

## Original Research Article

# The descriptive study of anxiety levels among diabetics: insulin users versus non-insulin users

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### ABSTRACT

**Background:** Anxiety is an emotion characterized by an unpleasant state of turmoil often accompanied by nervous behaviours such as pacing back and forth, somatic complaints and rumination. Diabetes is the most metabolically active disease which can influence the psychological state. This study evaluates the anxiety levels among diabetics (Insulin users versus non-insulin users) along with its relation to certain demographic factors like age, sex, education, type of medication and medication compliance.

**Methods:** Hamilton anxiety rating scale (HAM-A) was used to test the anxiety levels in 187 diabetic patients visiting the diabetic clinic and research centre, Nishtar Hospital, Multan and other diabetic clinics in the area. 97 (51.87%) patients of the total sample are males and 90 (48.12%) patients are females.

**Results:** In this study, 170 (91%) had type 2 diabetes while 17 (9%) suffered from Type 1 Diabetes. 66.66% of the patients in the sample were insulin users while 34.34% were non-insulin users. The overall mean anxiety level in insulin users is 24.55 and in non-insulin users is 23.92.

**Conclusions:** Our study showed a high prevalence of anxiety levels in insulin users as compared to non-insulin users. Certain symptoms like anxious mood, tension, fears, depressed mood, cardiovascular and gastrointestinal symptoms appeared with mild anxiety levels while other symptoms like insomnia, somatic symptoms, autonomic symptoms, respiratory and genitourinary symptoms appeared with high severity levels. The presence of risk factors for anxiety among patients of diabetes predicts a causal relationship and deserves attention from clinicians.

**Keywords:** Anxiety, Comorbidity, Demographic, Prevalence, Type 2 diabetes

### INTRODUCTION

Diabetes Mellitus is the most significant cause of non-traumatic limb amputation, blindness among adults and newly reported cases of end-stage renal diseases.<sup>1</sup> It is a polygenic syndrome characterized by persistent hyperglycemia associated with derangement in carbohydrate, lipid and protein metabolism leading to water and electrolyte imbalance. It is either due to

insufficient insulin production (Type 1) or increase in insulin resistance (Type 2).

Patients with diabetes are twice exposed to the risk of psychiatric diseases compared to the normal population.<sup>2,3</sup> Diabetes is the most metabolically active disease which can influence the psychological state.<sup>4</sup> One of the most common and significant psychological problem faced now-a-days is anxiety.<sup>5</sup>

People diagnosed with diabetes are approximately 20% more likely to suffer from anxiety than those without the diabetes.<sup>6</sup>

**Symptoms of anxiety**

The physiological symptoms of anxiety may include:<sup>7,8</sup>

- Neurological, as headache, paresthesias, vertigo and presyncope
- Digestive, as abdominal pain, nausea, diarrhea, indigestion, dry mouth and bolus
- Respiratory, as shortness of breath or sighing breathing
- Cardiac, as palpitations, tachycardia, and chest pain.
- Muscular, as fatigue, tremors and tetany
- Cutaneous, as perspiration or itchy skin
- Uro-genital, as frequent urination, urinary urgency, dyspareunia and impotence.

The study was done to evaluate the comorbidity of anxiety and diabetes among diabetic patients using different modes of treatment (Insulin users versus non-insulin users) and its relationship with certain demographic factors like age, sex, diagnosis time, medication compliance and health complaints among the patients based on therapy used.

**METHODS**

**Study design and setting**

A cross-sectional psycho-social analysis was conducted from March to May 2017 at Diabetic Clinic and Research Centre, Nishtar Hospital, Multan and other diabetic clinics in the town after obtaining informed consent from the patients.

**Method and material**

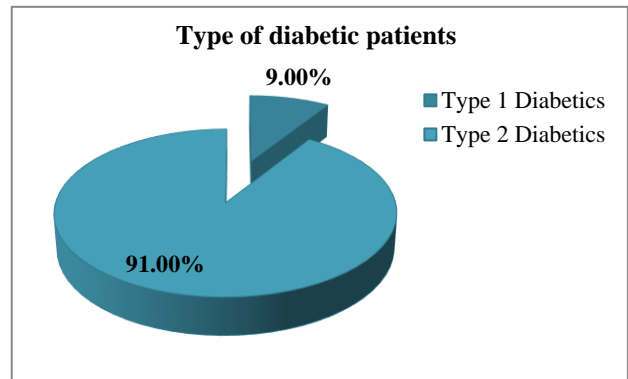
A questioner based study was done on 187 diabetic patients chosen on basis of random sampling to test the anxiety levels using Hamilton anxiety rating scale (HAM-A). Out of these patients 97 were males and 90 were females. Patients were interviewed to obtain information about age, sex, type of diabetes, type of medication used (Insulin or oral hypoglycemics), glycemic control, compliance and diabetes associated health complaints.

**Procedure and data analysis**

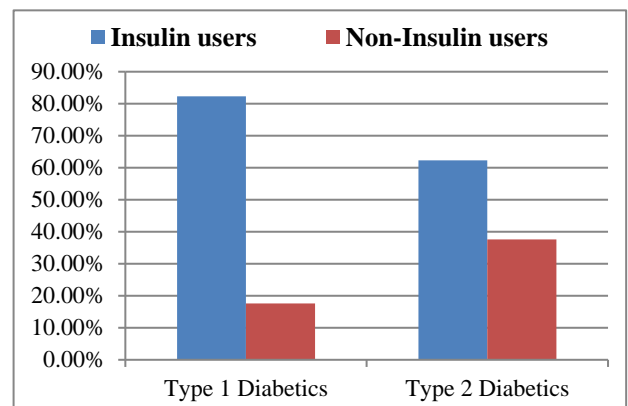
Hamilton anxiety rating scale (HAM-A) is a 14-item questioner with each consisting of 5 parameters showing anxiety from mild to very severe levels (0-4). All symptoms of anxiety were evaluated on basis of these parameters. The data collected was entered and analysed on SPSS v.20.

**RESULTS**

In this study, 170 (91%) had Type 2 Diabetes while 17 (9%) suffered from Type 1 Diabetes (Figure 1). Among type 1 diabetic patients 14 (82.35%) were insulin users and 03 (17.65%) were non-insulin users. Among type 2 diabetics 106 (62.35%) were insulin users and 64 (37.65%) were non-insulin users (Figure 2).



**Figure 1: Percentage of diabetic patients found in this study.**



**Figure 2: Medications used by type 1 and type 2 diabetics.**

In male patients, 66 (68.04%) were insulin users while 31 (31.96%) were non-insulin users. Among these insulin users 31.81% scored mild anxiety, 31.81% scored moderate anxiety level and 36.36% scored severe anxiety level (Table 1). Among non-insulin users 29.03% scored mild anxiety level, 38.70% scored moderate anxiety level and 32.25% scored severe anxiety levels (Table 2).

**Table 1: Insulin users.**

Anxiety levels	Frequency	Percentage
Mild	21	31.81%
Moderate	21	31.81%
Severe	24	36.36%
Total	66	100%

In female patients, 54 (60%) were insulin users while 36 (40%) were non-insulin users. Among these insulin users 5.55% scored mild anxiety level, 27.77% scored moderate anxiety level and 66.66% scored severe anxiety level (Table 3). Among non-insulin users 8.33% scored mild anxiety level, 30.55% moderate anxiety level and 61.11% scored severe anxiety level (Table 4).

**Table 2: Non-insulin users.**

Anxiety levels	Frequency	Percentage
Mild	09	29.03%
Moderate	12	38.70%
Severe	10	32.25%
Total	31	100%

Severity of anxiety levels in Females (Insulin users versus non-insulin users).

**Table 3: Insulin users.**

Anxiety levels	Frequency	Percentage
Mild	03	5.55%
Moderate	15	27.77%
Severe	36	66.66%
Total	54	100%

**Table 4: Non-insulin users.**

Anxiety levels	Frequency	Percentage
Mild	03	8.33%
Moderate	11	30.55%
Severe	22	61.11%
Total	36	100%

Mean anxiety level in insulin users males is 22.07 while in non-insulin users is 20.80. On the other hand, mean anxiety level in insulin users females is 27.03 while in non-insulin users is 27.05. The overall mean anxiety level in insulin users is 24.55 and in non-insulin users is 23.92 (Table 5).

**Table 5: Mean anxiety levels among patients.**

Type of medication	Overall mean anxiety level	Mean anxiety levels in males	Mean anxiety levels in females
Insulin users	24.55	22.07	27.03
Non-insulin users	23.92	20.80	27.05

**DISCUSSION**

According to this study, the prevalence of co-morbid anxiety with diabetes is significant among type 2 diabetics especially the insulin users. Arising trend in the prevalence of anxiety in diabetic patients has been

suggested by the studies done in various parts of the world as well as in Pakistan. The present study also found that the overall prevalence rate was 24.27%. In contrast, the prevalence rate of anxiety was found to be high in few previous studies as 35.3-57.9% and a low prevalence of about 3.9% in other studies as compared to the present study.<sup>9,10</sup> The differences in prevalence rate may be attributed to various scales used and methods that were applied in calculating the prevalence rate of anxiety.

Insulin therapy was significantly associated with depression in the present study. This finding suggests that the diabetic patients on insulin therapy face more daily stresses (routine multiple injections, repeated investigations, and hospitalizations and fear of complications) as compared to diabetic patients on oral therapy. Previous literature also suggested that the severity of depressive symptoms was significantly higher (<0.001) in insulin dependent diabetic patients as compared to noninsulin dependents.<sup>11</sup> Psychological insulin resistance is also found in one study of insulin users.<sup>12</sup> The microvascular (retinopathy and nephropathy) and macrovascular (IHD) complications were also significantly associated with anxiety. Khuwaja et al, also showed a significant association between anxiety and macrovascular complications like hypertension and IHD.<sup>9</sup>

Diabetic women had higher prevalence of depression (27.04% versus 21.43%) as compared to diabetic men. This could be attributable to gender-specific issues such as pregnancy, menstrual cycle changes, postpartum, and stresses such as responsibilities at work and home, caring for children and aging parents which could all lead to depression. Similar findings were found in previous literature.<sup>10</sup>

The study confirms the link between Diabetes and anxiety where the prevalence of anxiety was inevitable as a co morbid condition with Diabetes. Therefore, detection and management of anxiety in Diabetes can improve the patient’s health. The present study findings have potential clinical implications but also have certain limitations. First, due to the cross-sectional study design, it is not possible to draw long-term conclusions. Second, the study had a small sample size; the results cannot be generalized to general population setting. Third, there are certain confounding variables such as smoking, alcohol use, and duration of diabetes, present in the study group. Further, multi-central, longitudinal studies in different geographical areas need to be considered to establish causal relationship between depression and diabetes.

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