

PREVALENCE OF PSYCHIATRIC COMORBIDITIES IN PATIENTS WITH DEPRESSION

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Received: 17 February 2022, Revised and Accepted: 23 March 2022

ABSTRACT**Objective:** The aim of the study was to study the prevalence of psychiatric comorbidities in patients of depression.**Methods:** The present cross-sectional study was conducted among 60 patients of depression. All the patients were evaluated for sociodemographic profile and Mini International Neuropsychiatric Interview was administered to evaluate, identify, and diagnose the most common psychiatric comorbidities as per its modules.**Results:** Results showed that 65.0% of patients had psychiatric comorbidities and 35.0% had no psychiatric comorbidity. About 53.3% patients had psychiatric comorbidity of generalized anxiety disorder, 23.3% patients had psychiatric comorbidity of suicidality, 11.7% had panic disorders, 6.7% had alcohol use disorders, and 5.0% had substance use disorders (SUDs) (non-alcoholic). No statistically significant association was found in prevalence of different psychiatric comorbidities among sociodemographic characteristics of age, gender, region, religion, family type, educational status, and occupational groups. However, statistically significant association was seen among alcohol use disorders in different gender groups and occupational groups.**Conclusion:** Our study showed the highest prevalence of psychiatric comorbidity of generalized anxiety disorder and then suicidality, panic disorders, alcohol use disorders, and least prevalence of SUDs. No statistically significant association was found between sociodemographic characteristics and psychiatric comorbidities except association of alcohol use disorders with gender and occupational groups. There is a paucity of research exploring relationship of specific psychiatric comorbidities in depressive patients in India. Data of our study will contribute to enrich the Indian specific data on psychiatric comorbidities in depression and help formulate appropriate management strategies.**Keywords:** Depression, Generalized anxiety disorders, Suicidality, Panic disorders, Alcohol use disorders.© 2022 The Authors. Published by Innovare Academic Sciences Pvt Ltd. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>) DOI: <http://dx.doi.org/10.22159/ajpcr.2022v15i5.44467>. Journal homepage: <https://innovareacademics.in/journals/index.php/ajpcr>**INTRODUCTION**

Depression is a chronic and often relapsing or recurrent disease with long course and is being considered as a clinically significant public health problem because of its ever increasing prevalence and associated significant morbidity, dysfunction, and mortality. It leads to enormous economic burden especially in post-COVID-19 era in developing nations like India. Depending on the severity of symptoms and number of episodes, depression can be classified into mild, moderate, and severe depression [1]. Global burden of depression in 2015 was estimated to be more than 300 million people which equals to about 4.3% of the world's population. Depression is ranked as the single largest contributor to global disability (7.5% of all years lived with disability in 2015) [1]. Prevalence of depression in India has varied from 1.7 to 74 per thousand population in different studies and community samples [2,3]. The National Mental Health Survey 2015-16 also showed that depression affected one in 20 Indians and about 15% adults in India required active intervention for mental health problems [4].

Feinstein in 1970 first introduced the term comorbidity to explain the presence of a distinct additional clinical entity along with the index disease [5]. During past decade, the term comorbidity has become increasingly common representing an important aspect of clinical psychiatry. Psychiatric comorbidity may be defined as simultaneous presence of more than one psychiatric disorder in a person during a certain time period in any combinations [6]. A study showed that the clinical outcome of patients with depression can be influenced by several factors and presence of comorbidities and severity of depression can influence the depressive episodes duration and recurrences [7]. Evidence suggests that psychiatric comorbidities may be associated with increased economic and public health-care delivery system burden because of comorbidities, whether medical or psychiatric, and

it leads to poorer outcomes such as increased risk rehospitalization or relapse, violence, adverse life events, family discord, suicide or increased medical comorbidity, or homelessness [8,9]. Evaluation and diagnosis of comorbid disorder are of paramount importance to modify treatment schedules and improve patient outcomes for both the index mental illness and comorbid diagnosis and more importantly diagnosis of comorbid disorder should be an expectation and not an exception [10]. There is a paucity of research on depression and psychiatric comorbidity in India. However, knowledge about comorbidities is important in clinical practice, health-care policies and planning, new research hypotheses, and management of index disease as well as comorbid conditions. Hence, we initiated this research study to explore prevalence of psychiatric comorbidities in depression.

Aim and objectives

The aim of the study was to study the prevalence of psychiatric comorbidities in patients of depression.

METHODS

This cross-sectional observational study was conducted among patients suffering from depression fulfilling the International Classification of Diseases, Tenth Edition (ICD 10) diagnostic criterion, who were evaluated according to the Hamilton Depression Rating Scale (HDRS) [11] and patients with >17 score were included in the study. Sixty patients evaluated fulfilled the criteria and were enrolled after obtaining written informed consent as per study protocol approved by the Institutional Ethical Committee.

Inclusion criteria

Patients of depression, age >18 years with HAM-D score of >17 who gave written informed consent, were included in the study.

Exclusion criteria

Patients refusing to written informed consent, suffering from organic neurological disorders, severe cognitive impairment or disorders, and with comorbid medical diseases were excluded from the study.

Sociodemographic profile including age, sex, education, religion, marital status, family types, employment/occupation status, and residence (urban/rural) was recorded and severity of depression was analyzed according to the HDRS (Ham-D). Psychiatric comorbidities were evaluated according to the modules of Mini International Neuropsychiatric Interview (MINI) scale (version 7.0.2). HDRS is the most commonly and widely used clinical interview based measures of severity of depression in clinical practice and research, comprising of 21 items and each item is rated from 0–4 to 0–2. Scores of <7 represent the absence or remission of depression, score of 7–17 represents mild depression, score of 18–24 represents moderate depression, and score of 25 and above represents severe depression. HDRS has a specificity of 92.2% and sensitivity of 86.4% [12,13]. MINI is a short structured diagnostic interview used to evaluate, identify, and diagnose the most common psychiatric disorders [14].

Statistical analysis

Data obtained were analyzed as per the standard statistical method. Frequency and percentages of sociodemographic characteristics were calculated. Chi-square test was applied to find out their association and significance. $p < 0.05$ was taken as statistically significant whereas $p < 0.001$ was taken as highly significant. All the analysis was done using "IBM SPSS Statistics for Windows, version 23.0 (IBM Corp., Armonk, N.Y., USA)."

Ethics approval

The approval was taken from Institutional Ethical Committee.

RESULTS

Our study was cross-sectional observational study exploring the prevalence of psychiatric comorbidities in study population of 60 patients of depression, after written informed consent was obtained as per protocol approved by the Institutional Ethical Committee.

Prevalence of severity of depression and sociodemographic characteristics among study population

The study population of 60 patients of depression included 54 (90%) patients suffering from moderate depression and 6 (10%) from severe depression. The study population included 30 (50%) patients in age group of 18–40 years, 24 (40%) patients in age group of 41–60 years, and 6 (10%) belonged to >60 years age group, 16 (26.7%) male and 44 (73.3%) female patients, 41 (68.3%) from rural and 19 (31.7%) patients from urban region, 57 (95.0%) belonged to Hindu, and 3 (5.0%) patients belonging to Sikh religion, 11 (18.3%) unmarried, 43 (71.7%) married, 1 (1.7%) divorced, and 5 (8.3%) widowed patients, 34 (56.7%) living in nuclear families, and 26 (43.3%) were living in joint families, 10 (16.7%) illiterate, 13 (21.7%) below matric, 9 (15.0%) matric, 8 (13.3%) higher secondary, 16 (26.6%) graduate and 4 (6.7%) postgraduate patients, 30 (50.0%) were homemakers, 4 (6.7%) students, 3 (5.0%) teachers, 4 (6.7%) unemployed, 6 (10.0%) farmers, and 13 (21.6%) were from other occupations.

Prevalence of psychiatric comorbidities according to the sociodemographic characteristics

Prevalence of psychiatric comorbidities according to the sociodemographic characteristics of age, gender, region, religion, marital status, family groups, education status, and different occupations is shown in Table 1. There was no statistically significant association observed in incidence of psychiatric comorbidities among different age groups, gender, region groups, among religious groups, marital status, family groups, education groups, and among different occupation groups as $p > 0.05$.

Prevalence of different psychiatric comorbidities among sociodemographic characteristics

1. Prevalence of different psychiatric comorbidities in study population: Analysis of data in Fig. 1 shows that in study population of 60 patients of depression, 32 (53.3%) patients had psychiatric comorbidity of generalized anxiety disorder (GAD), 14 (23.3%) had psychiatric comorbidity of suicidality, 7 (11.7%) panic disorders, 4 (6.7%) alcohol use disorders, and 3 (5.0%) substance use disorders (SUDs) (non-alcohol)
2. Prevalence of different psychiatric comorbidities among patients of depression according to the sociodemographic characteristic of age: Prevalence of different psychiatric comorbidities among patients of depression according to the age groups is shown in Table 2. Analysis of data shows no statistically significant association in incidence of different psychiatric comorbidities among age groups as P value was observed to be >0.05 .

Table 3 expresses the prevalence of different psychiatric comorbidities according to the sociodemographic characteristics of gender and religion groups and showed no statistically significant association in incidence of different psychiatric comorbidities among gender and religion groups as $p > 0.05$ except statistically significant association was shown among alcohol use disorders in gender groups as $p < 0.001$.

Table 4 expresses the prevalence of different psychiatric comorbidities according to socio-demographic characteristics of region and family type, showing no statistically significant association in incidence of different psychiatric comorbidities among region and family type groups as P value was observed to be >0.05 .

Table 5 shows the prevalence of different psychiatric comorbidities according to the sociodemographic characteristic of marital status. Analysis of data shows no statistically significant association in incidence of different psychiatric comorbidities among sociodemographic variable of marital status as P value was observed to be >0.05 .

Table 6 shows the prevalence of different psychiatric comorbidities among patients of depression according to the sociodemographic characteristic of education status showing no statistically significant association in incidence of different psychiatric comorbidities among education status groups as P value was observed to be >0.05 .

Table 7 expresses the prevalence of different psychiatric comorbidities according to the sociodemographic characteristic of occupation group showing no statistically significant association in incidence of different psychiatric comorbidities among different occupation groups as $p > 0.05$ except statistically significant association was shown among alcohol use disorders as $p = 0.039$.

In our study, no psychiatric comorbidity of post-traumatic stress disorder (PTSD), agoraphobia, social anxiety disorder, obsessive-compulsive disorder (OCD), psychotic disorders, eating disorders, and antisocial personality disorders was diagnosed.

DISCUSSION

Evidence suggests that the presence of psychiatric comorbidities are associated with increased economic and public health-care system burden because of poorer clinical outcomes, rehospitalization, increased risk of relapse, suicide and violence, life events, risk of medical comorbidity, homelessness, and family problems [11]. The present study observed that 65% patients of depression had psychiatric comorbidities whereas 35% patients were without any psychiatric comorbidity. Similar to our findings, a study from India has also documented the presence of 35.3% of one or more psychiatric comorbidities among patients of depression [15]. In present study, the prevalence of psychiatric comorbidities according to the age groups was 60.0% in 18–40 years, 70.8% in 41–60 years, and 66.7% among age group of >60 years. A community epidemiological survey in developing countries documented 30.2% prevalence of one psychiatric

Table 1: Prevalence of psychiatric comorbidities according to the sociodemographic characteristics

Characteristics	No comorbidities	Psychiatric comorbidities	χ^2	p
Total (n=60)	35.0 (21)	65.0 (39)		
Age (years)				
18-40 (n=30)	40.0 (12)	60.0 (18)	0.696	0.706 (NS)
41-60 (n=24)	29.2 (7)	70.8 (17)		
>60 (n=6)	33.3 (2)	66.7 (4)		
Gender				
Males (n=16)	43.7 (7)	56.3 (9)	0.734	0.392 (NS)
Females (n=44)	31.8 (14)	68.2 (30)		
Region				
Rural (n=41)	26.8 (11)	73.2 (30)	3.799	0.051 (NS)
Urban (n=19)	52.6 (10)	47.4 (9)		
Religion				
Hindu (n=57)	36.8 (21)	63.2 (36)	1.700	0.192 (NS)
Sikh (n=3)	0.0 (0)	100.0 (3)		
Marital status				
Unmarried (n=11)	27.3 (3)	72.7 (8)	2.733	0.435 (NS)
Married (n=43)	37.2 (16)	62.8 (27)		
Divorced (n=1)	100.0 (1)	0.0 (0)		
Widow (n=5)	20.0 (1)	80.0 (4)		
Family type				
Nuclear (n=34)	35.3 (12)	64.7 (22)	0.003	0.956 (NS)
Joint (n=26)	34.6 (9)	65.4 (17)		
Education status				
Illiterate (n=10)	40.0 (4)	60.0 (6)	0.486	0.993 (NS)
Below matric (n=13)	38.5 (5)	61.5 (8)		
Matric (n=9)	33.3 (3)	66.7 (6)		
Higher Secondary (n=8)	37.5 (3)	62.5 (5)		
Graduate (n=16)	31.3 (5)	68.7 (11)		
Postgraduate (n=4)	25.0 (1)	75.0 (3)		
Occupation				
Homemaker (n=30)	36.7 (11)	63.3 (19)	6.695	0.244 (NS)
Student (n=4)	0.0 (0)	100.0 (4)		
Teacher (n=3)	0.0 (0)	100.0 (3)		
Unemployed (n=4)	25.0 (1)	75.0 (3)		
Farmer (n=6)	66.7 (4)	33.3 (2)		
Others (n=13)	38.5 (5)	61.5 (8)		

% (n): Percentage (Number of subjects), rest as such. p>0.05 (NS), *p<0.05 (significant), **p<0.001 (highly significant). NS: Not significant

Table 2: Prevalence of different psychiatric comorbidities among patients of depression according to the sociodemographic of age

Psychiatric comorbidities	18-40 years	41-60 years	>60 years	χ^2	p
Suicidality (n=14)	50.0 (7)	42.9 (6)	7.1 (1)	0.186	0.911 (NS)
Panic disorders (n=7)	71.4 (5)	28.6 (2)	0.0 (0)	1.779	0.411 (NS)
Alcohol use disorders (n=4)	0.0 (0)	75.0 (3)	25.0 (1)	4.420	0.110 (NS)
Substance use disorders (non-alcohol) (n=3)	33.3 (1)	66.7 (2)	0.0 (0)	1.053	0.591 (NS)
GAD (n=29)	41.4 (12)	44.8 (13)	13.8 (4)	1.969	0.374 (NS)

% (n): Percentage (Number of subjects), rest as such. p>0.05 (NS), *p<0.05 (significant), **p<0.001 (highly significant). GAD: Generalized anxiety disorder; NS: Not significant

Table 3: Prevalence of different psychiatric comorbidities according to the sociodemographic characteristics of gender and religion

Psychiatric comorbidities	Males	Females	χ^2	p	Hindus	Sikhs	χ^2	p
Suicidality (n=14)	14.3 (2)	85.7 (12)	1.431	0.232 (NS)	100.0 (14)	0.0 (0)	0.961	0.327 (NS)
Panic disorders (n=7)	28.6 (2)	71.4 (5)	0.015	0.903 (NS)	85.7 (6)	14.3 (1)	1.439	0.230 (NS)
Alcohol use disorders (n=4)	100.0 (4)	0.0 (0)	11.786	0.001*	100.0 (4)	0.0 (0)	0.226	0.635 (NS)
Substance use disorders (n=3)	66.7 (2)	33.3 (1)	2.584	0.108 (NS)	100.0 (3)	0.0 (0)	0.166	0.684 (NS)
GAD (n=29)	17.2 (5)	82.8 (24)	2.550	0.110 (NS)	89.7 (26)	10.3 (3)	3.376	0.066 (NS)

% (n): Percentage (Number of subjects), rest as such. p>0.05 (NS), *p<0.05 (significant), **p<0.001 (highly significant). GAD: Generalized anxiety disorder; NS: Not significant

Table 4: Prevalence of different psychiatric comorbidities according to the sociodemographic characteristics of region and family type

Psychiatric comorbidities	Rural	Urban	χ^2	p	Nuclear family	Joint family	χ^2	P
Suicidality (n=14)	64.3 (9)	35.7 (5)	0.138	0.710 (NS)	57.1 (8)	42.9 (6)	0.002	0.967 (NS)
Panic disorders (n=7)	71.4 (5)	28.6 (2)	0.035	0.851 (NS)	85.7 (6)	14.3 (1)	2.723	0.099 (NS)
Alcohol use disorders (n=4)	100.0 (4)	0.0 (0)	1.986	0.159 (NS)	50.0 (2)	50.0 (2)	0.078	0.781 (NS)
Substance use disorders (nonalcohol) (n=3)	100.0 (3)	0.0 (0)	1.463	0.226 (NS)	33.3 (1)	66.7 (2)	0.700	0.403 (NS)
GAD (n=29)	79.3 (23)	20.7 (6)	3.126	0.077 (NS)	44.8 (13)	55.2 (16)	0.051	0.821 (NS)

% (n): Percentage (Number of subjects), rest as such. p>0.05 (NS), *p<0.05 (significant), **p<0.001 (highly significant). GAD: Generalized anxiety disorder; NS: Not significant

Table 5: Prevalence of different psychiatric comorbidities among patients of depression according to the sociodemographic characteristic of marital status

Psychiatric comorbidities	Unmarried	Married	Divorced	Widow	χ^2	p
Suicidality (n=14)	35.7 (5)	50.0 (7)	0.0 (0)	14.3 (2)	5.286	0.152 (NS)
Panic disorders (n=7)	28.6 (2)	71.4 (5)	0.0 (0)	0.0 (0)	1.246	0.742 (NS)
Alcohol use disorders (n=4)	0.0 (0)	100.0 (4)	0.0 (0)	0.0 (0)	1.694	0.638 (NS)
Substance use disorders (non-alcohol) (n=3)	33.3 (1)	66.7 (2)	0.0 (0)	0.0 (0)	0.714	0.870 (NS)
GAD (n=29)	10.3 (3)	75.9 (22)	0.0 (0)	13.8 (4)	5.035	0.169 (NS)

% (n): Percentage (Number of subjects), rest as such. p>0.05 (NS), *p<0.05 (significant), **p<0.001 (highly significant). GAD: Generalized anxiety disorder, NS: Not significant

Table 6: Prevalence of different psychiatric comorbidities among patients of depression according to the sociodemographic characteristic of education status

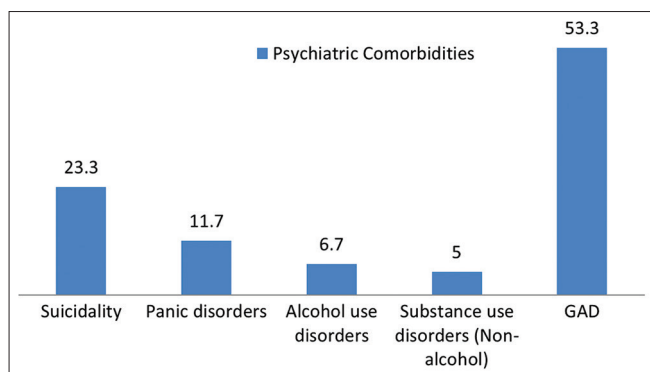
Psychiatric comorbidities	Illiterate	Below matric	Matric	Higher secondary	Graduate	Postgraduate	χ^2	p
Suicidality (n=14)	21.4 (3)	14.3 (2)	28.6 (4)	7.1 (1)	28.6 (4)	0.0 (0)	4.717	0.451 (NS)
Panic disorders (n=7)	0.0 (0)	57.1 (4)	0.0 (0)	14.3 (1)	28.6 (2)	0.0 (0)	7.657	0.176 (NS)
Alcohol use disorders (n=4)	0.0 (0)	25.0 (1)	25.0 (1)	50.0 (2)	0.0 (0)	0.0 (0)	6.772	0.238 (NS)
Substance use disorders (n=3)	0.0 (0)	0.0 (0)	0.0 (0)	33.3 (1)	66.7 (2)	0.0 (0)	4.737	0.449 (NS)
GAD (n=29)	17.3 (5)	27.6 (8)	6.9 (2)	10.3 (3)	27.6 (8)	10.3 (3)	4.631	0.463 (NS)

% (n): Percentage (Number of subjects), rest as such. p>0.05 (NS), *p<0.05 (significant), **p<0.001 (highly significant). GAD: Generalized anxiety disorder, NS: Not significant

Table 7: Prevalence of different psychiatric comorbidities according to the sociodemographic characteristic of occupation

Psychiatric comorbidities	Home maker	Student	Teacher	Unemployed	Farmer	Others	χ^2	p
Suicidality (n=14)	42.9 (6)	21.4 (3)	0.0 (0)	7.1 (1)	0.0 (0)	28.6 (4)	9.302	0.098 (NS)
Panic disorders (n=7)	42.8 (3)	14.3 (1)	0.0 (0)	14.3 (1)	0.0 (0)	28.6 (2)	2.824	0.727 (NS)
Alcohol use disorders (n=4)	0.0 (0)	0.0 (0)	0.0 (0)	25.0 (1)	50.0 (2)	25.0 (1)	11.683	0.039*
Substance use disorders (n=3)	0.0 (0)	33.3 (1)	33.3 (1)	0.0 (0)	0.0 (0)	33.4 (1)	10.742	0.057 (NS)
GAD (n=29)	62.2 (18)	6.9 (2)	10.3 (3)	3.4 (1)	0.0 (0)	17.2 (5)	11.839	0.370 (NS)

% (n): Percentage (Number of subjects), rest as such. p>0.05 (NS), *p<0.05 (significant), **p<0.001 (highly significant). GAD: Generalised anxiety disorder, NS: Not significant

**Fig. 1: Prevalence of different psychiatric comorbidities in the study population (%)**

comorbidity in 18–34 years, 27.6% in 35–49 years, 34.1% in 50–64 years, and 41.5% in >64 years age group which was lower than results of the present study [16]. Increasing prevalence of psychiatric comorbidities with age can be explained by more persistent course of comorbidities as compared to depression alone, as well as longer course of depressive disorders among old patients [17].

The present study observed that 56.3% with psychiatric comorbidities were males and 68.2% were females but a study has also reported higher prevalence of psychiatric comorbidities among females (82.1%) as compared to males (17.9%) like our study [18]. Evidence suggests, more effect of stress on females than males in similar situations, this may be because of biological and sociocultural factors [17]. Prevalence of psychiatric comorbidities according to the region was 73.2% in rural and 47.4% in urban patients and a meta-analysis studying rural-urban differences in the prevalence of common psychiatric disorders showed that the pooled urban

prevalence rate of psychiatric disorders was higher as compared to rural areas [18] and results were just opposite to the results of the present study that may be because of largely rural population in the present study.

The prevalence of psychiatric comorbidities in the present study according to the religion and marital status was 63.2% among Hindus, 100.0% among Sikh patients, 72.7% among unmarried group, 62.8% among married group, 0.0% among divorced group, and 80.0% was observed among widows. One study reported the prevalence of psychiatric comorbidity of 31.3% among unmarried, 52.2% among married, and 16.5% among divorced/separated or widowed [16]. In the present study, prevalence of psychiatric comorbidities according to the family type, educational status and occupational status was shown in Tables 4, 6, and 7. Since there is a paucity of studies exploring the prevalence of psychiatric comorbidities in depression according to the various sociodemographic characteristics, results of the present study could not be compare with that of other studies.

Analysis of data from the present study regarding the prevalence of different psychiatric comorbidities in patients of depression showed psychiatric comorbidity of suicidality in 23.3%, panic disorder in 11.7%, alcohol use disorders in 6.7%, SUDs (non-alcohol) in 5.0%, and GAD in 48.3%. A study from India on psychiatric comorbidities in patients of depression noted that 32.1% had suicidal risk, 21.1% had anxiety disorders, 6.8% had panic disorder, 4.7% had OCD, 5.3% had GAD, 4.2% had PTSD, and 0.5% had alcohol dependence [16].

Results of our study showed less comorbidity of suicidality and more prevalence of GAD, panic disorder, and alcohol use disorders as compared to the results of the above mentioned study. A study on depression and other comorbid psychiatric disorders in more than 36,000 subjects reported 45.3% SUD, 22.2% alcohol use disorder, 36.4% anxiety disorder, 11.4% panic disorder, and 19.9% GAD were reported among those with current depression [19]. This study showed

higher prevalence of psychiatric comorbidities as compared to the results of present study except higher prevalence of GAD.

In the present study, the prevalence of psychiatric comorbidity of suicidality in patients of depression according to age group was 50.0% in 18–40 years, 42.9% in 41–60 years, and 7.1% in >60 years age group. However, a study of 60 patients documented prevalence of suicidal ideation among 60.0% patients in 16–30 years and 40.0% patients in >30 years age group [20]. Results of this study show higher prevalence of suicidal ideation among younger patients resembling the results of our study.

Prevalence of panic disorders in our study according to the age groups was 71.4% in 18–40 years, 26.6% in 41–60 years, and 0.0% in >60 years age group whereas a survey documented 12.1% prevalence of comorbid panic disorder in 18–34 years, 15.2% in 35–49 years, 19.8% in 50–64 years, and 10.3% in >64 years age group showing progressive increase in prevalence with increasing age till 64 years and showed decrease in >64 years age group [21]. Prevalence of alcohol use disorders in present study was 0.0% in 18–40 years, 75.0% in 41–60 years, and 25.0% in >60 years age group whereas a survey documented 10.9% prevalence of comorbid alcohol use disorder in 18–34 years, 10.4% in 35–49 years, 3.3% in 50–64 years, and 0.0% in >64 years age group showing progressive decrease in the prevalence with increasing age [20]. Prevalence of SUDs (non-alcohol) in the present study was 33.3% in 18–40 years, 66.7% in 41–60 years, and 0.0% in >60 years age group, whereas a community epidemiological survey in developing countries reported 8.6% prevalence of comorbid SUD in 18–34 years, 8.1% in 35–49 years, 4.3% in 50–64 years, and 3.3% in >64 years age group showing progressive decrease in prevalence with increasing age [17] but such decrease in prevalence was not observed in our study.

In our study, the prevalence of GAD was 41.4% in 18–40 years, 44.8% in 41–60 years, and 13.8% in >60 years age group and a community epidemiological survey noted 38.4% prevalence of comorbid anxiety disorder in 18–34 years, 40.5% in 35–49 years, 41.1% in 50–64 years, and 29.8% in >64 years age group showing progressive increase in prevalence with increasing age till 64 years and showed decrease in >64 years age group [17]. Review of the literature showed virtually no research on associations between depression and comorbid mental disorders with age differences [20] so we were not able to compare our data with data from other studies.

In our study, the prevalence of psychiatric comorbidity of suicidality in depression patients according to the gender was 14.3% in males and 85.7% in females and a study documented prevalence of suicidal ideation among 51.7% males and 48.3% females [20] which was higher in males as compare to the present study. Prevalence of psychiatric comorbidities of panic disorder in the present study was 28.6% in males and 71.4% in females, alcohol use disorders were observed in 100.0% males and 0.0% in females. Similar to results of the present study, a study reported comorbid alcohol use disorders among 60.9% men and 28.6% women [22]. In the present study, prevalence of psychiatric comorbidity of SUDs (non-alcohol) was 66.7% in males and 33.3% in females. Prevalence of GAD in the present study was 17.2% in males and 82.8% in females. A study documented significantly higher prevalence of GAD in females and 6.2 times more prone to get comorbid GAD compared to males [23]. Another study showed that females were more likely to have anxiety disorder than males [24]. Evidence suggests that more females than males reported multiple psychiatric comorbidities of depression and anxiety disorders which is similar to results of the present study [25,26] and because of paucity of studies according to the gender groups, data could not be compared.

Among religious groups, prevalence of suicidality, panic disorders, alcohol use disorders, SUDs (non-alcohol), and prevalence of GAD was shown in Table 3. Since there is a paucity of studies in religious groups so we were not able to compare our data with other studies. In

the present study among region and family type groups, prevalence of suicidality, panic disorders, alcohol use disorders, SUDs (non-alcohol), and psychiatric comorbidity of GAD was shown in Table 4. Since there is a paucity of studies related to region as well as family type groups, so we were not able to compare our data with other studies. Data from the present study on the prevalence of psychiatric comorbidity of suicidality according to the marital status were 35.7% among unmarried, 50.0% in married, 0.0% in divorced group, and 14.3% in widowed group, whereas a study reported suicidal ideation among 73.3% married and 26.7% unmarried patients [21] which was almost similar to the results of the present study.

In the present study, panic disorders, alcohol use disorders, SUDs (non-alcohol), and GAD according to the marital status were shown in Table 5. Since there is paucity of studies according to the marital status, so it was not possible to compare the results of the present study with other studies.

Prevalence of suicidality in the present study was 21.4% in illiterate group, 14.3% in below matric group, 28.6% in matric group, 7.1% in higher secondary group, 28.6% in graduate group, and 0.0% in postgraduate group. Whereas another study documented psychiatric comorbidity of suicidal ideation according to educational status to be 35.0% among below matric subjects and 65.0% among subjects with above matric educational status.[21]. Prevalence of panic disorders, alcohol use disorders, SUDs (non-alcohol), and GAD according to the educational status was shown in Table 6. Since there is a paucity of studies on the prevalence of psychiatric comorbidities according to the educational status, so it was not possible to compare the present data with other studies.

In the present study according to the occupational status, prevalence of suicidality, panic disorders, alcohol use disorders, SUDs (non-alcohol), and GAD according to the occupation status is shown in Table 7. Since there are a paucity of studies according to the occupation status, so we were not able to compare our data with data from other studies. Knowledge about comorbidities is important in clinical practice, health-care policies and planning, new research hypotheses, and management of index disease as well as comorbid conditions especially because the presence of psychiatric comorbidities may modify the clinical symptomatology and course of depression but how comorbidities modify the clinical outcomes in depression is still not known and is a matter of further research. Existing data suggest that psychiatric comorbidities may cause increased economic and public health-care delivery system burden, poorer clinical outcomes, risk of rehospitalization or relapse, violence, adverse life events, family discord, suicide or increased medical comorbidity, or homelessness [8,9]. Experts stressed on the need and importance of management of psychiatric comorbidities as integral part of the management of depression and recommend individualized management of depression and its comorbidities Our study has added some data to the existing scarce Indian data documenting higher prevalence of psychiatric comorbidities among patients of depression.

Limitations

Our study also has some noteworthy limitations. Our study population may not have represented the actual community data because of small sample size, predominantly women and the tertiary care institute. The study provides profile of psychiatric comorbidities without exploring their relationships with depression, which is probably much more complex. Probably, the prospective study was needed with large sample size.

CONCLUSION

The present study documented 65% prevalence of psychiatric comorbidities among patients of depression including GAD, suicidality, panic disorders, alcohol use disorders, and SUDs (non-alcohol) of decreasing prevalence with highest prevalence of GAD. Data analysis of our study did not show any statistically significant association

between the sociodemographic characteristics and all the psychiatric comorbidities except alcohol use disorders which showed statistically significant association with occupations, but higher prevalence of psychiatric comorbidities was observed in age group of 41–60 years, females, rural patients, Sikh religion, widowed, joint families, postgraduates, teachers, and students.

Since existing evidence suggests the adverse clinical implications of coexisting psychiatric comorbidities in depression and requiring long-term treatment leading to increased economic and public healthcare burden, it becomes more important to appropriately recognize, diagnose, and manage depression and associated psychiatric comorbidities. Data of our study will contribute to enrich the India specific data on psychiatric comorbidities in depression and help formulate India specific mental health policies.

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