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Research article

EMOTIONAL DISTURBANCES AMONG ADULT DIABETIC PATIENTS ATTENDING DIABETIC CLINIC IN A MALAYSIAN GENERAL HOSPITAL

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ABSTRACT

Introduction: Emotional disturbances such as depression, anxiety and stress play an important role in the management of diabetes mellitus since their presence can adversely affect glycemic control, quality of life and compliance with medications. Despite this, emotional disturbances are consistently under-diagnosed and under-treated by physicians in general practice. **Objectives:** This study aims to determine the prevalence and severity of emotional disturbances among diabetic patients **Methodology:** This is a cross sectional study conducted on a sample of 200 patients with diabetes mellitus attending the diabetic clinic at the Hospital Tengku Ampuan Afzan, Pahang state, Malaysia. The prevalence and severity of depressive, anxiety and stress symptoms were assessed in those diabetic patients by using the self-rating Bahasa Malaysia version of the Depression, Anxiety and Stress Scales (DASS-42). **Results:** The prevalence of depression, anxiety, and stress among diabetic patients was 13.5%, 28%, 11% respectively. Most of the patients with emotional disturbances had moderate depression and anxiety symptoms. However, stress symptoms were mild. Although females showed higher prevalence of emotional disturbances, only anxiety was significantly higher than males. **Conclusion:** Diabetic patients are at risk to develop psychiatric illnesses in the form of depression, anxiety and stress. Anxiety symptoms were more prominent than depression and stress in diabetic patients.

Keywords: Depression, Anxiety, Stress, Diabetic Patients, Malaysia

INTRODUCTION

Diabetes mellitus is considered as a serious worldwide health issue and developing countries are in paramount risk.[1]The prevalence of diabetes is expected to rise worldwide and the number of diabetic patient is expected to be around 366 million by the year 2030 compared to 171 million in 2000.[2] In Malaysia, the Malaysian National Health Morbidity Survey III (NHMS III) was conducted in 2006 revealed that the prevalence of diabetes mellitus in those above 18 years was 11.6%.This was higher than the previous survey (NHMS II) in 1996 which showed the prevalence to be 8.3%. [3] In 2011, the prevalence has increased to be 15.2% among the Malaysian population. [4]Since diabetes is associated with a high rate of complications whether they are physical, mental, or functional, urgent efforts are required to address this issue. Steps are needed to improve the healthcare personnel's' awareness of achieving the goals, provide adequate resources, improve patients' diabetes self-management skills and enhance the patient-healthcare personnel relationship to achieve the goals.[5]Early detection and treatment of emotional disturbances in the form of depression, anxiety and stress is important to control diabetes.

Psychological factors may affect glycemiccontrol in diabetic patients through endocrine changes that occurred during stressful experiences can lead to endocrine changes. In addition to that, during stress, patients are more prone to be less compliant withthe treatment plan. [6]Stress is defined as the body's non-specific response to demands placed on it, related to disturbing events in the environment. [7, 8] Duration of diabetes is an indicator of chronic stress and is a risk factor for medical complications and psychological disturbance.[9, 10] Stress may affect the onset of diabetes, can have a harmful effect on glycemic control and can affect quality of life.[11]Symptoms of depression include persistent low mood, loss of pleasure (anhedonia), loss of weight or appetite, lack of energy, general malaise, disturbed sleep, diminished concentration, feeling of worthlessness, hopelessness and helplessness, death wishes and recurrent suicidal ideation. The severity of these symptoms can be assessed by using rating scales for depressive symptoms like Beck Depression Inventory- second edition (BID-II) [12] and Depression, Anxiety, Stress Scale (DASS-42).[13]Since the presence of depression has been associated with defective glycemic control[14]and the main aim of diabetic treatment is preservation of good glycemic control, it is important to detect and manage depression early. Depression is associated with impaired quality of life [15], poor treatment adherence[16, 17], increase the cost of health care[18, 19]and increased risks of complications and mortality.[20, 21, 22]

Anxiety is a condition that is characterized by intense feeling of dread, accompanied by somatic symptoms that indicate a hyperactive autonomic nervous system such as tachycardia, sweating, dry mouth, frequent or urgent micturition and diarrhoea. Anxiety impairs cognition and may produce distortions of perception.[23]Despite that diabetes is associated with increased risk of anxiety and depression, [24]there is under detection of rates of these emotional problems in diabetes patients.[25]Therefore, this study aimed to determine the rate of emotional disturbances in the form of depression, anxiety and stress symptoms among adult diabetic patients and also to assess the severity of these symptoms by using the Bahasa Malaysia version of the Depression Anxiety and Stress Scales (DASS). Based on the above, this study is a type of liaison psychiatry with significant community services as it aids the control of diabetes by early detection of emotional disturbances leading to better compliance to treatment and improving patient's lifestyle.

MATERIAL AND METHODS

This study is a cross sectional study. The selection of the subjects was based on stratified quota sampling conducted on a sample of patients with diabetes mellitus attending the diabetic clinic at the Hospital Tengku Ampuan Afzan, Pahang state, Malaysia. The estimated sample size for this study was 200 patients for achieving statistical valid results which were achieved. All the diabetic patients attending the diabetic clinic who fit the inclusion criteria were approached by the researchers and included in this study. The inclusion criteria for the participants are a patient in the age group between 18 - 60 years old and patients who were able to give written consent. The exclusion criteria of this study include those who are not conversant in Bahasa Malaysia or English. Prior conducting this study, Institutional Approval from the director of Hospital Tengku Ampuan Afzan, then approval from National Medical Research Register (NMRR) was obtained to conduct the study. Ethical approval was obtained from the Ministry of Health, Medical Research Ethics Committee (MREC) and International Islamic University Malaysia Research Ethical Committee prior to conducting the study. Informed consent was obtained from the participants after the nature of the procedure was fully explained. The participation was entirely on a voluntary basis. All participants were ensured of the confidentiality and that information gathered will only be used for research purposes. The patients were informed that the data collected for one time only so the participants only took part once in this study. Various subjects were being approached from all ages, gender, ethnicity monthly income, duration of the illness.

The Depression Anxiety Stress Scale-42 (DASS-42):[13]The emotional disturbances were determined by assessing the severity of depressive, anxiety and stress symptoms in diabetic patients by using the self-rating Bahasa Malaysia/English version of the Depression Anxiety and Stress Scale (DASS-42) which had been translated and validated previously by researchers [26].

Subjects were asked to use 4-point severity/frequency scales to rate the extent to which they have

experienced each statement over the past week. Scores for Depression, Anxiety and Stress were calculated by summing the scores for the relevant items. **Statistical analysis:** Statistical analysis for the obtained data was assessed using Statistical Package for the Social Sciences software program (SPSS) version 20.0.Chi-squared test (x^2) and Fischer's exact tests were used to test the association of different factors with emotional disturbances. Significance was set at $p< 0.05$

RESULTS

The majority of the participated patients (75%) were Malay while 13.5% were Indians. Chinese patients were obviously underrepresented in this study. Female patients were slightly over presented than males (54.5%, 45.5 respectively). The majority were married, from the middle income group, aged between 46 to 60 years old, employed and obtained a secondary school level of education (Table 1). The prevalence of depression, anxiety and stress among participating patients was found to be 13.5%, 28% and 11% respectively (Table2).Regarding the severity of the emotional disturbances, it was found that 5% of the patients had mild depression while 6% and 2.5% of the patients had moderate and severe/ extremely severe depression respectively. In assessing the severity of anxiety, it was found that 9.5%, 11% and 7.5% of the participated diabetic patient had mild, moderate and severe/extremely severe anxiety respectively. For stress, it was found that, 7%, 3.5% and 0.5% of the participated diabetic patient had mild, moderate and severe/extremely severe stress respectively (Table 2).

Table 1: The association of different factors with emotional disturbances among diabetic patients

	Total No.	Depression		˜ Pvalue	Anxiety		˜ P value	Stress		˜ P value
		N*	Dep.		N*	Anx.		N*	Str.	
Male	91	80	11	0.6	73	18	0.026	82	9	0.826
Female	109	93	16		71	38		96	13	
Age										
18-30	21	18	3	1.00	13	8	0.394	18	3	0.097
31-45	45	39	6		31	14		38	7	
46-60	134	116	18		100	34		122	12	
Race										
Malays	150	133	17	0.043	110	40	0.100	133	17	0.654
Chinese/Others	23	21	2		19	4		21	2	
Indians	27	19	8		15	12		24	3	
Marital status										
Married	172	149	23	1.00	123	49	0.822	154	18	0.521
Divorced/single	28	24	4		21	7		24	4	
Household income										
≤ RM1000	75	63	12	0.786	53	22	0.803	67	8	0.701
RM 1001-5000	110	96	14		81	29		98	12	
>RM 5000	11	10	1		9	2		9	2	
Level of education										
Illiterate/Primary school	46	41	5	0.276	36	10	0.209	44	2	0.259
Secondary school	104	86	18		69	35		90	14	
Tertiary education	50	46	4		39	11		44	6	
Occupation										
Employed	126	109	17	1.00	93	33	0.505	110	16	0.359
Unemployed	74	64	10		51	23		68	6	
Duration of Illness										
5 year and less	47	45	2	0.023	34	13	0.91	44	3	0.30
>5 years	153	128	25		112	41		134	19	
Presence of chronic illness										
No	**73**	**62**	**11**	**0.62**	**51**	**22**	**0.45**	**63**	**10**	**0.36**
Yes	**127**	**111**	**16**		**95**	**32**		**115**	**12**	

˜ Chi-square test value (Fisher's Exact 2-sided p value), N*: normal; Dep: Depression; Anx: Anxiety; Str:Stress

In assessing the association between different factors with depression, anxiety and stress, we found that although the rate of depression, anxiety and stress is higher among female patients, only anxiety was statistically significant (P-value <0.05). Regarding the relation between the race and emotional disturbance, this study revealed that depression was statistically significant (p-value <0.05).

This study revealed that depression, anxiety and stress were higher in more patients with diabetes longer than 5 years, however, only depression was statistically significant. Our findings revealed that there was no significant association between depression, anxiety and stress with factors including age, marital status, household income, occupation, level of education and the presence of co-morbid chronic illness (Table 1).

Table 2: The severity of emotional disturbances in the form Depression, Anxiety, and Stress symptoms among diabetic patients:

	Depression [α] (13.5) N (%)	**Anxiety [α](28) N (%)**	**Stress [α](11) N (%)**
Normal (no emotional disturbances)	173 (86.5)	144 (72)	178 (89)
Mild	10 (5.0)	19 (9.5)	14 (7.0)
Moderate	12 (6.0)	22 (11)	7 (3.5)
Severe/Extremely severe	5 (2.5)	15 (7.5)	1 (0.5)
Total	200	200	200

[~] The percentage of individuals who had an emotional disturbance

DISCUSSION

The prevalence of depression, anxiety and stress in this study is comparable with a similar study done in Malaysia among diabetic patients in primary care as it had shown that the overall prevalence of depression, anxiety and stress were 11.5%, 30.5% and 12.5% respectively.[27] But our results were much lower than other study done in Qatar as the prevalence of depression, anxiety and stress was found to be 52.5%, 73% and 70%.[28]

The rate of depression in this study is comparable to previous studies such as a study done in United Arab Emirates with a rate of 12.5%[29], another study in India has shown the rate to be 16.9%[30]

Regarding the rate of anxiety, it was found that it is slightly higher than another study done on diabetic patients attending a secondary care clinic in Germany in which it was 25.2% [31], yet it is much lower than another study in which the rate was 40%. [32] The reasons behind getting different rates of depression, anxiety and stress may be because of using different assessment tools, sample size, cultural differences, impact of diabetic complications, quality of life, the presence of social support, and duration of diabetes.

In assessing the association between different factors with depression, anxiety and stress, we found that although the rate of depression, anxiety and stress is higher among female than male patients, only anxiety was statistically significant, while previous studies revealed that depression, anxiety and stress symptoms were significantly associated with sex of the diabetic patients, with a higher prevalence in women.[27, 28] however, in another study using Hospital Anxiety and Depression Scale (HADS), no differences were observed between males and females and the scores for depression and anxiety were comparable.[30]

This study revealed that depression was statistically significant with race, this is consistent with previous studies which revealed that ethnicity can be a predictor for depression. [27, 33]

Previous studies have found that duration of diabetes has also been found to be associated with a higher prevalence of depression. [27, 28, 34]

This study revealed that depression, anxiety and stress were higher in patient with diabetes longer than 5 years, however, only depression was statistically significant. This is comparable with previous studies.[35]

CONCLUSION

Finally, we conclude that diabetic patients are at risk to develop emotional disturbances in the form of depression, anxiety and stress symptoms. Anxiety symptoms were more prominent than depression and stress in diabetic patients. Strategies are needed to be implemented such as early detection, proper management of these psychological disturbances, provide psychoeducation for patients and their families to ensure proper control of diabetes, maintain good quality of life, and better treatment adherence.

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Conflict of Interest: Nil

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