AFRICAN JOURNAL OF
MEDICINE
and medical sciences

Common mental disorders among subjects with T2DM in Sagamu, Nigeria

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Abstract

Background: Psychological disorders are common in diabetes mellitus with associated increased adverse disease outcome, economic burden on patient and family and poor quality of life. Psychological well being among T2DM patients has been poorly evaluated in Nigeria.

Objective: The study set out to determine the prevalence and pattern of psychological disorders of Anxiety and Depression as well as evaluate the relationship between psychological well being and diabetes related factors in our diabetic population.

Materials and Methods: This was a prospective study carried out among T2DM patients attending the Endocrine Clinic of OOUTH between September and November 2009 using the GHQ-12 and HADS questionnaires, and patients' medical records.

Results: One hundred and two patients were evaluated (56 females, 46 males) with mean age of 60.4±9.2years. Females generally scored significantly higher on the GHQ-12 (29.6 vs 9.1 p<0.05), HADS for anxiety (18.5 vs 4.5 p<.05), as well as HADS for depression (25.9 vs 4.5 p<0.05). The commonest comorbidity of diabetes mellitus in the study was hypertension 56.9%, with 68.6% being overweight and obese (BMI>25). Complications commonly observed were retinopathy (19.6%), neuropathy (15.7%), diabetic foot syndrome (11.8%), stroke (9.8%), erectile dysfunction and nephropathy (5.9%). The presence of these (except BMI) increased the prevalence and scores on all the parameters.

Conclusion: The prevalence of psychopathologies of depression and anxiety was high in this study. The presence of complications and co-morbidities contributed positively to the high prevalence. It is recommended that early identification of these conditions and prompt referral for treatment is imperative for improved overall disease outcome.

Keywords: *Type 2 diabetes, psycho-morbidity, prevalence, improved-outcome, Nigeria*

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Résumé

Contexte: Les troubles psychologiques sont fréquents en ce qui concerne le diabète dû à l'excès, accentuent des effets indésirables, la mauvaise qualité de la vie et les problèmes économique sur le patient et sa famille. Le bien-être psychologique parmi les patients atteints de DT2 n'a pas été évalué à Sagamu, au Nigeria.

Objectif: Cette étude visait à déterminer la prévalence et les caractéristiques de troubles psychologiques, l'anxiété et la dépression, et d'évaluer la relation entre bien-être psychologique et les facteurs liés à la maladie parmi les nouveaux sujets présentant DT2.

Matériel et méthodes: Il s'agissait d'une étude prospective des nouveaux patients atteints de DT2 présentant à la clinique endocrinienne de OOUTH entre Juillet et Novembre 2009, en utilisant le GHQ-12, les questionnaires HADS et les dossiers médicaux des patients.

Résultats: Quatre-vingt dix huit (98) patients ont été évalués (54 femmes, 44 hommes) avec un âge moyen de 60,4 ± 9,2 ans. La prévalence globale de la psychopathologie à l'aide du GHQ-12 parmi les participants était aux échelles de 21,6% , 15,7% sur le HADS-D et de 11,8% sur le HADS-A. Les femmes ont de manière significative les hommes au niveau du GHQ-12 (29,6 contre 9,1 p <0,05), HADS-A pour l'anxiété (18,5 contre 4,5 p <0,05), et HADS-D pour la dépression (25,9 contre 4,5 p <0,05). La plus fréquente co-morbidité parmi les sujets était l'hypertension (56,9%), 68,6% d'obésités (IMC> 25). Les complications fréquentes observées étaient la rétinopathie (19,6%), la neuropathie (15,7%), le syndrome du pied diabétique (11,8%) et les accidents cérébrovasculaires (9,8%). LA Présence de la co-morbidité (l'hypertension) et les complications ont augmenté la prévalence et les résultats.

Conclusion: La prévalence des psychopathologies de la dépression et l'anxiété était élevée dans cette étude. La présence de complications et de comorbidités ont accentué la prévalence élevée. L'identification précoce suivie d'un traitement rapide de ces conditions devrait améliorer les résultats globaux de la maladie.

Introduction

The prevalence of diabetes mellitus is expected to increase by 150% between 1999 and 2025 with most

Table 2 : Prevalence of psychopathology based on General Health Questionnaire (GHQ) and Hospital Anxiety and Depression Scales (HADS)

Parameters	GHQ score			Anxiety score			Depression score		
	≥ 3	< 3	p	≥ 8	< 8	p	≥ 8	< 8	p
Gender									
Female	16(29.6)	38(70.4)	0.012	10(18.5)	44(81.5)	0.036	14(25.9)	40(74.1)	*0.004*
Male	04(09.1)	40(90.9)		02(04.5)	42(95.5)		02(04.5)	42(95.5)	
Comorbidity									
Present	18(29.0)	44(71.0)	*0.023*	11(17.7)	51(82.3)	*0.020*	15(24.2)	47(75.8)	*0.003*
Absent	04(10.0)	36(90.0)		01(02.5)	39(97.5)		01(02.5)	39(97.5)	
Complications									
Present	15(32.6)	31(67.4)	0.014	09(19.6)	37(80.4)	0.027	11(23.9)	35(76.1)	0.038
Absent	07(12.5)	49(87.5)		03(05.4)	53(94.6)		05(08.9)	51(91.1)	
FBS									
> 100	12(22.2)	42(77.8)	0.954	10(18.5)	44(81.5)	0.030	10(18.5)	44(81.5)	0.457
≤ 100	10(21.7)	36(78.3)		02(04.3)	44(95.7)·		06(13.0)	40(87.0)	
Glyc Hb									
> 7.5	15(32.6)	31(67.8)	0.011	08(17.4)	38(82.4)	0.144	12(26.1)	34(73.9)	0.035
≤ 7.5	01(04.5)	21(95.5)		01(04.5)	21(95.5)		01(04.5)	21(95.5)	
BMI									
> 25	08(18.2)	36(81.8)	0.403	06(13.6)	38(86.4)	0.683	08(18.2)	36(81.8)	0.403
< 25	02(10.0)	18(90.0)		02(10.0)	18(90.0)		02(10.0)	18(90.0)	

(Top spanning header: Hospital anxiety and depression scale)

Discussion

Psychological disorders are common in chronic disease like diabetes mellitus with the presence of co-morbid factors and complications resulting in adverse disease outcome, increased economic burden culminating in poor quality of life [4]. This study as in other earlier ones show a female preponderance with the elderly being more affected [5,6,7]. A recent global increase in the prevalence of T2DM amongst adolescents and young adults is however been reported [1,2].

In the present study, psychological morbidity using GHQ-12 scores was three times higher in females than males (29.6%vs9.1%), depression was 5.8 times (25.9%vs4.5%), and anxiety was 4 times more in females than males (18.5%vs4.5%) on HADS scale. The female preponderance has been ascribed to such factors as female hormones and gender harassment among other reasons [6,7]. There are other studies reporting female preponderance of psychological disorders with depressive illness being twice more common in diabetics than in the general population [6].

Hypertension was the commonest co-morbid factor in this study, occurring in 56.9% with 68.6% of the hypertensive being either over-weight or obese similar to previous report on obesity and overweight in adult type 2 diabetes mellitus [19]. The present study demonstrated that the presence of diabetes co-morbidity increased the prevalence of depression by 10 times, anxiety by 7 times and poor general health status by 2.9 times compared with the subset with no co-morbidity. These findings are similar to earlier studies in which presence of diabetes complications and co-morbidity reportedly accounted for the higher prevalence of psychological morbidity in T2DM [20,21].

Poor compliance with diabetes control and treatment regimens, particularly insulin treatment, behavioral modification as well as fear of present and future complications [8,14] have been shown to have negative impact on quality of life, increase adverse disease outcome as well as total health expenditure [22]. In this study, poor long term glycaemic control shown by HbA1c>7.5% was associated with increased risk of depression and anxiety compared with HbA1C< 6.5%, though fasting blood sugar, an indicator of short term glycaemic

differences in age. The mean duration of disease was 11.0±9.5 years. Seventy eight (79.6%) of the participants were married, while 20 (20.4%) were widows or widowers. Thirty four (34.7%) subjects had tertiary education, 28 (28.6%) had high school education, 16 (16.3%) had elementary education while 20 (20.4%) had no formal education. 38 (38.8%) were old and infirm, 22 (22.4%) were government employees, 28 (28.6%) were traders while 10 (10.2%) were artisans.

Forty six (45.1%) subjects had diabetes related complications with retinopathy (19.6%), neuropathy (15.7%) and foot ulcer (11.8%) being the commonest complications. (Table 1) Sixty two (60.8%) subjects had co-morbid illnesses, the commonest being hypertension in 58 (56.9%). Of the 64 that had records of height and weights documented, 44 (68.8%) were overweight and obese, (BMI>25, mean 27.2 ±5.5kg/m2). Glycaemic control was assessed using fasting blood sugar (Fbs) and glycosylated haemoglobin (HbA1c). Fbs showed a mean of 122.8±54.2 mg/dl, 54 (52.9%) had fasting blood glucose <100mg/dl. Sixty eight (68) subjects had HbA1c level documented of which 46 showed values higher than 7.5% (mean 8.4±10.6). The mean systolic blood pressure was 144 ± 27.62mmHg (range 100-200mmHg) and diastolic blood pressure was 83±14.42mmHg (range 60-150mmHg). Twenty two (21.6%) subjects had scores > 3 on the GHQ indicative of psychopathology. Sixteen subjects 16 (15.7%) had scores > 8 indicative of depression while 12 (11.85%) had scores > 8, indicative of anxiety on the HADS scales.

In this study, female subjects had higher scores than males on the GHQ (29.6 vs 9.1) and HADS for anxiety (18.5 vs 4.5) and depression (25.9 vs 4.5) p<0.05 respectively. The presence of co-morbid illnesses increased the score and prevalence on the GHQ- 29.0% vs 10.0%, the HADS for anxiety and depression (17.7% vs 2.5%; 24.2% vs 2.5%) respectively (p<0.05). Similarly, subjects with diabetes related complications had scores higher than the cut-off on the GHQ (32.6% vs 12.5%), the HADS- (19.6% vs 5.4%) for anxiety and (23.9% vs 8.9%) for depression (p<0.05) compared with those without (Table 2). Subjects with poor long term glycaemic control evidenced by HbA1c>7.5% scored significantly higher and were more on the GHQ and the depression scale of HADS (p<0.05) but not anxiety scale while those with poor short term control (Fbs>100mg/ml) scored higher on the anxiety scale of HADS (p<0.05) only. There was no relationship between the degree of overweight and obesity measured by BMI the GHQ and or HADS scores.

Table 1: Clinical Characteristics of Subjects

Clinical Characteristics	Frequency
Co-morbidity	
Hypertension	58 (56.9%)
Stroke	4 (3.9%)
Tuberculosis	2 (2.0%)
Others	12 (11.8%)
Complications	
Retinopathy	20 (19.6%)
Neuropathy	16 (15.7%)
Diabetic Foot Ulcer	12 (11.8%)
Stroke	10 (9.8%)
Nephropathy	6 (5.9%)
Erectile Dysfunction	6 (5.9%)
Amputation	2 (2.0%)

control, did impact on the risks of anxiety only. Due to the high cost of medications and economic burden of illness, poor compliance with disease management negatively impact on diabetes control, outcome and quality of life [16].

The findings in this study are similar to those of earlier studies on the psychological status of people with diabetes attending out patient clinic. It is therefore important to identify patients early, commence prompt and effective treatment aimed to improve overall diabetes outcome. There is need for a larger sample size, comparing with other chronic non-communicable diseases.

References

1. Alberti KGMM, Aschner P, Assal JP *et al:* Report of a WHO Consultation Part 1: Diagnosis and Classification of Diabetes Mellitus .WHO: Definition, Diagnosis and Classification of Diabetes Mellitus and Its Complications 1999.

2. National Expert Committee on Non-Communicable Disease (NCD) in Nigeria. Report of National Survey. Ed. Akinkugbe OO; 1997: 64-90.

3. Ogun SA, Adelowo OO, Familoni OB, Jaiyesimi AEA and Fakoya EAO: Pattern and outcome of medical admissions at Ogun State University Teaching Hospital – a three year review. W.A.M.J 2000; 19: 304-308.

4. Rubin R.R and Peyrot M.: Quality of life and Diabetes. Diabetes Metab Res Rev. 1999; 15: 205-218

5. Linda SG, Lustman PJ: Depression in women with Diabetes. Diabetes Spectrum 1997; 10(2): 216-223

6. Gavard JA, Lustman PJ and Clausse RE: Prevalence of depression in adults with diabetes: an Epidemiological evaluation. Diabetes Care. 1993; 16: 1167-1178.

7. Marcus M.D; Wing R.R; Guare J; Blair E.H and Jaward A: Lifetime prevalence of Major Depression and its effect on treatment outcome in obese type 2 diabetic patients. Diabetes Care 1992; 15: 253-255.

8. Lustman PJ, Griffith LS and Clause RE; Recognizing and managing depression in patients with Diabetes. In Practical Psychology for Diabetes Clinicians. Rubin RR, Anderson BJ eds.Va, American Diabetes Association 1996 pgs 143-152.

9. Lustman PJ, Griffith LS, Clouse RE and Cryer BE: Psychiatric illness in diabetes in relationship to symptoms and glucose control.J.Nerv Ment Dis 1986;174:736-742.

10. de Groot M and Lustman PJ: Depression among African-Americans with diabetes: A dearth of Studies. Diabetes Care 2001; 24: 407-408.

11. Famuyiwa OO, Edozien MM and Ukoli CO: Social, Cultural and Economic factors in the management of Diabetes Mellitus in Nigeria. Afr. J. Med and Med Sci 1985; 14: 141-154

12. Akinlade KS, Ohaeri JU and Suberu MA; The psychological condition of a cohort of Nigerian Diabetes Mellitus subjects in Nigeria. Afri. J. Med and Med Sci. 1996; 25: 61-67.

13. Lloyd CE, Dyer PH and Barnet AH; Prevalence of symptoms of depression and anxiety in a Diabetes clinic population. Diabetes Med, 2000; Mar 17; 3: 198-202.

14. Clark CM Jnr, Franklin JE, Hiss RG, Lorenz RA *et al*: The National Diabetes Education Programme – Changing the way Diabetes is treated; Comprehensive diabetes care. Diabetes Care 2001; 24: 617-618.

15. Lustman PJ and Harper GW: Non-psychiatric physician's identification and treatment of Depression in patients with diabetes. Compr. Psychiatry 1987; 28: 22-27.

16. McCulloh DK, Glasgow RE, Hampson SE and Wagner E: A systematic approach to diabetes management in the post DCCT era. Diabetes Care 1994; 17: 765-769.

17. Hermann C. International experiences with the Hospital Anxiety and Depression S c a l e - a review of validation data and clinical results. J.Psychosomatic Res. 1997; 42: 17-41.

18. Abiodun OA. A validity study of the Hospital and Depression Scale in general hospital units and a community sample in Nigeria. Brit. J. Psychiatry. 1994; 165 (5): 669-672.

19. IDF: Worldwide definition of the metabolic syndrome. http://www.idf.org/webcast.

20. Van Drass DD and Litchy W: Correlates of depression in diabetic adults. Behav. Health Aging. 1990; 1: 79-84.

21. Ryan J, Anderson BA, Ray E. *et al.*: The prevalence of co-morbid depression in adults with diabetes. Diabetes Care 2001; 24 (16): 1070-1078.

22. Sridhar GR; Psychiatry co-morbidity and diabetes. Indian J. Med Research 2007;125:311-320.

Inpatient care is the most expensive component of mental health care and accounts for most mental health expenditure [4, 5]. Length of stay (LOS) has often been used as an indicator of the efficiency of in-patient care; this is probably because it is one of the main sources of direct hospital cost [6]. Twenty eight days (or a range of 15-30 days) has been considered to be an adequate length of stay for psychiatric units of general hospitals [7, 8]. Investigators believe that only 50% of hospitalizations lasting longer than 30 days are medically justified, 10.3% is medically unacceptable and the remaining 39.7% are due to social and administrative factors beyond the psychiatrist's control [1].

There has been a lot of difficulty in trying to identify factors that can universally predict the required length of inpatient stay across psychiatric facilities. Factors that have been most consistently reported to predict LOS include age, gender, diagnosis, severity of symptoms, number of previous admissions, response to treatment, hospital admission rates and social factors such as marital status, living alone and carer stress [6, 9-15].

Payment for medical care for a majority of patients in Nigeria is largely out of pocket; with the rising cost of inpatient care, pressure is increasingly being mounted on clinicians to discharge patients early. Added on to this is the introduction of managed care through the National Health Insurance Scheme (NHIS). In the current NHIS guidelines, enrollees are generally entitled to hospitalization for a maximum of 15 days [16]. Hence, the control over how long a patient can stay on admission is increasingly being determined by these economic considerations rather than a physician's clinical judgment. There is a need for empirical data on the minimum length of hospital stay required for adequate treatment of different disorders to allow clinicians argue for a review of current NHIS recommendations on length of hospital admissions covered by Health Management Organizations (HMOs).

In addition to this, knowledge of the factors that can influence a patient's length of hospitalization will be relevant in helping clinicians contain cost and enable them to justify the length of time their patient's need to spend in inpatient care. This study was designed to provide information on the length of hospital admission for patients admitted to the psychiatric ward of a tertiary hospital and to determine what factors influence the length of hospital admission.

Materials and methods

This study is retrospective and descriptive in design. It was carried out in the Psychiatry Department of the University College Hospital, Ibadan. The University College Hospital is a tertiary/teaching hospital located in the capital of Oyo State, South-West Nigeria. The department of Psychiatry was established in the mid 1950s to provide outpatient psychiatric services. In patient facility was added in 1963 with a 9 bedded ward. At present, the department has a 64-bedded inpatient facility in the Neurosciences block of the hospital, with 32 beds each in two wards operated as separate wards for males and females. There are also outpatient clinics run twice weekly in the medical outpatient (MOP) department and a daily 24-hour emergency service. The UCH has no defined catchment area; referrals are received from other health care centres within Ibadan metropolis, as well as from other health care centres in Southwest Nigeria and other parts of the country.

The names and hospital number of patients admitted over a one year period between June 1st 2006 and May 31st 2007 was collated from the admission register kept by the nurses on each ward. The admission register is filled by the admitting nurse. The information routinely entered in the admission register include patient's name, hospital number, age, admitting diagnosis and the name of the unit consultant under which patient is admitted, and the date of discharge, filled on the day of discharge. An attempt was then made to retrieve the case notes of all the patients admitted within this period to obtain more detailed information.

Data were extracted from the patients' hospital records using specially designed data record forms. The data record forms excluded personal identifying data. The information extracted from the records included the patient's age, sex, marital status, level of education, occupation and ethnicity. Pertinent clinical data such as date of admission, date of discharge, diagnosis, number of previous admissions and episodes of illness, route of admission, treatment received, mode of discharge and patient's clinical state on discharge were also recorded. For patients who were admitted more than once during the study period, only the first admission was considered. Patients are usually admitted to the ward, from three sources- (1) the outpatient clinic, (2) the emergency room or (3) by presenting directly to the wards. Psychiatric diagnosis was obtained from the patients records. The diagnoses were grouped into 4 categories to allow for meaningful analysis as the numbers were few for some diagnosis- (1) schizophrenic spectrum disorders included patients with a primary diagnosis of schizophrenia and schizoaffective disorder, (2) mood disorders for patients with depression or bipolar