

Depression and anxiety screening in North African diabetic patients: prevalence and risk factors

Abstract

Background: Mood disorders are associated with poor glycemic control, poor treatment and dietary regimen adherence and bad health outcomes. Recent studies outlined the importance of anxiety and depression treatment on glycemic control and thus, degenerative complications decrease.

Aim: To estimate the prevalence and identify the risk factors of anxiety and depression in diabetic patients.

Methods: A cross-sectional observational study was carried out from April 2015 to April 2016 in patients with diabetes aged above 15 years, hospitalized in internal medicine department of The Regional Hospital of Ben Arous Tunisia. Anxiety and depression symptoms were assessed with the Hospital Anxiety and Depression scale (HAD).

Results: The prevalence of anxiety and depression of the 144 diabetic patients included were respectively 18.1% and 14.5%. Anxiety was associated with female gender, while depression was statistically associated with both female gender and cerebrovascular accidents.

Conclusion: Diabetes is frequently associated to mood disorders that make diabetes' therapeutic management challenging for physicians. Further studies on controlling diabetes through a better control of psychological distress are needed to identify the bidirectional interaction between diabetes and mood disorders.

Keywords: depression, anxiety, diabetes, quality of life

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Maroua Mrouki,^{1,2} Fatma Ben Dahmen,²
Yosra Cherif,^{1,2} Meya Abdallah^{1,2}

¹Tunis El Manar University, Medical Faculty of Tunis, Tunisia

²Internal Medicine Department, Ben Arous Regional Hospital, Tunisia

Correspondence: Maroua Mrouki, Internal Medicine Department, Tunis El Manar University, Medical Faculty of Tunis, Ben Arous Regional Hospital, 2096, Ben Arous, Tunisia, Email marona.mrouki@fmt.utm.tn

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Introduction

Diabetes is a chronic metabolic condition steadily increasing worldwide. Its prevalence in adult population nearly doubled since 1980 from 4.7% to 8.5% in 2014 in parallel to the rise of overweight and obesity.¹

Diabetes is associated with higher risk of psychological distress. In fact, the prevalence of anxiety or depression in diabetic patients is twice the prevalence in general population: respectively 14% and 10%.^{2,3} Furthermore, anxiety and depression may co-occur aggravating diabetic complications.⁴

Similarly, the association of anxiety or depression with bad health behaviors and physiological disturbances increases insulin resistance and risk of diabetes compared to individuals without anxiety or depression.^{5,6}

These conditions, in diabetic patients, are associated with poor glycemic control, inadequate self-management, decreased physical activity and social restriction.⁷ In the same time, a poor glycemic control is responsible for higher severity of psychological distress that increases diabetic complications creating a vicious circle.⁸

Since diabetes is a major public health problem worldwide, improving the quality of life of diabetic individuals has become a major therapeutic issue. Depression and anxiety screening in diabetes is beneficial in order to improve self-management, compliance to medication, dietary regimen and physical activity. Previous meta-analysis and trials suggested that treating mood disorders was associated with better glycemic control.^{9,10}

The aim of the present study was to estimate the prevalence of anxiety and depression symptoms as assessed in Hospital Anxiety and Depression Scale (HAD) in diabetic patients hospitalized and to identify associated risk factors.

Patients and methods

Participants and design

A cross-sectional observational study was carried out between April 2015 and April 2016 among all Tunisian diabetic patients aged 15 or older at the time of their admission to the internal medicine department of Regional Hospital of Ben Arous (Tunisia).

Inclusion criteria were 1) patients aged above 15 years having a confirmed diabetes type 1 or type 2 and hospitalized during the study, 2) patients able to answer the screening questionnaire of depression and anxiety, 3) patients who agreed to take part of the study.

Patients who a) were unable to clearly answer the questionnaire b) were previously diagnosed with psychiatric conditions c) were readmitted a second time during the study weren't included. Incomplete questionnaires were excluded.

The socio-demographic data and medical history were obtained for the patients' medical records.

Measures

Anxiety and depression symptoms were assessed by the HAD scale, a well validated measure formulated by Zigmond and Sanith to identify possible or probable anxiety or depression.¹¹ It includes 14

items measuring 2 subscales: anxiety and depression, 7 items each, rated from 0 to 3 yielding a maximum score of 21 with cut-off points for severity (scores: 0–7 normal, 8–10 doubtful, 11–21 certain).¹¹

Covariates

Based on a literature review, studied factors were gender, health behavior such as smoking or sedentariness, cardiovascular risk factors (hypertension, dyslipidemia), duration of diabetes, glycemic control (Glycated Hemoglobin HBA(1C)), diabetes complications and previous cardiovascular major events.

Statistical analysis

Statistical Package for the Social Sciences for windows (SPSS Inc. Chicago IL, ISA) version 18 was used for data analysis. Descriptive statistics and frequency distribution were compiled from questionnaire and medical records data. Student t-test was used when appropriate to compare averages. Chi square test were used when appropriate to compare subgroups: anxious (score>10) to non-anxious (score≤10), depressed (score>10) to not depress patients (score≤10).

The results were shown with 95% confidence intervals. P < 0.05 was accepted as statistically significant.

Results

Socio-demographic characteristics

Among 416 patients hospitalized during the study, 144 met the inclusion’s criteria, which is more than the third of admissions during the investigation. The average age was 72 ± 7.4 years old with extremes ranging from 15 to 83. A feminine predominance was observed (58%).

Table 2 Prevalence of Hospital Anxiety and Depression (HAD) scale “normal”, “doubtful” and “certain” anxiety and depression scores in hospitalized patients in internal medicine department from April 2015 to April 2016 (N=144)

Scores	Anxiety			Depression		
	0-7 (Normal)	8-10 (Doubtful)	≥11 Certain)	0-7 (Normal)	8-10 (Doubtful)	≥11 (Certain)
N (%)	99 (68.7%)	19 (13.2%)	26 (18.1%)	106 (73.7%)	17 (11.8%)	21 (14.5%)

Discussion

Diabetes diagnosis and changes in lifestyle and health behavior imposed by this affection are source of anxiety and depression.¹² The prevalence of both conditions observed in our study were similar to other studies reported in the literature using HAD scale. Indeed, the prevalence of depression in diabetic patients ranges from 10 to 47.8% almost twice the prevalence observed in the general population.^{2,3,13} Concerning the association between depression and diabetes type, the previous studies are contradictory.^{4,14} In our study, the type of diabetes wasn’t associated to depression.

Evidence from previous studies found that the risk factors associated with depression in diabetic patients were female gender, duration of diabetes and degenerative complications.^{15,16}

Depression is associated to cardiovascular events especially in women.^{15,17} Inversely, the stress due to cardiovascular events increases the risk of depression.¹⁷ Other risk factors were reported: The early onset of the disease or on the contrary the late onset at an old age, the poor socio-economic conditions, the poor diabetic control (especially hypoglycemia) and the occurrence of stressful events.¹⁵

Clinical and therapeutic features

The most common hospitalization reasons were acute complications of diabetes in 66.7% and infectious complications in 25% cases. Average duration of diabetes was 6.8± 7.6 years and the average HBA1C was 11.1%. Diabetes was predominantly type 2 (80.6%) associated with hypertension in 33.3% and dyslipidemia in 14.6%. 19.4% of included patients were smokers. Average BMI was 27.9 kg/m².

Half of the patients had degenerative complications of diabetes summarized in Table 1.

Table 1 Frequencies of degenerative diabetic complications of hospitalized patients in internal medicine department from April 2015 to April 2016

Degenerative diabetic complication	Frequencies (%) N=144
Neuropathy	18.8
Nephropathy	8.3
Coronary disease	7.6
Peripheral arterial disease	5.6
Retinopathy	4.9

Prevalence of Anxiety and depression

The majority of patients had a normal score (<7) for depression (73.6%) and anxiety (68.7%). The prevalence of “certain” and “doubtful” scores of anxiety and depression are presented in Table 2. Female gender and cerebral vascular accident were correlated to depression (respectively p=0.025 and p= 0.037) whereas only female gender was statistically associated to anxiety (p<0.05).

Depression and diabetes association has been previously reported, however, it remains controversial. Recent meta-analysis has shown that depression was associated with an increased risk of diabetes with a risk of occurrence of diabetes in 60% patients with depression.¹⁸

Risk factors are sedentariness,^{13,19} obesity, which causes insulin resistance and psychological stress.¹⁹ In addition, these patients are less compliant to dietary regimen.^{20,21} All these factors were not assessed in our study.

There is evidence from previous work that smoking was recognized as a risk factor of depression including in diabetic patients.^{15,22}

Concerning anxiety, our results were similar to those reported in the literature with prevalence ranging from 14 to 40.3%^{2,3,13}

Anxiety disorders were more common in diabetic patients (32%) than in the general population (14%). This proportion is twice as high for subclinical anxiety disturbances.^{19,23} In our study only female gender was associated with anxiety.

Masmoudi et al.,¹⁶ observed a significant association between degenerative complications (diabetic retinopathy and nephropathy) and anxiety in elderly diabetic patients.

This reflects the importance of systematic anxiety screening in all diabetics.¹⁹

Bogner, Huang et al.,^{8,24} outlined that depression treatment improved glycemic control (60.9% in treated group had a HbA1c <7% Vs 35.7% in untreated patients). This parameter has not been found in other studies.²⁵

Treatment is mainly based on behavioral therapy and complementary approaches.¹⁰

Limits of the study

Our study was a preliminary investigation including a small sample of patients, the reason are mainly that we included only inpatients, which are only a small part of total consultants. They were mostly with poly-pathology and with more complicated medical issues than outpatients. The hospitalization may increase stress and anxiety.

The therapeutic management of anxiety and depression was not analyzed in our study because all patients, diagnosed with anxiety or depression, were sent to psychiatric department.

Conclusion

Diabetes and psychological distress association has an extremely negative impact on the patients' quality of life. A balanced approach to diabetes management based on pharmacological and psychological approach is needed. A systematic screening for psychological issues in diabetic patients is recommended for a better control of diabetes. A systematic screening for diabetes in depressive or anxious patients might be useful for an early diagnosis of diabetes and therefore, prevention of complications.

However, larger studies are needed to improve the global management of diabetes and mood disorders.

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Conflicts of interest

The author has no conflicts of interest to declare.

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