were computed to generate the wealth score. The scores were categorised as poor, average, and wealthy.

Practices relating to diabetes care and medication score was a combination of eight items. A score of one point was given to each correct response and zero for wrong responses. The total obtainable score was 8 based on these eight items. Fifty percent (50%) of this total score which is five (5) was chosen as cut-off for good practise relating to diabetes care and medication. The PEQD has 14 different questions with a 3-point scale and total obtainable point was 42. A cut-off value of 21 was used to dichotomize poor and good perceived quality of care.

RESULTS

Socio-demographic characteristics of respondents

There were 35.9% males and 64.1% females, while the mean age was 62.5 + 10.8 years. Majority (80.2%) of the respondents were married, and less than half of the respondents (40.6%) had post-secondary school education, those with no formal education account for 16.4%. Two hundred and forty two (63.0%) of the respondents were Christians while 140 (36.5%) were Muslims. Majority (89.3%) of respondents were also of the Yoruba ethnic group while others constituted 10.2%. The wealth index showed that 51.8% of the respondents were poor, while 22.3% and 25.5% of the respondents were of average wealth status and wealthy respectively.

Profile of diabetic patients

Table 1 shows the profile of diabetics patients studied. More than half (58.3%) self-reported the type of diabetes they had. The mean duration on care was 8.4 + 7.6 years. Majority of respondents (62.0%) reported being on DM care for less than 8years and more than half of the respondents (56.3%) reported that apart from DM they suffered from other comorbidities like eye problems, cardiovascular problem, kidney problem, nerve damage and complaints of diabetic foot. A large proportion of the respondents reported that no immediate family member or extended family member had ever been diagnosed with diabetes (61.7%). Majority (94.3%) of the patients reported carrying out self-monitoring of their sugar levels, while 97.4% reported taking their drugs as prescribed; although only 61.7% reported normal blood sugar levels during the last check.

Patients' evaluation of the quality of Diabetes care

Table 2 shows Patients' evaluation of the quality of diabetes care. Overall evaluation showed that 51.6% of the respondents perceived quality of care as good while 48.4% respondents perceived it as poor. Although majority (73.4%) of respondents reported that waiting time spent before consulting with a doctor was poor,78.9% said time spent during consultation with the doctor was good, while 84.4% and 84.1% of respondents said clarity and usefulness of information received during such consultation was good. Over 80% of respondents also said the amount of information received from the doctor, opportunity to ask questions during consultation was perceived as good. Although majority of the respondents (75.3%) said the extent to which the doctor was informed about their past treatment was good, more than half of the respondents (63.3%) said the opportunity to share and be part of decisions with the doctor about their diabetes treatment was poor.

Relationship between perceived quality of care and socio demographic characteristics

Results in table 3 shows that age, marital status, level of education, health facility, religion and wealth index were significantly associated with perceived quality of diabetes care. The percentage of patients who perceived the quality of care received as good was significantly higher among those who were married and completed post-secondary education when compared with others. Proportion of patients who perceived the quality of care received as good were significantly higher among those accessing care from a private hospital (96.7%)

compared to those accessing care from either government hospital (68.2%) or a missionary hospital (21.3%). Consequently, more wealthy patients (73.9%) perceived the quality of care received as good compared to the average (68.0%) or poorer patients (59.0%).

Other variables such as gender of respondents and ethnicity were not statistically associated with perceived quality of care.

Relationship between perceived quality of care and diabetes' related characteristics

In table 4, type of diabetes, duration of diabetes care received, self-monitoring of sugar levels and frequency of sugar level monitoring were significantly associated with perceived quality of care. Patients who perceived the quality of care received as good were significantly higher among those with T1D (92.9%) than those with either T2D (77.5%) or those unaware of their DM being treated for (54.8%); also, patients that had been on diabetes care for more than 8 years (72.6%) perceived their quality of care as better than those who had been on diabetes care for less than 8years (59.5%). Patients who reported perceived quality of care as good were significantly higher among those who monitored their sugar levels weekly (73.8%) compared to those who monitored theirs daily (67.2%) or monthly (58.2%).

Other variables including presence of other illness, familial history of diabetes, level of blood sugar and taking prescribed drugs were not significantly associated with DM treatment satisfaction.

Relationship between the perceived quality of diabetes care and other factors

After adjusting for other factors, accessing diabetes care from a private health facility and age (50–59 years) were statistically associated with perception of the quality of DM care being received (Table 5).

Patients accessing care from private hospital were about 20 times more likely to perceive the quality of care received as good (OR: 19.57, 95% CI: 3.34 – 114.46) compared to those accessing care from government hospital. Patients aged between 50–59 years were also about five times less likely to perceive the quality of care received as good (OR: 0.21; 95% CI: 0.05 – 0.91) compared to those who were above 60 years. Type of diabetes was not statistically associated with perception of the quality of DM care although patients with type 2 diabetics were about 4 times more likely to perceive the quality of care received as good (OR: 4.02; 95% CI: 0.6 – 27.01) compared to type 1 diabetics

DISCUSSION

This study showed that diabetes patients' perceived the quality of care in the study area good. The indication of quality of diabetes care perceived to be poor were waiting time and opportunity to be part of decisions with the doctor about treatment. Although the private hospital had a better waiting time and government hospital had a better proportion of respondents that were part of the decision-making process regarding the diabetes treatment. Several authors have shown that patients are generally dissatisfied with the long waiting time before seeing the doctor or getting drug prescription from the pharmacist for any care which

could be as long as four (4) hours in some teaching hospitals in Nigeria (Ademola-Popoola *et al.* 2005; Eze & Okaro 2006) and other settings (Sambo *et al.* 2010; Umeano-Enemuoh *et al.* 2014).

Long waiting time may arise from poor time and patient management, it can also be due to insufficient health personnel including doctors, nurses, and pharmacists amongst others leading to further worsening of patients' health conditions and patients satisfaction with care. Chisholm & Askham (2006) opined that the greatest need for improvement in health care service delivery is in the area of patients' waiting time.

Other indicators (like time spent during consultation, waiting time before next appointment, clarity of information received, amount and usefulness of information received from the doctor, opportunity to ask the doctor questions during consultation, emotional support received from the doctor, the extent to which the doctor is informed about the patients past diabetes treatment, the doctors ability to maintain and achieve favourable result and the ease of making new appointments) were generally perceived as good.

Socio-demographic factors were significantly associated with having good perception of quality of care received. These factors include age of respondent, type of health facility, religious affiliation and wealth status. However, only age of respondent and type of health facility were significant at multivariate analysis. Findings from Ziaei *et al.* 2011 and Ibraheem *et al.* 2013 revealed that older diabetics (patients aged 60 years and above), had greater odds of perceiving the quality of care received as good compared to younger diabetic patients and this can be attributed that the elderly tend to believe their illness is due to old age and thus have lower expectations compared to younger age groups

There was variation in perceived the quality of care received amongst health facilities. Variation in the type of services available to patients may explain the difference in quality of care as these health care facilities present different care settings. Besides, several studies have previously shown that variation in diabetes management occurs in different settings even within the same health system (Suwattee *et al.* 2003; O'Connor *et al.* 2011). Private health facilities tend to provide better health services not obtainable in either government or missionary health facilities.

Affordability is always important in the perceptions of quality of healthcare services. The reason for the observed better perception of quality of services received from private hospitals may therefore be connected with the higher wealth index of patients accessing care from these facilities since they are better able to afford the higher fees charged. More so, Basu *et al.* (2012) noted that private sector healthcare systems tend to serve higher socio-economic groups, whereas the public sector tended to be less responsive to patients and lacked availability of supplies. A review comparing the performance of private and public healthcare systems in low- and middle-income countries did not support the claim that the private sector was usually more efficient, accountable, or medically effective than the public sector as nine studies reviewed found that diagnostic accuracy and adherence to medical management standards were worse among private than public sector care providers; they did

observe that the public sector appeared to frequently lack timeliness and hospitality towards patients (Basu *et al.* 2012).

Regular self-monitoring of sugar level was significantly associated with perception of quality of care both at the bivariate and multivariate analysis. Diabetic patients who reported carrying out self-monitoring of sugar levels were about 4 times more likely to perceive the quality of care received good compared to those who didn't monitor their sugar levels. Self-management behaviours, especially regular Self-Monitoring of Blood Glucose (SMBG) is useful for prompt detection of fluctuations in diabetics' blood glucose levels and has been found to be associated with optimum diabetes health care outcomes. Most patients get to check their sugar levels when they make visits to the clinics due to the cost of the blood glucose monitoring device especially in a developing country like Nigeria. They may tend to perceive carrying out regular self-monitoring of their sugar levels as unimportant or an extra financial burden due to cost of the device. Although the practice of SMBG does not necessarily mean patient is compliant with prescribed treatment recommendations. It may however be an indication of active commitment of patient to his/her diabetes management.

In conclusion, the overall evaluation of quality of diabetes care received by patients' was perceived as good. Although there was a significant difference in the perceived quality of diabetes care along the type of health facility. Good and adequate knowledge of diabetes and its risk factors are important for diabetics and needed for effective self-care management of the disease including necessary lifestyle modifications (such as dietary control, regular exercise and psychosocial coping skills).

There is need to develop care improvement strategies that will address the issues of waiting time, boost self-monitoring of patients health and develop service improvement plans that will reduce diabetes related morbidity, mortality and increase health outcomes. A structured consultation schedule and health care education programme is advocated to improve the quality of diabetes care. Periodic patient satisfaction survey on quality of care should be institutionalized to provide feedback for continuous quality improvement.

The study had several limitations. The researcher had to rely upon self-reported responses and recall bias is a possibility. Secondly, patients' who consented were enrolled non-randomly and consecutively from the clinic population. Thus, this may have been heavily weighted with frequent attenders because more aggressive patients seeking care were more likely to keep appointments. Thirdly, it would have been interesting to gather data from other different sources, such as case notes and focus groups, which might have enhanced the richness, breadth, and depth of the data and the worth of the final interpretations. Another limitation was that social desirability bias might have crept in since the study was conducted at a clinic setting. However during the orientation, efforts were made to explain about the aim of the study, the confidentiality of the research process and its zero effect on the services they are receiving

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Table 1

Profile of Diabetic Patients. (N=384)

	Frequency	%
Type of Diabetes (Self-reported)		
Type 1	20	5.2
Type 2	140	36.5
Don't Know	224	58.3
Duration on DM care		
≤ 8 years	238	62.0
> 8 years	144	37.5
Comorbidities		
Yes	216	56.3
No	168	43.8
Self-reported complication		
Eye problem	179	32.1
Kidney disease	118	21.2
Cardiovascular problem	130	23.3
Diabetic foot	50	9.0
Nerve damage	80	14.4
Family history – 1^0 relatives		
Yes	147	38.3
No	237	61.7
Family history – 2^0 relatives		
Yes	52	13.5
No	329	85.7
Don't Know	3	0.8
Do you monitor your sugar level		
Yes	362	94.3
No	22	5.7
Last blood sugar check		
Normal (45 – 100mg.dL)	237	61.7
High (>120mg.dL)	106	27.6
Don't Know	19	4.9
Self-reported adherence with prescribed drugs		
Yes	374	97.4
No	10	2.6

Mean duration on care: 8.5 ± 7.6 years

Table 2

Patients Evaluation of Quality of Diabetes Care (N=384)

	Poor (%)	Good (%)
Waiting time before consulting with a doctor	282 (73.4)	102 (26.6)
Time spent with the doctor during consultation	81 (21.1)	303 (78.9)
Waiting time before next clinical appointment	175 (45.6)	209 (54.4)
Clarity of information received from the doctor	60 (15.6)	324 (84.4)
Amount of information received from the doctor	74 (19.3)	310 (80.7)
Usefulness of information received from the doctor	61 (15.9)	323 (84.1)
The opportunity to ask questions during consultation	74 (19.3)	310 (80.7)
Emotional support given by the doctor	130 (33.9)	254 (66.1)
Doctor's ability to maintain/achieve favourable effects on your diabetes	111 (28.9)	273 (71.1)
The extent to which the doctor is informed about the past treatment of my diabetes	95 (24.7)	289 (75.3)
The extent to which the diabetes care provided by the doctor is integrated with the care of other clinics that I have visited	147 (43.0)	195 (57.0)
The opportunity to share and be part of decisions with the doctor about my diabetes treatment	251 (65.4)	133 (34.6)
The ease of making new appointments with the doctor	153 (39.8)	231 (60.2)
The overall quality of my diabetes care by the doctor	108 (28.1)	276 (71.9)
Overall perceived quality of DM Care		
Poor	154 (45.0)	
Good	188 (55.0)	

Table 3

Relationship between perceived quality of care and history of diabetes illness

	Poor N (%)	Good N (%)	P value
Type of Diabetes (Self-reported)			
Type 1	1 (7.1)	13 (92.9)	
Type 2	29 (22.5)	100 (77.5)	< 0.01
Don't Know	90 (45.2)	109 (54.8)	
Duration on DM care			
≤ 8 yrs	83 (40.5)	122 (59.5)	0.01
> 8yrs	37 (27.4)	98 (72.6)	
Comorbidities?			
Yes	103 (47.7)	113 (52.3)	0.87
No	83 (49.4)	85 (50.6)	
Family history – 1^0 relatives			
Yes	67 (34.7)	126 (65.3)	0.51
No	53 (35.6)	96 (64.4)	
Family history – 2^0 relatives			
Yes	16 (30.8)	36 (69.2)	0.775
No	103 (35.9)	184 (64.1)	
Monitoring of blood sugar level(last one month)			
Yes	101 (31.6)	219 (68.4)	< 0.01
No	19 (86.4)	3 (13.6)	
Frequency of blood sugar monitoring			
Daily	19 (32.8)	39 (67.2)	0.02
Weekly	28 (26.2)	79 (73.8)	
Monthly	38 (41.8)	53 (58.2)	
Last blood sugar check			
Normal (45 – 100mg.dL)	68 (31.9)	145 (68.1)	0.94
High (>120mg.dL)	28 (31.5)	61 (68.5)	
DK	5 (27.8)	13 (72.2)	
Adherence with prescribed drugs			
Yes	114 (34.3)	218 (65.7)	0.09
No	6 (60.0)	4 (40.0)	

Table 4

Relationship between perceived quality of care and history of diabetes illness (N=384)

	Poor N (%)	Good N (%)	*p value*
Type of Diabetes (Self-reported)			
Type 1	1 (7.1)	13 (92.9)	< 0.01
Type 2	29 (22.5)	100 (77.5)	
Don't Know	90 (45.2)	109 (54.8)	
Duration on DM care			
≤ 8 yrs	83 (40.5)	122 (59.5)	< 0.01
> 8yrs	37 (27.4)	98 (72.6)	
Comorbidities?			
Yes	103 (47.7)	113 (52.3)	0.87
No	83 (49.4)	85 (50.6)	
Family history – 1^0 relatives			
Yes	67 (34.7)	126 (65.3)	0.51
No	53 (35.6)	96 (64.4)	
Family history – 2^0 relatives			
Yes	16 (30.8)	36 (69.2)	0.775
No	103 (35.9)	184 (64.1)	
Monitoring of blood sugar level(last one month)			
Yes	101 (31.6)	219 (68.4)	< 0.01
No	19 (86.4)	3 (13.6)	
Frequency of blood sugar monitoring			
Daily	19 (32.8)	39 (67.2)	0.02
Weekly	28 (26.2)	79 (73.8)	
Monthly	38 (41.8)	53 (58.2)	
Last blood sugar check			
Normal (45 – 100mg.dL)	68 (31.9)	145 (68.1)	0.94
High (>120mg.dL)	28 (31.5)	61 (68.5)	
DK	5 (27.8)	13 (72.2)	
Adherence with prescribed drugs			
Yes	114 (34.3)	218 (65.7)	0.09
No	6 (60.0)	4 (40.0)	

Table 5

Binary logistic regression between the perceived quality of diabetes care and other factors (N=384)

	Odds Ratio (OR)	95% C.I. for OR	*p* value
Religion			
Christianity	1.69	0.697 – 4.11	0.33
Islam (Ref)			
Health facility			
Private	19.57	3.34 – 114.46	0.01
Missionary	2.06	0.42 – 9.98	0.44
Government (Ref)	-	-	-
Age			
50 – 59 years	0.21	0.05 – 0.91	0.08
> 60 years	0.59	0.14 – 2.46	0.54
≤ 49 years (Ref)	-	-	-
Wealth Index			
Average	1.43	0.53 – 3.86	0.56
Wealthy	0.65	0.23 – 1.81	0.49
Poor (Ref)	-	-	-
Type of diabetes (self-reported)			
Type 2	4.02	0.6 – 27.01	0.23
Type 1 (Ref)	-	-	-
Duration of diabetes care			
≤ 8 yrs	0.8	0.3 – 2.15	0.71
> 8yrs (Ref)	-	-	-