

Original Article:**Psychiatric problems in patients with diabetes mellitus attending a diabetes clinic at a tertiary care hospital in Eastern Nepal**

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Abstract:

Diabetes mellitus (DM), a chronic disease is frequently comorbid with psychiatric problems/disorders. Identification and management of comorbid psychiatric problems are important for the management of diabetes itself. We lack studies in this regard though we have many patients with diabetes in Nepal. This study aims to determine the prevalence of psychiatric disorders in patients suffering from and seeking help from diabetes clinic. This is a hospital-clinic based prevalence study. The study analyzed response to "General health questionnaire GHQ-12" in 200 (calculated sample size) consecutive patients with diabetes attending a diabetes clinic. Diabetes mellitus diagnosis was made based on 'American Diabetic Association' (ADA) guidelines, 2009. Psychiatric disorders were screened with self-response questionnaire 'GHQ-12' which provides overall score, the score of 2 or more considered as achieving 'psychiatric caseness' indicating overall psychiatric disorder. Among 200 clinic diabetes patients, 136 (68%) had GHQ-12 score of 2 or more, i.e. 'psychiatric caseness'. By alternate scoring, 15 (7.5%) had severe (25-36), 105 (52.5%) moderate (13-24), 71 (35.5%) mild (1-12) and the rest 9 (4.5%) had nil symptomatology. Among GHQ-12 items, 'felt that you couldn't overcome your difficulties' was the most scored (39.0%), followed by 'felt constantly under strain' (37.5%). Psychiatric problem is common among patients with diabetes. Diabetes management should involve diagnosis and treatment of comorbid psychiatric disorders.

Key words: Diabetes mellitus, Diabetes clinic, GHQ-12, Psychiatric disorder

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Introduction:

Diabetes Mellitus (DM) is one of the most common chronic diseases, with prevalence of about 2% [1]. Some Nepalese studies report even higher prevalence [2, 3]. Nepal has the highest prevalence of prediabetes among the countries of SAARC (South Asian Association for Regional Cooperation) region [4] and higher urban DM prevalence than rural (urban 25.9% vs rural 3.1%) [2].

Psychiatric or mental problem, illness or disorder is common among patients with diabetes [5];

rather the prevalence of overall [6] and particular mental disorders, e.g. depression [7] are reported higher among people with diabetes than the general population. Psychiatric disorders are at least twice as common in patients with diabetes compared to the general population [6, 8, 9]. However, many of them are under recognized and under treated [5, 10, 11]. People with mental disorders have several risk factors that are likely to influence diabetes outcomes [12-16].

The data about the prevalence and the impact of mental illness among patients with diabetes will raise the concern for mental illness and overall health of these patients. In Nepalese context of limited data, this study was conducted to find out psychiatric morbidity prevalence among diabetes-clinic patients attending a tertiary care hospital in eastern Nepal in the study period of 1 year from January 2010.

Methodology

This is a hospital-clinic based prevalence study carried out in diabetes clinic of B. P. Koirala Institute of Health Sciences (BPKIHS), Dharan,

Nepal in 2010. The project was initiated after the approval of 'ethical review board' and upon its completion presented in scientific research forum of the institute.

The study analyzed 200 consecutive diabetes mellitus clinic patients' response to 'General health questionnaire (GHQ-12)' [17] collected after obtaining informed written consent. The number of subjects required i.e. sample size was calculated by using the formula:

$$N = (1.96)^2 \times P \times (100 - P) / [P \times \beta]^2$$

Where, N = number of sample,

P = Estimated Prevalence.

β = Beta error, maximum permissible is 20%; smaller the figure, better is the power.

With the estimated prevalence of psychiatric co-morbidities as 35% (keeping the minimum for clinical setting with consideration of literature) [6, 8, 9] with β error at 0.2, the calculated sample size was 178.36 and additional 10% subjects were taken for better representation. Hence, the sample size was taken to be 200.

'Diabetes mellitus' diagnosis was made based on the 'American Diabetic Association' (ADA) guidelines, 2009.

Psychiatric problems were screened with self-response questionnaire 'GHQ-12' [17], the GHQ being used similarly in other studies with diabetic subjects [18]. Using binary scoring method (with the two least symptomatic answers scoring 0 and the two most symptomatic answers scoring 1), the 12-item versions classify any score exceeding the threshold value of 2 as achieving 'psychiatric caseness' according to the Manual of GHQ scoring [17]. 'Psychiatric caseness' is a probabilistic term which indicates that such respondents are likely to receive further attention if presented in general practice. If the GHQ score threshold is exceeded, the individual would be more likely than not (0.51) to be diagnosed with psychiatric or mental problem, illness or disorder upon independent psychiatric assessment. Since, our subjects were the ones seeking help in a clinic setting; we also analyzed the prevalence with the cut-off score of 3, besides the usual cut-off of 2. By alternate method of scoring 0 to 3 to each response, the symptom grading was done as nil (0 score),

mild (1-12), moderate (13-24) and severe (25-36).

Statistical Analysis

Data were entered into a computer and analyzed using 'Statistical Package for Social Sciences' (SPSS 10) - software. We used descriptive statistics mean, minimum and maximum values for continuous variables; and number of patients and percentage for categorical variables.

Results

Among total enrolled 200 subjects, 99 (49.50%) were female, with M: F ratio of 1.02: 1.

The most common 4 caste/ethnicities of the subjects in the clinic of the institute were: disadvantaged hill Janajatis, upper hill caste, relatively advantaged Janajati and upper Terai caste (Figure 1).

Average age was 55.97 years (22 minimum, 92 maximum). Patients of age group (> 60 years) constituted the largest proportion i.e. 77 (38.5%) followed by 76 (38%) in 41-60 years age group (Figure 2).

Except one female with gestational diabetes, all had type 2 DM.

Majority of the cases had visited the clinic within 10 years of onset of DM. Average duration was 6.5 years (newly diagnosed to 40) (Figure 3).

Among GHQ-12 items: 'felt that you couldn't overcome your difficulties' was the most scored i.e. by 78 (39.0%) subjects, followed by 'felt constantly under strain' by 75 (37.5%) and 'felt not capable of making decisions about things' was scored by 70 (35.0%) subjects (Table 1).

One hundred and thirty six (68%) subjects had GHQ-12 score of 2 or more, i.e. 'psychiatric caseness', indicating the likelihood of suffering from mental illness (Table 2).

Most number of cases 105 (52.5%) had the scores of the moderate severity range (13-24) (Figure 4).

Average GHQ-12 item score was 14.68 (with minimum score 0 and maximum 35). Majority had either moderate or mild severity of symptoms.

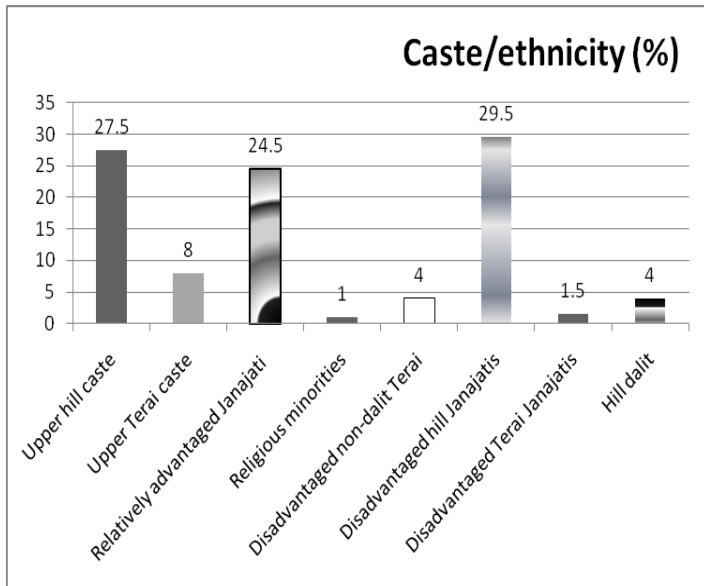


Figure 1: Caste-ethnicity Distribution of Diabetes-clinic service attenders

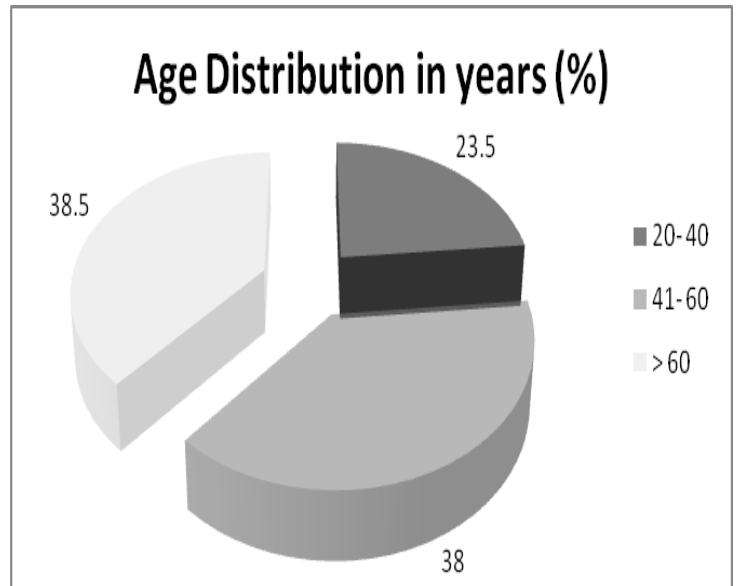


Figure 2: Age Distribution of Diabetes-clinic service attenders

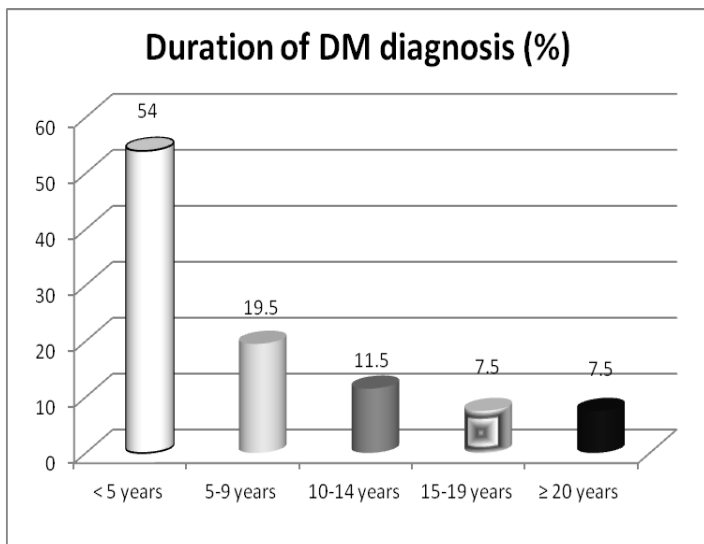


Figure 3: Duration of Diabetes mellitus among clinic service attenders

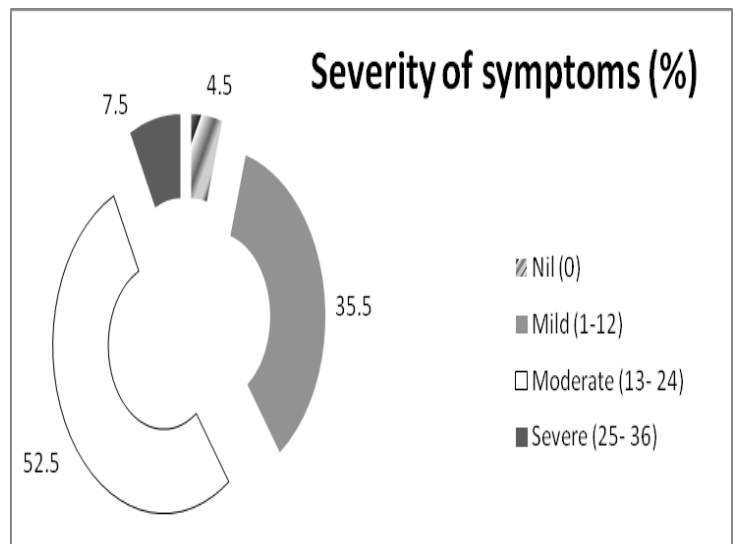


Figure 4: Symptom severity grading of GHQ-12 items

Table 1: Scored GHQ-12 symptom-item distribution among Diabetes-clinic patients

GHQ symptom-item related to	Number (%)	GHQ symptom-item related to	Number (%)
1. Concentrate	67 (33.5)	7. Enjoyment	59 (29.5)
2. Sleep	65 (32.5)	8. Facing problem	66 (33.0)
3. Useful activity	52 (26.0)	9. Depressed	67 (33.5)
4. Decision making	70 (35.0)	10. Self confidence	52 (26.0)
5. Strain	75 (37.5)	11. Worthlessness	57 (28.5)
6. Overcome difficulty	78 (39.0)	12. Happiness	42 (21.0)

Table 2: GHQ-12 score distribution among Diabetes-clinic service attenders

GHQ score category	Number (%)
< 2	64 (32.0)
2	23 (11.5)
> 2	113 (56.5)
Total 'caseness' with cut off score 2	136 (68)
< 3	87 (43.5)
≥ 3	113 (56.5)
Total 'caseness' with cut off score 3	113 (56.5)

Discussion:

In medical literature about DM, data on comorbid depression abounds more than any other mental disorders. The prevalence rate of major depression is higher among patients with diabetes mellitus, though the recognition and treatment rates are low [5]; depression is frequently unrecognized and untreated in about two third of patients with both conditions [11]. The relationship between DM and depression appears to be bidirectional in causation, impact and treatment outcomes [10, 11, 15, 18, 19].

Depression influences diabetes negatively, resulting from non-adherence to diabetes self-care, dietary restrictions, medication and blood glucose monitoring; and worsens overall clinical outcomes of DM [11] even though both depression and DM are amenable to treatment [20]. Hence, depression screening and systematic depression treatment are advocated in current day practice as routine components of diabetes care [21].

Various other psychiatric disorders have also been seen more among DM patients along

with affective disorders [6, 8, 9, 22]. Even statistically stronger relationship has been reported between diabetes and anxiety disorders than between diabetes and affective disorders after controlling for age, sex, marital status, and socioeconomic status [22]. Alberta Diabetes Atlas 2007 reported DM patients with more affective disorders, anxiety disorders, organic and non-organic psychosis and substance abuse disorders compared to their non-diabetic counterparts [9]. Similar study from UK: UK National Psychiatric Morbidity Survey 2007 also found elevated risk of the common mental disorders (CIS-R diagnoses) among patients with DM even after controlling for age, gender, ethnicity and socioeconomic status [6]. Hence, other mental illness also do deserve due attention among individuals with diabetes.

The prevalence of depression alone ranges between 15-40% and that of overall psychiatric disorders is at least 2 times higher among people with DM (PWD) in comparison to general population [6, 8, 9]. The rates vary according to the settings and designs of the study: clinical settings and self-response questionnaire based studies show apparently higher rates. Since this study was carried out in a clinic setting and it utilized the 'GHQ-12', a self-response questionnaire, analysis was done both with usual [17] (2 or more) and higher cut off points (3 or more) for 'psychiatric caseness' to facilitate a comprehensive understanding.

The GHQ has been utilized by other authors among patients with DM [18]. The GHQ-12 questionnaire was presented to the subjects in both original English and translated Nepali language (with due process of translation and back translation, and pretest). The sample size was calculated with the formula. Keeping an estimated prevalence of psychiatric co-morbidity 35% and β error 0.2, sample size came out to be 178. With additional 10% subjects, total of 200 subjects were enrolled. The subjects were consenting consecutive patients with DM visiting diabetic clinic at a tertiary care hospital, B. P. Koirala Institute of health Sciences (BPKIHS), Dharan in eastern Nepal according to the inclusion-exclusion criteria.

Out of the total, 99 were female patients; the proportion is comparatively less in reference to a study among cases referred to psychiatry

out-patients in the same institute [23]. Among the service seekers of the clinic, the age group of more than 60 years was the most common (38.5%) followed by 38% in 41-60 years age group. The average age of the patients was 55.97 years with minimum of 22 and maximum of 92 years. The age distribution is consistent with the population and hospital findings of higher DM prevalence among elder age groups (more than 40 years) [2, 24].

The caste/ethnicities were classified as per the system of 'Government of Nepal, 2007 for Free Health services, District Health Service Report 2064'. The most common caste/ ethnicities of the subjects in the clinic of the institute were: disadvantaged hill Janajatis (e.g. Magar, Rai, Tamang, Limbu, Sherpa, etc.), upper hill caste (e.g. Brahmin, Chhetri, Thakuri, etc.), relatively advantaged Janajati (e.g. Newar, Gurung, Thakali) and upper Terai caste (e.g. Rajput, Marwadi, etc.). This caste/ethnicity distribution is fairly comparable with the population distribution out here in this region except for a nil representation of 'Terai dalit' (e.g. Chamar, Mushar, Dom, etc.) and meager representation of 'religious minorities' (e.g. Muslim) and 'disadvantaged Terai Janajatis' (e.g. Tharu, Rajbansi, etc.). This representation is similar to findings of other studies from the same institute [23, 25].

A great majority had type 2 DM, and there was no juvenile case because of the study design, excluding cases below 15 years. Majority of the cases had visited the clinic within 10 years duration of onset of DM. Average duration was 6.5 years (20.5% including 19% newly diagnosed came within 6 months of DM diagnosis).

With the cutoff of 2 or more, 'psychiatric caseness' was seen among 136 (68%) and with 3 or more, among 113 (56.5%) subjects. This figure is clearly in excess to the mental illness prevalence among general population in any country [26, 27]; including Nepal [28]. This is higher than similar one reported among IDDM by Wilkinson et al., using the GHQ-60 and CIS in 1987 [18]. It may possibly be because of the fact that we had a number of newly diagnosed cases, who have frequently been described as more distressed and psychologically disturbed by recent stressor. Effect of recent diagnosis, chronicity of illness, use of medications and complications, associated psychosocial circumstances and other factors interact to

determine the co-occurrence of mental illness among people with DM. Our result represents the overall prevalence and it does not analyze/distinguish the cause and effect relationship between DM and mental illness and these factors. It deserves a further separate study.

In severity grading, 15 (7.5%) had severe (25-36), 105 (52.5%) moderate (13-24), 71 (35.5%) mild (1-12) and the rest 9 (4.5%) had nil symptomatology. This is also consistent with the finding regarding 'psychiatric caseness' prevalence.

Among GHQ-12 items, 'felt that you couldn't overcome your difficulties' by 39.0% and 'felt constantly under strain' by 37.5% were the most scored ones.

This study was intended only to calculate the overall prevalence of psychiatric disorders and did not distinguish the psychiatric diagnoses. It was initial but an essential step to categorize total number of subjects subsequently to compare various diabetes mellitus complications between DM patients with and without mental illness. A separate study is warranted to establish psychiatric disorder specific prevalence both in clinical and community settings.

Conclusion:

A great majority of the patients with diabetes visiting diabetes clinic of BPKIHS had type 2 DM. Majority of them had visited the clinic within 10 years of onset of DM. Psychiatric problems are common among patients with diabetes. Majority had reported moderate degree of severity of GHQ-12 symptoms. Hence, a diagnosis of diabetes mellitus should lead to a heightened level of diagnostic suspicion for psychiatric disorders. Appropriate diabetes treatment should involve early diagnosis and treatment of concomitant psychiatric disorders.

Conflict of Interest:

Authors have no conflict of interest.

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