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Article

Depression and subjective quality of life among outpatients with diabetes mellitus at a teaching hospital in Nigeria

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ABSTRACT

Objective To determine the relationship between depression and the subjective assessment of quality of life (QoL) in a sample of patients with diabetes mellitus (DM) attending outpatient clinics at a regional university teaching hospital in Nigeria.

Methods A cross-section of 200 patients were administered the depression module of the Schedule for the Clinical Assessment in Neuropsychiatry (SCAN) and the World Health Organization Quality of Life assessment – brief version (WHOQoL-Bref) over a two-month study period.

Results A major depressive disorder (MDD) was diagnosed in 30% of patients. MDD was significantly associated with lower mean scores on the facets of overall QoL ($p<0.01$) and health satisfaction ($p<0.01$), but not in the domains of physical health ($p=0.67$), psychological health ($p=0.59$), environment ($p=0.70$), or social relations ($p=0.58$) of the WHOQoL-Bref.

Conclusion Depression is associated with a poorer subjective assessment of QoL among DM patients in Nigeria.

Keywords: depression, diabetes, Nigerians, quality of life

Introduction

Diabetes mellitus (DM) is a chronic disease characterised by absolute or relative insulin deficiency, hyperglycaemia and untoward short/long-term multi-organ and multi-system complications.[1] DM is a major public health concern in developing countries.[2] Advances in the treatment of DM have resulted in a longer lifespan for affected individuals. Furthermore, the goal of treatment is no longer just symptom remission; rather it involves a holistic approach aimed at improving the overall QoL in spite of the limitations or disabilities associated with the disease.[3]

A large body of work has been conducted concerning the determinants of QoL among individuals

with DM. Although reviews have shown that there is a lack of homogeneity in assessing QoL across studies, assessing QoL could be undertaken using generic or diabetes-specific QoL measures.[4] DM is generally associated with poorer QoL across studies.[5–7] Several factors are known to be associated with poor QoL in DM patients; psychological disorders such as anxiety and depression, low socioeconomic status and the presence of other chronic physical illnesses and motor disabilities.[7]

Depression is twice as likely to occur in individuals with DM compared with the general population.[5] DM patients with co-morbid depression report poorer subjective QoL outcomes.[2,6–8] Furthermore, affected individuals with co-morbid DM and depression are less likely to comply with treatment and more likely to develop complications which may adversely affect their QoL. In Nigeria, socioeconomic and health indicators are poor, and well within the low–middle income economic bracket.[9] The average life expectancy is 47 years and 46% live below the national poverty line. A proportion of individuals with DM may experience financial and lifestyle difficulties as they manage the condition. A negative association between depression and QoL in DM patients has been reported in this environment.[8] Earlier studies in this area are few and have been limited by small sample size. We aimed to determine the relationship between major depressive disorder (MDD) and subjective QoL among DM patients attending a diabetes outpatient clinic in Nigeria.

Methods

Study setting

The University of Benin Teaching Hospital, Benin City, Edo State, Nigeria is a 600-bed tertiary level referral facility. Its endocrinology unit runs an outpatient diabetes clinic twice weekly with an average of 40–50 patients seen on each clinic day.

Participants

Consenting adults aged between 20 and 64 years who had been diagnosed with DM for at least a year prior to the commencement of the study, were clinically stable and understood the nature and/or purpose of the study were consecutively recruited.

Measures

Sociodemographic questionnaire

This questionnaire was designed by the authors to obtain variables like age, gender, duration of diabetes, presence of co-morbidity, monthly income/allowance and number of children.

Schedule for the Clinical Assessment in Neuropsychiatry (SCAN)

The depression module of the SCAN[10] was interviewer administered. Diagnosis was generated according to the Diagnostic and Statistical Manual (DSM-IV) classification. The SCAN has been used in this environment and has good psychometric properties.[11]

World Health Organization Quality of Life assessment – brief version (WHOQoL-Bref)

The WHOQoL-Bref[12] is a 26-item self-administered generic questionnaire that assesses subjective QoL on two facets (overall QoL and health satisfaction) and four domains (psychological health, physical health, environment and social relations). The WHOQoL-Bref, has been used extensively and validated with Nigerians.[7]

Procedure

The study was conducted between 17 March and 15 May 2009. On each clinic day, patients who satisfied the study criteria were determined by examining case records. These patients were then approached and the nature and purpose of the study explained. Participants who indicated interest subsequently signed the study consent forms. Those who declined were further reassured that it would not affect the quality of care they would receive. Participants first filled out the sociodemographic questionnaire and WHOQoL-Bref, before the depression module of the SCAN was administered by one of the authors. Participants who had difficulty were assisted by one of the authors in filling out the sociodemographic and WHOQoL-Bref questionnaires. For nonliterate participants all questionnaires were translated into Pidgin English by the method of back translation. Additional clinical data were obtained by examining patient records.

Statistical analysis

The Statistical Package for Social Sciences, version 11 (SPSS Inc., Chicago, IL) was used to analyse the

data. Descriptive statistics were used to summarise the data. The chi-square and independent *t*-test were used to analyse categorical and continuous variables respectively. Using facets of the WHOQoL-Bref as dependent variables, a linear regression analysis was done to identify predictors of QoL. Significance level was set a priori at $p<0.05$

Results

A total of 212 patients who satisfied the study criteria were approached during the period of the study. Ten declined their consent, while two later opted out during the interview complaining they had little time. The participation rate was 94%.

Sociodemographic and clinical characteristics

The mean age (SD) of the whole sample was 47.2 (9.6) years. There was no significant difference in mean age when grouped by gender (t=1.60, df=198, p=0.58). The majority were female (54%), married (83.5%), Christian (97.5%), employed (66.5%), had more than four children (64.5%) and received a monthly income of above $60 (68%). About one-third satisfied the criteria for a SCAN diagnosis of an MDD (30%), with most (69%) having other physical co-morbidities (hypertension, cataracts, foot ulcers). The mean duration (SD) of being diagnosed with DM was 5.2 (5.3) years. One-fifth (20%) had a family history of DM, while the type-2 variant was more common (96%). Table 1 provides a complete illustration of the sample's sociodemographic characteristics.

Table 1 Sociodemographic and clinical characteristics of individuals with diabetes mellitus

Variables	*n* (%)
Gender	
Male	92 (46)
Female	108 (54)
Marital status	
Married	167 (83.5)
Not married	33 (16.5)
Employment status	
Employed	133 (66.5)
Not employed	67 (33.5)
Educational status	
No formal education	29 (14.5)
Up to secondary level	129 (64.5)
Post-secondary	42 (21)
Religion	
Christian	195 (97.5)
Muslim	5 (2.5)
Monthly income/allowance	
≤N7, 500 ($60)	64 (32)
>N7, 500 ($60)	136 (68)
Number of children	
≤4	71 (35.5)
>4	129 (64.5)
Physical comorbidity present?	
Yes	138 (69)
No	62 (31)
Duration of diabetes (years)	
1–5	129 (64.5)
6–10	54 (27)
11–15	10 (5)
>15	7 (3.5)
Family history of diabetes?	
Yes	40 (20)
No	160 (80)

MDD and QoL

Diabetes mellitus patients with an MDD compared with those without MDD had significantly lower mean scores on the facets of overall QoL (t=–4.84, p<0.01, 95% CI=–0.720 to 0.304) and health satisfaction (t=–2.680, p<0.01, 95% CI=–0.157 to 0.024). The DM+MDD group also had lower but insignificant differences in mean scores on the domains of physical health (t=–0.419, p=0.67, 95% CI=–6.255 to 4.065), psychological health (t=-0.527, p=0.59, 95% CI=–4.675 to 2.704), environment (t=–0.377, p=0.70, 95% CI=–6.627 to 4.498) and social relations (t=0.554, p=0.58, 95% CI=–3.023 to 5.38). Unemployment (p=0.005), and a monthly income of less than N7500 ($60) ($p$=0.001) were significantly associated with lower mean overall QoL scores. Participants who were married (p=0.048) and with a family history of DM (p=0.754) recorded significantly lower mean scores on the facet of health satisfaction.

Predictors of QoL

To determine predictors of poorer subjective assessment of overall QoL and health satisfaction in this

sample, the significant sociodemographic and clinical variables were entered into linear regression models with overall QoL and health satisfaction scores as the dependent variables. MDD was found to be a significant predictor of poorer subjective assessment on the facets of overall quality of life and health satisfaction of the WHOQoL-Bref (see Table 2).

Discussion

This study supports previous reports in the literature that depression is a common co-morbidity among individuals with DM and has a negative association with subjective QoL outcomes.[3,6–8,13] MDD predicted poor QoL in spite of the fact that other socioeconomic indices (monthly income, marital status, employment status, family history of DM and number of children) were significantly correlated with poorer QoL scores on the facets of overall QoL and health satisfaction. Indeed, individuals with DM in a developing country like Nigeria face several challenges in living optimally with the disease. Though it might be argued that improving socioeconomic indices alone would result in better QoL outcomes in DM patients, this study reaffirms that psychological disorders like depression play an important role. Indeed, previous reports have established that treating depression in individuals with DM was sufficient to improve their QoL, even though additional steps were not taken in improving glycaemic control.[14,15] Strategies that encourage the detection and management of depression among DM patients in sub-Saharan Africa are needed. Furthermore, a closer collaboration between physicians and mental health professionals would confer improvements in the holistic care of individuals with the disease.

In contrast to other studies in this environment employing the use of a generic QoL instrument like the WHOQoL-Bref, MDD did not significantly affect outcomes in the domains of physical health, psychological health, environment and social relations. Perhaps other sample characteristics (physical co-morbidity, employment status, number of children and marital status) were confounders. However, the utility of generic measures of QoL among individuals with chronic disorders like DM have been questioned.[11,16] Nevertheless, generic measures have the ability to assess QoL across a broader range.

There are some limitations to our study: we did not use a control group for comparison, neither did we factor in some anthropometric measures like BMI, glycosylated haemoglobin levels and blood pressure measurements. These factors, as well as other psychiatric morbidities such as anxiety disorders, may be confounders of QoL outcomes. Furthermore, the cross-sectional nature of our study design limits interpretations as to causality.

In conclusion, this study has demonstrated in a moderate to large sample that MDD is associated with poorer subjective QoL outcomes in DM patients. Clinicians in resource-poor settings desirous of providing holistic care for DM patients would do well to identify risk factors and screen for depression among their patients. This intervention would not only improve treatment compliance but, as reiterated in some studies, reduce the risk of complications which impair quality of life.

Table 2 Linear regression model showing predictors of overall QoL and health satisfaction on the WHOQoL-Bref among DM patients

Variables	B	SE	Beta	*p*
Overall QoL				
Employment status	–0.202	0.108	–0.132	0.061
Monthly income/allowance	0.238	0.110	0.154	0.030
Major depressive disorder (MDD)	0.480	0.104	0.305	0.001
Health satisfaction				
Family history of DM	0.316	0.123	0.158	0.011
Number of children	–0.494	0.106	–0.296	0.001
Marital status	0.313	0.136	0.145	0.022
Major depressive disorder (MDD)	0.497	0.109	0.285	0.001

B, Standardised coefficient; SE, Standard error

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ETHICAL APPROVAL

The Ethical Review Committee of the University of Benin Teaching Hospital reviewed the study protocol and granted approval to carry out the study.

CONFLICTS OF INTEREST

None.

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