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Original article

The prevalence of mental health disorders in Type 2 diabetic women in Amol, Iran

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Abstract

Background: Chronic diseases, diabetes in particular, are globally epidemic, and are regarded as a major public health problem for reproductive health. Diabetes may influence maternal health, pregnancy outcomes, and also mental health. The aim of the current study was to identify the prevalence of mental health disorders in type 2 diabetic women and to evaluate the possible correlation of the subscales of mental disorders with coexisting diabetic complications.

Methods: In this cross-sectional study, a total number of 400 women with type 2 diabetes were selected from the outpatient clinic of diabetic care center in Amol, Iran. The General Health Questionnaire (GHQ–28) was used as a screening tool for the detection of mental disorders. The questionnaire, which contained 28 items, comprised four domains: somatic symptoms, anxiety /insomnia, social dysfunction, and severe depression. The diabetic complications were obtained from their documents.

Results: The mean age of the participants, with a mean diagnosed 8.9±0.3 years, was 48.8±0.5 years. The prevalence of mental disorder among Type 2 diabetic women was found to be 73.7%. The most prevalent mental health disorder was social dysfunction (78.8), somatic symptoms (51.7%), anxiety/ insomnia (33.3%), and severe depression (11.3%) among type 2 diabetic women. The prevalence of mental health disorder was higher in women with coexisting diabetic complications≥3 than those <3 complications ($p < 0.05$). Significant differences was found between somatic symptoms, anxiety/ insomnia with coexisting diabetic complications ($p < 0.05$). There were no significant differences between social dysfunction, severe depression with coexisting diabetic complications.

Conclusion: The study demonstrated the importance and the effect of diabetes on mental health disorders. Therefore, it is necessary to put emphasis on the benefits of psychological screening at outpatient clinic of diabetic care center in Iran, particularly for those with co-morbid medical complications.

Keywords: Complications, Diabetes mellitus, Mental disorders, Women

Introduction

Type 2 Diabetes is a global epidemic, which is regarded as a major public health problem in the world. By 2030, it is expected that the diabetes will have affected more than 439 million adults worldwide or 7.7% of the global population. During the next 20 years, the developed countries will experience an increase of 20% in the number of adults suffering from

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diabetes, and the developing countries will also be facing an increase of 69%(1).

Chronic diseases such as diabetes are commonly associated with mental disorders (2-6). Diabetes is one of the most psychologically demanding chronic medical illnesses (7).

Depression has been reported to be more prevalent in patients with chronic illnesses in general and diabetes in particular; Meta analyses of the available literature suggest that the prevalence of depression in diabetic patients is nearly twice as high as the prevalence found in non-diabetic adults (8, 9). It has been realized that emotions play an important role in diabetes (10, 11).

The purpose of the current study was to identify the prevalence of mental health disorders in type 2 diabetic women and to evaluate the possible correlations of the subscales of mental disorders with coexisting diabetic complications.

Materials and Methods

In this cross-sectional study, a total number of 400 women with type 2 diabetes were selected from outpatient clinic of diabetic care center in Amol, Iran. The General Health Questionnaire (GHQ–28) was used as a screening tool for the detection of mental disorders. This questionnaire was developed by Goldberg & Hillier (1979) for screening somatic symptoms, anxiety and insomnia, social dysfunction and severe depression. A review of studies on the validation of the GHQ–28 in different countries demonstrates that this questionnaire is high in validity and reliability, and can be used as a screening tool for mental disorders in the community. The questionnaire was translated into Persian in an attempt to make it comprehensible for almost everyone. The validity and reliability indices of the questionnaire were also determined by an independent study. It should be mentioned that the questionnaire has previously been translated into Persian and its validity and reliability indices were reported to be acceptable in other studies in Iran (12, 13). All patients were asked to complete a patient information form and the Farsi version of the GHQ-28. Total score ranged from 0 to 84 in 4 subscales measuring; somatic symptoms, anxiety/insomnia, social dysfunction, and severe depression. We used a cut-off score of two for each subscale and six for the total score. Based on such scoring, if the total score was 5 or less (out of 28), then the person would be regarded as healthy. The higher the GHQ-28 scores, the greater the degree to which the subject may suffer from a psychiatric distress (11, 14). The GHQ-28 incorporates four subscales: somatic symptoms (items 1-7); anxiety and insomnia (items 8-14); social dysfunction (items 15-21); and severe depression (items 22- 28)(15). Respondents rate themselves on a four-point severity scale according to how they recently experienced each GHQ item: "better than usual"; 'same as usual"; 'worse than usual'; or 'much worse than usual'. Depending on the severity of the choice selected, each item is normally scored either '0' or 'l". A total score is computed by adding the scores of each individual item (11, 14-16).

All analyses were performed using the Statistical Package for Social Sciences (SPSS 18.0). Descriptive and inferential statistics were used for the description and analysis of variables. Statistical analyses were performed through chi-squared test. $P< 0.05$ was considered statistically significant.

Results

The demographic characteristics of the participants are demonstrated in Table1. The mean age of the participants, with a mean diagnosed 8.9±0.3 years, was 48.8±0.5 years. Half of the participants were in middle age group and the majority of them were housewives. More than half of the participants were illiterate. A great number of them were overweight (73.3%), with the mean BMI of 28.9±0.2.

The most common chronic complication was retinopathy (43.9%), which was followed by cardiovascular complications (19.9%).

The prevalence of mental disorder among Type 2 diabetic women was found to be 73.7%. The most prevalent mental health disorder was social dysfunction (78.8), followed by somatic symptoms (51.7%), anxiety/ insomnia (33.3%), and severe depression (11.3%) among type 2 diabetic women. The prevalence of mental health disorder was higher in women with coexisting diabetic complications≥3 than those <3 complications ($p <0.05$). A significant difference was found between somatic symptoms and anxiety/ insomnia with coexisting diabetic complications ($p <0.05$). There were no significant differences found between social dysfunction and

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Table1. The characteristics of the women with type 2 diabetic from outpatient clinic of diabetic care center in Amol, Iran (n=400)

Demographic variables		N (%)
Age (years)	<35	28 (7.0)
	35-50	199 (49.8)
	≥50	173 (43.2)
Menopause	Yes	201 (50.3)
	No	199 (49.7)
Education	Illiterate	213(53.3)
	Primary school	110(27.5)
	High school and above	77 (19.2)
Occupation	Housewife	343(85.7)
	Employed	57 (14.3)
Family size	<5	66(16.7)
	6-7	219(55.3)
	≥8	111(28)
No mental health disorder	Total score ≤ 5	105 (26.3)
Mental health disorder	Total score > 5	295 (73.7)

severe depression with coexisting diabetic complications (Table 2).

Discussion

The nature of cognitive disorders in diabetes can be associated with the action of stressing agents. Responding to acute stressful events, which are mostly for protection and adjustment, can trigger chronic stress, leading to neurochemical, neuroanatomical and cellular changes. It is worth mentioning that these changes can have consequences for the functioning of the brain. Acute exposure to stress can also engender the development and consolidation of memory, chronic stress, or chronic exposure to high levels of cortisol, which can deteriorate the cognitive performance. It is also a part of the etiology and progress for such neurological and psychiatric disorders as depression diseases, anxiety and posttraumatic stress disorders. The dysfunctions of hypothalamus-adrenal-hypophysis axis, high levels of cortisol, and responses to stress are the characteristic of type 1 and 2 diabetes for their low glucose control. These consequences suggest that common mechanisms can take part in the development of neurological complications, associated with anxiety, depression diseases and diabetes (17).

Complications, due to such chronic disorders as diabetes, may impair the quality of life (18). Self-confidence, family life, and even general perceptions of health, and pain are negatively impacted by diabetes. Moreover, compared to the general population, the prevalence of psychological and other disorders are higher among diabetic patients. The negative impacts of emotional problems on the quality of life include the poor medical outcomes, the impaired self-care behaviors, the increased rate of mortality, and the risk of cardiovascular complications (19, 20).

Studies have reported that the quality of life in diabetic patients is lower than that of healthy people, which could be due to many restrictions in their daily lives. This may greatly affect the diabetic patients' mental health, mood, physical, and social functions (19-22). In the present study, we found a high frequency of mental disorders. The highest percentage belonged to social dysfunction, followed by somatic symptoms. There are several controlled studies demonstrating the increased prevalence of depression and other mental disorders as well. The researchers have mentioned that mental disorders may constitute a major risk factor in the development of type 2 diabetes and might accelerate the onset of complications(5, 6).

Our finding was consistent with those of other studies. De Jonge et al., for instance, found that there were major depressive episodes in 15.4% of the subjects with diabetes, which was higher than those of non-diabetic subjects (23). It is worth mentioning that

Table 2. The association between coexisting diabetic and mental disorders in study population (n = 400)

GHQ-28	Total N (%)	Coexisting diabetic complications <3 N (%)	Coexisting diabetic complications ≥3 N (%)	Chi-squared
Somatic symptoms	207 (51.7)	38 (18.4)	169 (81.6)	18.8***
anxiety / insomnia	188 (33.3)	32 (17.0)	156 (83.0)	9.52**
Social dysfunction	315 (78.8)	41 (13.0)	274 (87.0)	2.62Ns
severe depression	45 (11.3)	6 (13.3)	39 (86.7)	0.09Ns

** P<0.01
***p<0.0001

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52.3% of the participants in our study had anxiety and insomnia as the third most frequent disorder among the categories (24, 25). The prevalence of depression has been estimated to be up to 50% among the general medical population (26, 27). Severe depression was the least frequent mental disorder among the participants in our study. The reasons for the results contrary to those of other studies cannot be explained. More than half of the participants in this study were illiterate; therefore, illiteracy or low educational level can not only result in worse psychological symptoms of diabetes but also lead to unawareness about the disease, denial reactions, and limited social communication. Higher frequency of social dysfunction might be affected by low grade of education as well(28).

All in all, nowadays the screening of diabetic patients for mental disorders and the treatment of disorders are advocated in practice as routine components of diabetes care (29). It highlights the urgent need for health care professionals' awareness about the increased risk of psychological distress and mental disorders in patients with diabetes. Therefore, we highly suggest routine screening for distress, anxiety and affective disorders, particularly for those with more chronic conditions, complications, and poorer quality of life.

Conclusion

Mental disorders seem to be a high frequency in diabetic women. The highest percentage belonged to social dysfunction, followed by somatic symptoms. The results represent the overall prevalence, and deserve further studies.

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Conflict of interest

The authors declare that they have no competing interests.

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