



Prevalence of Anxiety in an Outpatient Clinic sample of People with Type 2 Diabetes in Trinidad

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Abstract

Objective: To examine the prevalence of anxiety in an outpatient clinic sample type 2 diabetics in Trinidad. Additionally, this study aims to examine gender differences in anxiety, whether anxiety levels differed among age groups and whether anxiety is related to hyperglycemia and having a coexisting medical complication such as hypertension and heart disease.

Design and Methods: 128 type 2 diabetics attending outpatient clinic on designated clinic days for their routine appointment were surveyed. Their demographics, levels of anxiety, blood glucose levels and coexisting medical complications were measured. Pearson's Correlations and t-tests were used to analyse the data.

Results: 19.5% of the sample population had mild to moderate levels of anxiety. A Person's r indicated that diabetics with coexisting medical conditions had higher anxiety levels $r(126) = -.183$, $p = .038$; and women were more likely to have higher levels of anxiety than men $r(126) = .27$, $p = .002$.

Conclusion: Anxiety may potentially exacerbate the complications associated with diabetes. Attention should be given to the psychological symptoms associated with type 2 diabetes and the implementation of screening for anxiety at health clinics in an effort to effectively treat type 2 diabetes in Trinidad.

Introduction

Diabetes is a complicated medical disease that may be burdened with psychological challenges negatively affecting the course of diabetes and the patient's quality of life [1]. Anxiety is a common presenting problem. Estimates suggest that generalized anxiety disorder is more common in type 2 diabetic adults than the general population [2-4]. Prevalence of generalized anxiety disorder was found to be 17% among type 2 diabetic patients from several San Francisco community medical groups and diabetic education centres [4]. In an attempt to manage their disease and its complications, type 2 diabetics may experience considerable anxiety [5]. Type 2 diabetics need to monitor any lacerations or blisters on the bottom of their feet due to the possibility amputation [6] since anxiety is associated with decreased

growth hormone levels and impairs wound healing [6]. Anxiety has also been associated with poor glycemic control, regimen adherence, and accelerated rates of coronary heart disease in diabetic patients [7]. Hypertension is a common comorbidity in patients with type 2 diabetes mellitus. The coexistence of hypertension in patients with type 2 diabetes is particularly destructive because of the strong linkage of the two conditions with cardiovascular disease, stroke, progression of renal disease and diabetes nephropathy [8].

Some predictors of anxiety are gender, age and education [3]. In particular, females, individuals between the ages of 40-49 years and individuals with lower educational background were more likely to report symptoms of anxiety [9]. Researchers found the percentages of anxiety symptoms in women (62%) were three times higher in

comparison to men (21%) [10]. The anxiety associated with the onset of diabetes complications is more persistent in type 2 diabetics 39 to 49 years of age than older diabetics (over the age of 50 years) already diagnosed with comorbid diabetes complication. Young-old aged diabetics are more anxious due to the onset of decreasing speed and executive functioning [11]. Existing literature suggest that anxiety disorder is associated with hyperglycaemia in diabetes [12]. Anxiety and stress can cause large jumps in blood glucose levels [13]. Research on the relationship between blood glucose control and psychiatric disorders in type 2 diabetic patients found generalized anxiety was associated with poor glucose control in 7.5% diabetics and 6.3% of those with good glucose control [14]. Hyperglycaemic hyperosmolar nonketotic syndrome or commonly known as diabetic coma, is a serious complication that can happen to a person with type 2 diabetes who is ill or anxious. Diabetic coma occurs when the blood sugar gets too high and the body becomes severely dehydrated [15].

The aim of this study is to examine the prevalence of anxiety in an outpatient clinic sample type 2 diabetics in Trinidad. Additionally, this study aims to examine gender differences in anxiety, whether anxiety levels differed among age groups and whether anxiety is related to hyperglycemia and having a coexisting medical complication such as hypertension and heart disease. The presence of anxiety among type 2 diabetics can have detrimental effects; it impinges upon the treatment outcome and increases the risk of developing diabetes related complications. Therefore, it is imperative that effective recognition and treatment of anxiety in diabetics is highlighted to increase functional improvement on type 2 diabetes. However, despite the association between anxiety and type 2 diabetes, less empirical attention has been given to anxiety as it is often studied adjacent to depression in diabetic patients. The prevalence of anxiety in type 2 diabetes is an area with limited research done in Trinidad and Tobago; therefore, this research would provide valid information and direction for future research.

Subject And Method

This study was a non-experimental research design with a sample of 128 type 2 diabetics attending outpatient clinic on designated clinic days for their routine appointment. One hospital was selected from each Regional Health Authority in Trinidad (Eric Williams Medical Sciences Complex, San Fernando General Hospital, Port-of-Spain General Hospital, and Sangre Grande Hospital). Participants of this research were all registered at the diabetic clinics where they have been clinically diagnosed by a medical consultant with diabetes mellitus. Anxiety was determined using the Zung Anxiety Scale [16]. The Zung Anxiety Scale is a test that has 20 items, with some of the items keyed positively and some

negatively. The items were answered on a 4-point scale from 1 to 4 with the final score ranging from 20 to 80. A score ranging from 20 to 44 is considered in the normality range, scores of 45 to 59 indicates minimal to moderate anxiety, scores of 60 to 74 suggests severe anxiety and 75 or higher indicates extreme anxiety.

Participants provided verbal consent to participate in the research by agreeing to complete a questionnaire, which consisted of demographic information, duration of diagnosis, coexisting medical complications and their present blood glucose level and The Zung Anxiety Scale. Data was collected from those who fulfilled the following criteria: (a) diagnosis of type 2 diabetes, (b) have been diagnosed with type 2 diabetes for at least one year prior to research, (c) are age 21 years or older and (d) non-pregnant women, were solicited for participation in this research. Data analysis was done using the Statistical Package for Social Science (SPSS, version 13). Descriptive and frequency statistics were conducted to calculate the prevalence of anxiety. The Pearson product-moment correlation coefficient was used to measure the correlation between the variables. The independent-sample t-test was used to compare the means on anxiety scale scores for the categorical independent variables of gender, age, glucose levels and coexisting medical complications.

Results

Data was gathered from 128 type 2 diabetics completing the written questionnaire, with an 85% response rate. The participant sample was predominantly female (60%), Indo-Trinidadian (49%), over the age of 50 years (79.7%), classified as unskilled or social class 5 (43%) and diagnosed between 1 to 10 years (82%). Statistical analysis indicated the 19.5% of this sample population had mild to moderate levels of anxiety. A Person's r correlation analysis indicated a moderate positive correlation between gender and anxiety $r(126) = .27, p = .002$. An independent t -test analysis indicated a significant difference in anxiety between males and female, $t(126) = -.343, p = .001$. Female type 2 diabetics were more likely to have higher levels of anxiety ($M = 39.30, SD = 10.95$) than males ($M = 33.69, SD = 7.54$). A Person's r correlation analysis indicated a weak negative correlation between coexisting medical complications and anxiety $r(126) = -.183, p = .038$. However, an independent t -test analysis indicated that there was a non-significant difference in anxiety between type 2 diabetics with coexisting medical complications and type 2 diabetics without coexisting medical complications, $t(126) = -.094, p = .155$ even though means scores showed that type 2 diabetics with coexisting medical complications had higher scores of anxiety ($M = 39.58, SD = 2.40$) than those without ($M = 36.42, SD = .933$). In this sample, hypertension (12.2%) and Heart disease (10%) are the two most common diabetes coexisting medical complications among the type 2

diabetics with anxiety.

There here was a non-significant correlation between age and anxiety $r(126) = .27, p = .002$. An independent t -test analysis indicated a non-significant difference in anxiety between the ages 31-49 and the age group 50 years and older, $t(33) = 1.33, p = .192$. The average score of type 2 diabetics in the age group 31-49 years ($M = 39.58, SD = 2.40$) was not significantly different from type 2 diabetics 50 years and older ($M = 36.42, SD = 9.33$). Similarly, there was a non-significant correlation between anxiety and glucose control ($r = .083, p = .352$). An independent t -test analysis showed no difference in anxiety scores between type 2 diabetics with normal glucose levels and low glucose levels, $t(44) = .411, p = .496$. No difference in anxiety scores between normal glucose and high glucose level, $t(122) = .127, p = .338$ and no difference between low glucose scores and high glucose scores, $t(84) = .856, p = .804$.

Discussion

The prevalence rate of anxiety among type 2 diabetic patients in this sample 19.5%, is comparable to international studies conducted [4,17,18]. No known research has been conducted on the prevalence of anxiety among diabetics in Trinidad to compare these findings. Anxiety may perpetuate a constant cycle of health care use by diabetics primarily because anxiety increases the risk of developing other medical complications. This further heightens anxiety levels affecting the patient's quality of life and psychological wellbeing. In addition, current findings indicated that the prevalence of anxiety was more commonly reported by type 2 diabetic women (23.8%) than men (13.7%), which is also consistent with the literature that gender is a risk factor of anxiety among type 2 diabetic patients [19,20].

Research has indicated that women are more likely than men to view type 2 diabetes as affecting their lives negatively and therefore worry about the complications of the disease. Men on the other hand were more likely to be concerned about the limitations that diabetes will impose on their lives but would generally view diabetes as a controllable disease [21]. This study found that coexisting medical complications was associated with anxiety among type 2 diabetic patients. The simultaneous care and management of type 2 diabetes and comorbid medical complications perpetuates anxiety as patients are faced with numerous and diverse challenges as conditions progress or worsens. Comorbid medical diseases have been shown to intensify the utilization of health care facilities and cost among diabetic patients [22]. The literature is undecided on the prevalence of anxiety among a particular age group of diabetics. The present study indicates that age is not significantly associated with the prevalence of anxiety in type 2 diabetic patients. Socio-cultural factors can be offered

as a potential reason for these findings. The onset of diabetes at any age is an unsettling event that increases uncertainty about the future. Type 2 diabetics of all ages usually find it upsetting to discover and be reminded daily that they have a serious, life-threatening condition that will not disappear [23].

Contrary to prevalence literature, this study found that glucose control was not significantly associated with anxiety in the type 2 diabetic sample. The current findings could be attributed to the randomness of glucose testing, the non-standardization of glucose measuring instruments and the culture of people to control their glucose better nearer clinic appointment. Attending clinic appointment takes the entire day and patients usually become weary, hungry, and angry which may result in fluctuations of blood glucose levels, thereby resulting in contrary findings. In conclusion, the high prevalence of anxiety in type 2 diabetic patients in Trinidad increases the concern for effective treatment of psychological and behavioural disorders among type 2 diabetic patients. Such treatment is essential since anxiety may potentially exacerbate the complications associated with diabetes. Attention should therefore be given to the psychological symptoms associated with type 2 diabetes and the implementation of screening for anxiety at health clinics in an effort to effectively treat type 2 diabetes in Trinidad [24].

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