ORIGINAL ARTICLE

DEPRESSION AND ASSOCIATED FACTORS: A CROSS-SECTIONAL STUDY USING BECK DEPRESSION INVENTORY

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Background: Mental health disorders are becoming an increasingly common occurrence worldwide and present a major public health concern. Depression has been recognized as a major contributor in mental health disability burden. This study aims to determine the frequency of depression among individuals presenting at a rural health facility in Lahore and to identify the risk factors associated with it. **Methods:** A cross sectional study was conducted at Rural Health Centre Kahna Nau, Lahore from January to April 2017. A sample of 384 consenting individuals presenting at the rural health facility were selected through consecutive sampling technique. Beck Depression Inventory (BDI), was used to assess the level of depression amongst the respondents. We categorized the BDI score for this study into BDI ≥20 as "depressed" and BDI <20 as "non-depressed". Data was entered and analysed by using SPSS 16.0. Chi-square test was carried out to identify factors associated with depression, significant at a *p*-value of ≤0.05. **Results:** Out of total, 258 (69.5%) respondents were males with 197 (53%) in age category of 25–44 years. BDI scale showed 84 (23%) respondents to be suffering from depression. Age (*p*=0.002), income (*p*=0.003), marital status (*p*=0.023), educational status (0.011), family structure (*p*=0.041), history of hospitalization (*p*=0.003), smoking status (0.012) and co-morbidity (*p*=0.001) were significantly associated with depression. **Conclusion:** Our study found a substantial proportion of patients' who were suffering from depression. Age, income, marital status, educational qualification, family structure, co-morbidity and smoking status were significantly associated with depression.

Keywords: Depression; Rural health centre; Beck Depression Inventory; Mental health

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INTRODUCTION

Mental health disorders are becoming an increasingly common occurrence worldwide and present a major public health concern. In the most recent World Health Organization Global Burden of Disease Study 2010 (GBD 2010) mental, neurological, and substance abuse disorders accounted for 10.4% of global disability-adjusted life years (DALYs), 2.3% of global years of life lost (YLLs) and 2.8% of global years lost due to disability (YLDs), making them the leading cause of YLDs. Of this, mental disorders alone accounted for 56.7% of DALYs.[1] Of the prevalent mental health disorders, depression in particular has been recognized as a major contributor to the disability burden incurred due to mental illnesses evidenced by its current ranking of being the second leading cause of disease burden by YLD.[2] It also accounts for 24.5% of mental, neurological, and substance use DALYs, making it the leading cause in its category.[1]

In developing countries 10–44% people suffer from depression and anxiety disorders, less than 35% receive care and according to an estimate 50.8 million people suffer from major depression.[3] Many studies in Pakistan show high prevalence of anxiety and depression; Mirza and Jenkins declared mean prevalence of anxiety and depression in community studies to be 34%.[4] This presents a particular challenge for low income countries, like Pakistan, where there is a dearth of basic health facilities, and infectious diseases and malnutrition are still widespread.[5] Depression is also an important disorder because of the enormous burden that it places on the economy if not dealt with systematically.[6] As it is, only a small percentage of the gross national product (GNP) is allocated towards health services in Pakistan of which only 0.4% is allotted for mental health, a rather unsubstantial amount.[7]

A number of different epidemiological studies have been carried out in the past to assess the prevalence rates of depression in Pakistan, however they have all yielded conflicting results and shown a considerable selection bias. Various factors have been identified which predispose an individual to depression, including low level of education, poverty, extended family structure and occupational status.[8] Residing in rural area, female gender, early marriage and hostile in laws are other contributing factors.[9] This study aims to determine the frequency of depression among individuals presenting at a rural health facility in Lahore and to identify the risk factors associated with it so that interventions can be developed accordingly.

MATERIAL AND METHODS

A cross sectional study was conducted at Rural Health Centre Kahna Nau, Lahore from January to April 2017. A sample size of 384 was calculated using the proportion of depressed individuals in Lahore as 53.4%,[3] level of significance (α) equal to 0.05, at 5% margin of error and 95% confidence interval. We

selected 384 individuals presenting at the rural health facility through consecutive sampling technique. Individuals who were willing to participate in the study after giving informed consent were included in the study. Additionally, inclusion criteria included freedom from debilitating disease or mental health issue, which would render data collection difficult/impossible or uncomfortable for the participant. The researcher themselves interviewed the respondents for data collection.

The questionnaire used for data collection had two parts; one included variables pertaining to socio-demographics of the respondent, their smoking history, history of imprisonment and co-morbidities. The second part included Urdu version of Beck Depression Inventory (BDI), which was to help assess the level of depression amongst the respondents. The Urdu version of BDI has been reported to have good psychometric properties for assessing depression and comorbid disorders among the general population of Pakistan across various cultures.[10] It has 21-items addressing somatic and affective aspects. These items relate to the domains of sadness, hopelessness, feeling of guilt, changes in sleep, and appetite. Responses to the 21 items are made on a 4-point scale, ranging from 0–3 with an instrument range of 0–63. BDI assesses depression over the previous two weeks. The total score of 21 responses was added and interpreted as follows: 1–10 meant normal, 11–16 meant mild mood disturbance, 17–20 meant borderline clinical depression, 21–30 meant moderate depression, 31–40 meant severe depression and over 40 meant extreme depression. We categorized the BDI score for this study into BDI ≤20 as "depressed" and BDI <20 as "non-depressed".[11] Data was entered and analysed by using SPSS 16.0. Chi-square test was carried out to identify factors associated with depression, significant at a *p*-value of ≤0.05.

Before conducting the study, approval was sought from the administration of the rural health centre, Kahna Nau. Confidentiality and anonymity of data was ensured to the respondents.

RESULTS

Of the 384 respondents, data from 371 questionnaires were analysed as 13 questionnaires had to be discarded due to missing information. Majority 258 (69.5%) respondents were male, belonged to 25–44 years age category 197 (53%), were married 248 (67%), had matric level of education 101 (27%) and had a monthly income between Rs. 10,001 to Rs. 25,000. (Table-1)

The assessment of depression was undertaken using Beck Depression Inventory, which showed 84 (23%) respondents to be suffering from depression as is shown in figure-1.

We investigated the respondents' lifestyle characteristics and co-morbidity status. It was found that a greater proportion of respondents had never smoked 254 (68%), whereas 59 (16%) used to smoke and an approximately equal proportion, i.e., 58 (16%) were current smokers. Their history of co-morbidity was elicited, and respondents were found to have hypertension (64/118, 17%), diabetes (23/118, 6%) and co-infection of hypertension and diabetes (14/118, 4%). (Table-2) We tried to identify factors associated with depression among our respondents. Age (p=0.002), income (p=0.003), marital status (p=0.023), educational status (0.011), family structure (p= 0.041), history of hospitalization (p=0.003), smoking status (0.012) and co-morbidity (p=0.001) were significantly associated with depression. (Table-3)

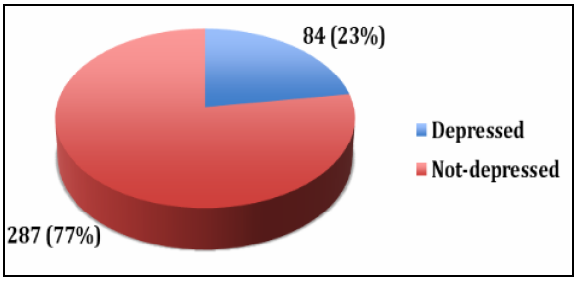

Figure-1: Frequency of depression among 371 respondents assessed using Beck Depression Inventory

Table-1: Socio-demographic profile of 371 individuals presenting at Rural Health Centre Kahna Nau, Lahore between January to April 2017

Characteristic	Number (n=371)	Percentage
Gender		
Male	258	69.5
Female	113	30.5
Age Category (years)		
16–24	91	25
25–44	197	53
45–64	78	21
65 and above	5	1
Marital status		
Unmarried	111	30
Married	248	67
Widow	6	1.5
Divorced	6	1.5
Educational Status		
Illiterate	74	20
Primary	70	19
Matric	101	27
Intermediate	77	21
Bachelors	45	12
Master and above	4	1
Family structure		
Nuclear	164	44
Extended	164	44
3rd generation	43	12
Income status (Rupees)		
No income	67	18
1–10,000	46	12
10,001–25,000	204	55
Above 25,000	54	15

Table-2: Lifestyle characteristics and co-morbidity status of 371 individuals

Characteristic	Number	Percentage
Smoking status		
Current	58	16
Used to	59	16
Never	254	68
History of imprisonment		
Yes	8	98
No	363	2
History of drug intake		
Yes	7	98
No	364	2
History of co-morbidity (118 respondents who gave history of co-morbidity)		
Hypertension	64	17
Diabetes	23	6
Hypertension & diabetes	14	4
Others	17	5
History of hospitalization		
Yes	77	21
No	294	79

Table-3: Factors associated with depression among 371 individuals

Factors	Respondents with depression n= 84	Respondents without depression n= 287	Total n= 371	*p*-value
	n (%)	n (%)	n (%)	
Male	62 (24)	196 (76)	258 (70)	0.334
Female	22 (20)	91 (80)	113 (30)	
Age category (in years)				
16–24	15 (16)	76 (84)	91 (25)	0.002*
25–44	38 (19)	159 (81)	197 (53)	
45–64	28 (36)	50 (64)	78 (21)	
65 and above	3 (60)	2 (40)	5 (1)	
Income category (Rs)				
No income	12 (18)	55 (82)	67 (18)	0.003*
1–10,000	20 (44)	26 (56)	46 (12)	
10,001–25,000	44 (22)	160 (78)	204 (55)	
Above 25,000	8 (15)	46 (85)	54 (15)	
Unmarried	53 (21)	195 (79)	248 (66)	0.023*
Married	24 (22)	87 (78)	111 (30)	
Widow	3 (50)	3 (50)	6 (2)	
Divorced	4 (67)	2 (33)	6 (2)	
Educational status				
Illiterate	29 (39)	45 (61)	74 (20)	0.011*
Primary	13 (19)	57 (81)	70 (19)	
Matric	19 (19)	82 (81)	101 (27)	
Intermediate	15 (19)	62 (81)	77 (21)	
Bachelors	7 (15)	38 (84)	45 (12)	
Masters and above	1 (25)	3 (75)	4 (1)	
Family structure				
Nuclear	28 (17)	136 (83)	164	0.041*
Extended	47 (29)	117 (71)	164	
3rd generation	9 (21)	34 (79)	43	
History of hospitalization				
Yes	27 (35)	50 (65)	77	0.003*
No	57 (19)	237 (81)	294	
Smoking status				
Current smokers	13 (22)	45 (78)	58	0.012*
Used to	22 (37)	37 (63)	59	
Never	49 (19)	205 (81)	254	
History of co-morbidity				
Hypertension	17 (27)	47 (73)	64	0.001*
Diabetes	5 (22)	18 (78)	23	
Hypertension & diabetes	6 (35)	11 (65)	17	
Others	47 (19)	206 (81)	253	
None	9 (64)	5 (36)	14	
History of drug intake				
Yes	3 (43)	4 (57)	7	0.197
No	81 (22)	283 (78)	364	

*Significant at $p \leq 0.05$

DISCUSSION

With the changes in social fabric and burdening economic challenges, mental health disorders are on the rise. Depression has been recognized as a major contributor in mental health disability burden. People with chronic diseases are especially at risk of developing depression.[12] Patients in primary care with undiagnosed mental disorders especially depression leads to unnecessary medications, investigation and delayed clinical cure.[13] This study was carried out to estimate the frequency of depression and its associated risk factors in patients presenting at primary health care facility of Lahore

In this study, 23% of the patients were found to be suffering from depression. This observation lies well within the range of findings of multiple studies which suggest that prevalence of depression among patients presenting to primary health care facility lies between 22–40%.[14–18]

This study didn't reveal any significant difference in gender distribution of depression. This finding is contrary to many studies which suggest that depression is more common in females as compared to males.[19–22] The extant of gender differences in depression rates depends on family and work roles among other and this can be the reason for deviation from the findings of other studies. However, these roles were not explored in this study.

Our study indicates that people who were living in extended family had significantly higher rates of depression. This finding is consistent with the studies conducted in similar settings which suggests that people living in extended family types have four times more likely to develop depression as compared to nuclear family.[23,24] This may be due to the fact that the perceived effect of extended kin support does not buffer the chronic stressor which ultimately leads to depression.

The findings of this study suggest that as the age progressed, the prevalence of depression increased correspondingly with highest prevalence (60%) in 60 and above age group. This finding is supported by earlier studies, which also suggested that depression is more common in geriatric population.[25]

Unemployment and resulting economic outcomes have shown to be a strong risk factor for depression.[14] It was observed that the people earning less than 10,000Rs were having significantly higher rate of depression. In present study, depression was detected significantly more in those outdoor patients who were either divorced or widowed. These findings corresponded with other studies in which these two factors were found to have significant association with depression.[26,27]

CONCLUSION

Our study found a substantial proportion of patients' who were suffering from depression. Age, income, marital status, educational qualification, family structure, co-morbidity and smoking status were significantly associated with depression. It is recommended that these patients should be appropriately treated and counselled. Also, patients should be screened for depression in the health facilities to prevent family, social and occupational dysfunction resulting from depression.

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AUTHORS' CONTRIBUTION

HA contributed to conception and design of the work, acquisition, analysis and interpretation of data. NM contributed to analysis and interpretation of data and write up. SS contributed to write up and approval of final version. FM contributed to conception of work, analysis of data, revised the work for intellectual content and approved the final version to be published.

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