Research Article

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Anxiety, Depression, and Quality of Life in Diabetes Patients

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Abstract

Aims: The purpose of this study is to determine whether psychological issues are more common in diabetics than in healthy or non-diabetic people. The present study also attempts to examine the level of anxiety and depression and their relationship with quality of life in patients with diabetes.

Method: 100 subjects were selected for this study—50 Diabetics (Males = 25, Females = 25) were compared with 50 Normal healthy people (Males = 25, Females = 25), aged 18 to 45 years. IPAT Anxiety Scale, BDI-II, and QOL-BREF scale were administered to assess the anxiety, depression, and quality of life of respondents respectively.

Results: The results indicate that diabetes patients had significantly higher levels of anxiety and depression compared to healthy individuals. The t-test results show a significant difference between the two groups in overall quality of life and its various domains, including physical, psychological, social relationships, and environmental aspects. The study found that diabetes patients had lower levels of quality of life compared to healthy subjects. It is also found that anxiety and depression are significantly negatively related to the quality of life and its domains.

Conclusion: The occurrence of anxiety and depression symptoms in patients with diabetes is much higher than in healthy individuals. Depression and anxiety are important comorbidities for those with diabetes, and they require careful management due to their negative impact on quality of life.

Keywords: Diabetes, Anxiety, Depression, Quality of Life

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Introduction

The fear of blood sugar fluctuations is very stressful. Diabetes patients suffer fluctuation in the level of blood sugar due to biological as well as psychological reasons. Changes in blood sugar can cause rapid changes in mood and other mental symptoms such as fatigue, trouble thinking clearly, and anxiety. Having diabetes can cause a condition called diabetes distress which shares some traits of stress, depression, and anxiety. According to the International Diabetes Federation (2013), 382 million people worldwide are affected by diabetes, which is expected to reach 592 million by 2035. Among them, India alone has 65.1 million people with diabetes in the age group of 20–79 years (Guariguata, et al., 2013). With India approaching numbers predicted to be attained by 2030, in 2020 itself, India is sitting on a diabetic volcano (International Diabetes Federation, 2013).

Diabetes mellitus (DM) encompasses several categories, including type 1, type 2, maturity-

onset diabetes of the young (MODY), gestational diabetes, neonatal diabetes, and secondary causes due to endocrinopathies, steroid use, etc. The primary subtypes of DM are Type 1 diabetes mellitus (T1DM) and Type 2 diabetes mellitus (T2DM). Type 1 diabetes, or T1DM, is defined by inadequate insulin secretion. People with type 1 diabetes account for only 5% to 10% of all diabetes cases (Maitra 2009). The most prevalent type of diabetes is type 2 diabetes, which is characterized by high blood sugar levels. In type 2 diabetes, your body does not produce enough insulin or use it efficiently. Too much glucose accumulates in your blood, while insufficient amounts reach your cells. Type 2 diabetes accounts for 90–95 percent of all existing cases (UK Prospective Diabetes Study Group, 1998).

Diabetes, a physical disease, also impacts people psychologically when diagnosed. The diabetic person starts struggling with other psychological problems along with the problem of diabetes. A previous study found that 14% of people with diabetes have generalized anxiety disorder (GAD), and 40% of them have increased anxiety symptoms (Grigsby et al., 2002). Diabetes was significantly associated with anxiety in adults in this large population-based sample (Skinner et al., 2005). Diabetes is associated with an increased likelihood of anxiety disorders and anxiety symptoms (Smith et al., 2013) Diabetes is a risk factor for anxiety symptoms. Therefore, staying healthy may be a way to prevent anxiety (Amiri & Behnejad, 2019).

Comorbidity of diabetes and depression can have a detrimental effect on health, diabetes self-management, and overall quality of life (Lloyd et al., 2010; Caton, 2008). Comorbidity of diabetes and depression is associated with significant morbidity, mortality, and increased healthcare costs (Egede & Ellis, 2010). People with diabetes have an increased risk of developing depression. (Roy & Lloyd, 2012). There is an association between diabetes and depression, although the association between depression and diabetes is not significant, there is a significant association with changes in body image (Gemeay et al., 2015).

Several self-report measures of quality of life (QOL) have been specifically developed for diabetic patients and are present in the scientific literature. This may help in understanding the concept of QoL in patients with diabetes and may also guide the reader in choosing the most appropriate device or in the development of new devices (Palamenghi et al., 2020). The data suggest that treatment of depression and prevention of complications have the greatest potential to improve health-related quality of life in type 2 diabetes (Wexler et al.,2006). Further research is necessary to clarify the associations between anxiety, depression, quality of life, glycemic control, and the development of diabetes complications. It is crucial to provide appropriate treatment recommendations and support for diabetes self-management.

Aims/Objectives

The present study attempts to investigate the psychological problems (i.e., level of anxiety and depression) that are more prominent in Diabetes patients than in normal healthy individuals. This study also examines the relationship between the level of anxiety and depression with QOL of patients with Type -II Diabetes.

Methods

Research Design

This study was a quantitative research with a cross-sectional research design. Questionnaires were used for data collection purposes. 100 samples were selected for this study through the incidental cum purposive sampling method. the sample comprised of diagnosed 50 diabetes patients / Group-1 (Male- 25 and Female- 25) from different government and private hospitals of Madhubani District in Bihar and 50 normal healthy subjects and Group-2 (Male- 25 and Female- 25) from nearby society in the age range of 18 to 45 years. Patients with a known history of significant physical or neurological conditions, divorced or separated, history of substance abuse, and family history of mental illness were excluded purposefully. Another Group of normal healthy subjects matched with age, educational qualification, family type, nil history of psychiatric illness, and nil physical disability was taken as a control group. All the respondents from both groups were assessed separately.

Measures

A semi-structured, pro forma specifically drafted for this study was utilized to collect demographic information. The ***Beck Depression Inventory-II (BDI-II)*** developed by Aaron T. Beck, is a 21-question self-report inventory, used for measuring the severity of depression. The BDI-II is positively correlated with the Hamilton Depression Rating Scale (r= 0.71), showing good convergent validity. The test was also shown to have a high one-week test-retest reliability (r = 0.93). The test also has high internal consistency (α = .91).

The ***Institute for Personality & Ability Testing (IPAT) Anxiety Scale*** ("Self-Analysis Form") by Raymond B. Cattell (1957) was administered to measure the severity of anxiety symptoms in both groups. This Anxiety Scale consists of 40 items, each of which has three possible responses along a most-to-least or true-false continuum. Test-retest reliability: The correlation between two test administrations three weeks apart was r=.94. The correlation between IPAT and Manifest Anxiety Scale (MAS) scores was r= .55.

World Health Organization QOL-BREF (WHOQOL-BREF) was administered to assess the participants' Quality of life. A self-report questionnaire that contains 26 items and addresses 4 QOL domains: physical health (7 items), psychological health (6 items), social relationships (3 items), and environment (8 items). Two other items measure overall QOL and general health. This scale also has a satisfactory level of reliability and validity.

The ***General Health Questionnaire (GHQ-12)*** was developed by Goldberg and William in 1978 and was also administered to participants to identify if any psychiatric problems were found.

Procedure

Individuals who were diagnosed with diabetes as per inclusion & and exclusion criteria were identified and included in the study. After establishing rapport, a consent form was filled out by the diabetes patients, who wanted to

participate in this study. After that, psychological tests were administered to assess the level of anxiety, depression, and quality of life. Further, 50 normal healthy subjects were identified with the same socio-demographic details as much as possible using purposive sampling and all tests were administered. GHQ was administered to assess the psychiatric problem if any. Those who found above than significant level of psychiatric problems was excluded from the study, needful referral services were offered to those individuals.

Statistical analyses

Data was coded and entered into a master chart. The statistical analysis was performed with the help of Statistical Package for the Social Sciences (Released 2007. SPSS for Windows, Version 16.0. Chicago, SPSS Inc.). Means and standard deviation (SD), chi-square test, correlation, and t-test were used.

Results and Discussion

It is observed that both groups (Diabetes and normal healthy) are equal in socio-demographic variables. No significant differences were found in sociodemographic variables such as Age ($\chi 2$ = 0.369, P > 0.05), Level of education ($\chi 2$ = 0.218, P > 0.05), Relationship status ($\chi 2$ = 0.157, P > 0.05), domicile ($\chi 2$ = 0.259, P>0.05), religious belief ($\chi 2$=0.509, P>0.05), type of family ($\chi 2$=1.000, P>0.05), Occupation ($\chi 2$=0.133, P>0.05), Family monthly income in Rs ($\chi 2$=0.360, P>0.05) between both the groups.

Table 1 describes the group differences in the level of anxiety, depression, and quality of life and its domains' scores between diabetes patients and normal healthy subjects.

Table 1: -Group differences in Anxiety, Depression, and Quality of Life and its domains between Group 1 (Diabetes Patients) and Group 2 (Normal Healthy Subjects).

Areas of assessment	Group-1 Mean (SD)	Group-2 Mean (SD)	t value	P
Level of Anxiety	50.25 (4.49)	35.94 (3.89)	17.080	.000
Level of Depression	32.58 (5.28)	19.58 (3.57)	14.416	.000
QoL1-Physical	15.28 (2.19)	22.76 (2.58)	15.629	.000
QoL2-Psychological	14.88 (1.86)	20.70 (2.18)	14.336	.000
QoL3- Social relationship	09.44 (3.28)	9.40 (1.86)	.075	.941
QoL4-Environmental	21.08 (4.33)	23.14 (4.61)	2.302	.023
Overall QoL score	57.38 (11.19)	84.62 (11.00)	12.273	.000

The findings suggest that Group 1 mean score (50.25 ± 4.49) was more than Group 2 mean score (35.94 ± 3.89) on anxiety. The difference in the Anxiety score was statistically significant (t=17.080, p<.05) indicates that Diabetes patients had higher levels of anxiety as compared to normal healthy subjects. Managing diabetes requires constant attention to diet, medication, and lifestyle, which can be overwhelming and contribute to chronic stress or anxiety. People with diabetes often worry about potential complications, such as nerve

damage, heart disease, or vision problems, leading to increase anxiety. The findings are supported by a systematic review and meta-analysis conducted by Mitsonis et al., (2009) reported that patients with diabetes have a significantly higher risk of anxiety or anxiety symptoms as compared to a general healthy population. Another study also reported that anxiety levels were significantly higher in Diabetes patients than those who were in healthy controls (Tuncay et al., 2008; Lustman, 1988).

Concerning the depression score, the result suggests more depression in Group 1 mean score (32.58 ±5.28) in comparison to Group 2 mean score (19.58 ± 3.57). Further, the result shows that there was a significant difference ($t = 14.416$, $p < .05$) between groups indicating that Diabetes patients had higher levels of depression as compared to normal healthy subjects. The results of this study are similar to the findings of Rustad et al., (2011) who reported that the prevalence of depression is high in patients with Diabetes. This finding is also in line the findings of Roy and Lloyd (2012) who proclaimed that depression and anxiety levels of Diabetes were significantly higher than healthy controls. The constant need to manage diabetes can make individuals feel like they have lost control over their lives, leading to feelings of helplessness, which is a core symptom of depression. Additionally, diabetes can affect sleep patterns, and poor sleep is also a significant risk factor for depression.

The t-test results indicated a significant difference between the two groups, on overall quality of life and its domains except for social relationships. Levels of quality of life (QoL) in the physical and psychological domains were lower in diabetic patients compared to those in normal health subjects. However, there was no significant difference in the social relations domain (see Table 2). As discussed earlier diabetes is associated with a higher rate of anxiety and depression, both of which significantly lower quality of life. The emotional burden of managing chronic illness can lead to feelings of frustration, hopelessness, and burnout. People with diabetes often face physical complications, such as nerve damage, heart disease, kidney function impairment, vision problems, etc. therefore, their psychological and physical quality of life is affected.

As there was no significant difference in the social relations domain this result may be found because some individuals with diabetes build strong support networks of friends, family, or peers who understand their condition, making it easier to maintain societal relationships without feeling different or isolated. Increased public awareness and education about diabetes have led to greater acceptance and understanding of the condition, reducing potential stigma and making it easier for people with diabetes to maintain social relationships.

Table 2: Relationship between anxiety and depression with QoL in diabetes patients

Areas of assessment	Anxiety	Sig.	Depression	Sig.
QoL1-Physical	-.790**	.000	-.765**	.000
QoL2-Psychologica	-.680**	.000	-.641**	.000

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QoL3- Social relationship	-.002	.983	.072	.478
QoL4- Environmental	-.174	.084	-.229*	.022
Overall Quality of Life	-.677*	.000	-.650**	.000
** Correlation is significant at 0.01 level (2-tailed) * Correlation is significant at 0.05 level (2-tailed)				

Table 2 depicts the relationship between level of anxiety and depression with QoL and results found that level of anxiety significantly negatively correlated with all domains of quality of life except social relationship and environment and overall QoL in Diabetes patients (Physical, r= -.790, p<0.01, Psychological, r= -.680, p<0.01, Social relationship, r= -.002, p>0.05, Environmental, r= -.174, p>0.05, QoL Total score, r= -.677, p<0.01).

Further statistical findings reveal that depression in diabetes patients significantly negatively correlated with all domains of QoL except Social relationships and overall quality of life (Physical, r= -.765, p<0.01, Psychological, r= -.641, p<0.01, Social relationship, r= .072, p>0.05, Environmental, r= -.229, p<0.05, QOL Total score, r= -.650, p<0.01). Potentially due to the longer duration of illness, constant trying to manage diabetes, increased mental stress, and associated complications lead to poor quality of life. Similar findings were noted in a study by Mosaku et al. (2008), who found a moderate correlation between the quality of life score and the depression score. Depressive symptoms have been shown to significantly affect the overall quality of life (Alonso et al., 2004).

Additionally, the satisfaction with treatment and overall quality of life for individuals with diabetes is often lower for those also dealing with anxiety and depression. These individuals also tend to worry more about the future impact of diabetes. Given these findings, it's important to incorporate screening and monitoring for anxiety and depressive symptoms into standard diabetes care and management. Additionally, most studies on this topic have a cross-sectional design, making it challenging to conclude the cause-and-effect relationship. Therefore, more prospective studies are needed to understand how anxiety and depressive symptoms might influence the quality of life for individuals with diabetes. This study stresses the importance of an integrated diabetes care approach that addresses both the practical and emotional issues of diabetes.

Conclusion:

Based on the results and discussion, it is concluded that diabetic patients experience more anxiety and depression compared to healthy individuals. Additionally, diabetic patients had lower physical and psychological quality of life compared to normal individuals, but there was no significant difference found in social relationships. Depression and anxiety are important comorbidities for diabetic patients, severely impacting their quality of life, hence, they require careful management due to their negative impact on quality of life. Since the sample size was small, the findings are limited in generalizability. A larger study sample is needed for broader conclusions.

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