

Correlates of Severity of Depression in Different Geographical Regions of Pakistan

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ABSTRACT

Objective: To access the Severity of Depression and cognitive impairment in different Geographical Regions of Pakistan

Methodology: A prospective observational study was undertaken as a subsidiary of a multicentered study conducted between April to October 2018 at 2019 in psychiatric clinics all over Pakistan. Patients presented to the outpatients departments at study sites across PAKISTAN were assessed for depression severity using Patient Health Questionnaire-9 (PHQ-9). Each patient was assessed for cognitive impairment as well. The perceived deficits questionnaire (PDQ) was used to assess the degree of impairment. A total of 820 patients were a part of this study.

Results: The highest frequency of mild depression was seen in Punjab (0.90%) whereas the highest frequency of moderate depression was seen in KPK(47.20%), Moderately Severe depression in Azad Kashmir (65.70%) and Severe depression in Punjab (40.90%) respectively. The mean perceived cognitive dysfunction scores in Punjab, Sindh, Balochistan, KPK, Azad Kashmir were 52.63 ± 12.77 , 48.45 ± 12.482 , 51.85 ± 9.207 , 49.92 ± 16.848 , and 45.16 ± 14.615 respectively.

Conclusion: Punjab had a significantly higher incidence of severe depression as compared to other provinces. Lowest incidence of severe depression was found in the Azad Kashmir population

Keywords: depression, Pakistan, cognitive dysfunction, Patient Health Questionnaire-9 (PHQ-9).

INTRODUCTION

Depression has been acknowledged as one of the major public health concerns and is ranked fourth in the estimates of the global burden of disease (GBD).^{1,2} Around the world, approximately 450 million individuals are suffering from some kind of mental or behavioral illness. Moreover, neuropsychiatric disorders and unipolar depressive disorders contribute 33% and 13 % to the years of life lived with disability (YLD), respectively. The latter one is ranked as the third leading player as per the GBD reports of 2001.^{3,4}

In low-income countries, 10 to 44% of individuals suffer from anxiety and depression while more than 50 million people are suffering from major depression. In comparison, the proportion of people receiving mental health care remains significantly low i.e., less than 35%.^{5,6} Among these regions, one of the examples is Pakistan, a fifth most populated country yet ranked as thirty-fourth in terms of the geographical area.^{5,6}

Mood disorders, such as major depressive disorder (MDD) and bipolar disorder (BD), are well-known attributes of cognitive impairment. It is critical to address the characteristics of cognitive impairment, which are strongly correlated with poor functional prognosis, to improve patient outcomes associated with work and education.⁷

There are not many studies in Pakistan exploring the prevalence of cognitive dysfunction in patients with

depression. Therefore, the content study is planned to evaluate the matter comprehensively. The present study evaluated the association between cognitive impairment with depression.

METHODS AND MATERIALS

Patients presented to the outpatients departments at study sites across PAKISTAN were assessed for depression severity using Patient Health Questionnaire-9 (PHQ-9). Each patient was assessed for cognitive impairment as well. The perceived deficits questionnaire (PDQ) was used to assess the degree of impairment. A total of 820 patients were a part of this study.

The estimated sample size determined for the stipulated prevalence at a 95 percent confidence interval was 236. The frequency of confirmed cases of depression in Karachi was taken as 8.6% with a population of 10 million, the level of significance equals 0.05, and the bound of error is 5 percent (variance as from the actual value).

For Quetta, using the same confidence interval, bound of error, and level of significance, the sample size calculated is 200; for the prevalence of depression as 9% in the population of 300,000 individuals.

Likewise, the frequency of depression cases in Lahore was taken as 50%, with a population of 6,563,000. Using the level of significance of 0.05, and bound of error of 5%; the sample size estimated was 384 for the specified

prevalence at the 95 % confidence interval. As a result, the total estimated sample size was determined to be 820. The variation in frequencies is attributable to disparities in prevalence estimates in multiple cities based on official statistics. Three distinct cities were investigated sequentially, and a representative sample was computed using a software program.

All patients with diagnosed depression as per ICD 10 Criteria, who were above the age 18 years, gave consent to take part in the study were eligible for the study. Patients with a history of traumatic brain injury, aged < 18 years were excluded from the study.

Patients presenting to the outpatients department were assessed for depression severity using Each patient was assessed for cognitive impairment. The perceived deficits questionnaire (PDQ) was used to assess the degree of impairment.

Patient Health Questionnaire-9 (PHQ-9) was used for the assessment of depression while the cognitive impairment was assessed using perceived deficits questionnaire (PDQ). The Perceived Deficits Questionnaire – Depression (PDQ-D) is a brief patient-rated scale to

assess subjective cognitive dysfunction in people with depression. It has since been adapted and validated for use in patients with major depressive disorder.⁹

All the data was analyzed using Statistical Package for Social Sciences (SPSS) version 26. Results were presented via tables and graphs. Descriptive statistics were used to calculate mean and standard deviation (SD) for age of patients, PHQ-9 scores, cognitive dysfunction, duration of illness, etc. Frequency (%) was calculated for severity of depression, degree of cognitive impairment, gender, education, marital status, and job status, and comorbidities, etc. Association between severity of depression and geographical variables and cognitive dysfunction was explored using chi square tests and an independent t test. A p-value of < 0.05 was considered as statistically significant.

Before the initiation of this study, ethical approval was obtained from the ethics committee of Jinnah Postgraduate Medical Centre and informed consent was obtained from each individual.

RESULTS

Table 1: The severity of depression in different geographical regions of Pakistan

	Punjab	Sindh	Balochistan	KPK	Azad Kashmir	P-value
Mild Depression	12 (0.90%)	7 (1.50%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	<0.001
Moderate Depression	346 (27.40%)	136 (28.80%)	84 (30.80%)	152 (47.20%)	51 (19.20%)	
Moderately Severe	389 (30.80%)	183 (38.70%)	110 (40.30%)	93 (28.90%)	174 (65.70%)	
Severe Depression	517 (40.90%)	147 (31.10%)	79 (28.90%)	77 (23.90%)	40 (15.10%)	

Table 2: Perceived Cognitive Dysfunction Scores in different geographical locations according to the severity of depression. (higher value means more cognitive dysfunction, a cut score of 40 PDQ is used as the threshold for the 'risk range'.)

	Punjab	Sindh	Balochistan	KPK	Azad Kashmir
Mild Depression	26.08 ± 5.95	33.14 ± 22.64	-	-	-
Moderate Depression	30.16 ± 9.97	32.26 ± 12.11	32.19 ± 10.60	25.53 ± 12.92	30.86 ± 12.57
Moderately Severe	36.69 ± 11.55	40.07 ± 13.481	41.37 ± 8.42	35.86 ± 13.38	45.87 ± 12.06
Severe Depression	52.63 ± 12.77	48.45 ± 12.482	51.85 ± 9.207	49.92 ± 16.848	45.16 ± 14.615
Total	41.32 ± 15.183	40.33 ± 14.381	41.58 ± 12.036	34.34 ± 17.109	43.07 ± 13.756
p-value	<0.001	<0.001	<0.001	<0.001	<0.001

Punjab had a significantly higher incidence of severe depression as compared to other provinces. Lowest incidence of severe depression was found in the Azad Kashmir population (p<0.001) (table 1).

It was found that perceived cognitive dysfunction score was directly correlated with the severity of depression. The more severe the depression, the higher the score was for perceived cognitive dysfunction. The mean perceived cognitive dysfunction scores in Punjab, Sindh, Balochistan, KPK, Azad Kashmir was 52.63 ± 12.77, 48.45 ± 12.482, 51.85 ± 9.207, 49.92 ± 16.848, and 45.16 ± 14.615 respectively (table 2).

Graphical representation of severity of depression in different geographical regions of Pakistan is portrayed in figure 1.

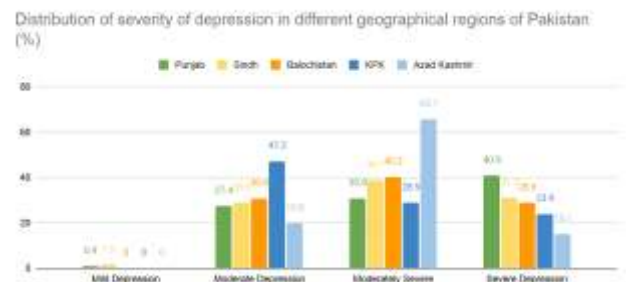


Figure 1: Distribution of severity of depression in different geographical regions of Pakistan

DISCUSSION

Mental illnesses have been known to be a social and economical burden on society worldwide.¹⁰ Pakistan being

number six on the most populated cities of the world and around 60% of the population suffers from anxiety and depression.¹¹ In our study we found that severity of depression was significantly associated with decreased cognitive function. Higher cognitive dysfunction was seen with severe depression in the province of Punjab. Moderately severe depression was highest in Azad Kashmir, moderate depression was highest in KPK and mild depression was most commonly seen in Sindh.

A previous study by Knight et al. reported that cognitive dysfunction affects individuals with major depressive disorder by interrupting their social and emotional functioning.¹² Other studies and clinical trials (Souza et al. and van Sloten et al.) suggest that symptoms of cognitive dysfunction are primary outcomes of pharmacological and psychological treatments.^{13,14} Similarly, the effect of cognitive dysfunction is significantly associated with the length of illness and number of depressive episodes.^{15,16} Moreover, McIntyre et al. also suggested that patients with severe depression most commonly present with cognitive dysfunction and compared to patients who have symptoms of mild depression.¹⁶ A clinical trial was conducted by McIntyre et al. on the validation of the THINC-it (THINC-Integrated tool) for assessing clinical dysfunction in patients with major depressive disorder.¹⁷ In this study, 44.4% of patients with major depressive disorder had their cognitive performance at >1.0 standard deviation below standard average scores of THINC-it. Another study by Kessing et al. implies that unipolar depression is linked to a high risk of patients developing dementia which is also known as the last stage of cognitive impairment.¹⁸

We also found significantly high rates of severe depression in the province of Punjab and lower rates in Azad Kashmir. A recent study was conducted in Bangladesh on the prevalence of depression amongst university students.¹⁹ Almost half of the student population were found to have moderate to severe depression symptoms, which was similar to our study. This was different from a study by Das et al. where women in Uttarakhand were found to have a higher burden of depression as compared to men, almost twice in number.²⁰ Higher rates were seen in middle-aged women who lived in joint families and abusive households. This was also the case in a study done by Ehsan TA et al. which found the highest rates of depression in multiparous women who were unemployed and came from low income households.²¹

Another study was conducted in China on the prevalence of depression in Chinese children.²² Just like our results, the prevalence of depression was different in various demographic areas of China. Depressive symptoms were found to be lower in urban settings as compared to rural areas. The authors also argued that children who came from poor backgrounds, ethnic minorities and had a history of depression from either parent were more likely to be depressed.

CONCLUSION

Punjab had a significantly higher incidence of severe depression as compared to other provinces. Lowest incidence of severe depression was found in the Azad

Kashmir population. Cognitive dysfunction was significantly associated with severe cognitive deficits.

Future studies should also explore the risk factors for mental illness among different geographical areas of Pakistan and devise some strategies on countering the increasing trend of mental illness in the region.

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