

Assessment of Depression and its Risk Factors among the Selected Districts of Punjab and Khyber Pakhtunkhwa Provinces of Paksitan

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ABSTRACT

Background: Worldwide, depression affects approximately 2% to 25% of individuals is a common non-communicable disease. Moreover, depression showed significant relationship with medical conditions, tobacco smoking, diet intake, lifestyle habits, and exercise.

Objective: This study was conducted to estimate the frequency of depression and its determinants among selected districts of Punjab and Khyber Pakhtunkhwa provinces of Pakistan.

Study Design: A Cross Sectional Descriptive Study

Place and Duration of Study: Selected districts of Punjab and Khyber Pakhtunkhwa from December 2019 to March 2020.

Methodology: A cross sectional study was conducted among the selected districts of Punjab and Khyber Pakhtunkhwa i.e. Peshawar, Nowshera, Multan & Dera Ghazi Khan, in which a total of 440 adults were selected through convenience sampling technique, based on 95% confidence interval, with 5% precision for a cross sectional study. Therefore 110 individuals from the selected districts were interviewed and assessed for depression on Physical Health Questionnaire -9 (PHQ-9). Moreover, WHO severity grades was used for calculating the severity. Finally, SPSS version 23.0 was used for description of data and analysis and thus finally tables were used for presentation of study results.

Results: Results showed that 52.95% had depression based on PHQ-9. 42.50% were found to have mild depression, 7.95% had moderate depression and 2.5% (n=) had severe depression. Moreover, approximately, 23.18% were victim of abuse/ neglect, 12.73% had history of trauma, 21.07% reported failures in exam, 17.73% had positive medical history, 49.32% were not taking healthy diet, and 58.86% were not involved in physical exercise.

Conclusions: It was concluded that the frequency of depression among the studied districts was high and showed significant relationship with common risk factors of depression i.e. medical conditions, tobacco smoking status, healthy food intake, exercise, and physical exercise etc. Moreover, the depression also showed strong relationship with history of flood, terrorism, and alcoholism and thus medical and rehabilitative services were suggested to control depression among the studied communities.

Keywords: Prevalence, Risk Factors, Depression, flood, alcoholism, Pakistan

INTRODUCTION

Worldwide, among the developed and developing countries, depression is a non-communicable disease with significant determinants and attributed to morbidity and mortality [1, 2]. Mental disorders affect a significant number of populations throughout the globe [3, 4]. Beside the environmental, behavior, and genetic factors; major depression showed high prevalence among the socially compromised populations [5]. Moreover, major depression showed significant relationship with socio-economic status, food, malnutrition and basic facilities availability [6, 7]. Moreover, in a study published by researchers from China revealed the same mild, moderate and high degree of depression and in a similar study 12% to 16% of depression was found in a community level study. Furthermore, depression showed significant association with socio-economic instability, mental problems/ issues, and individuals using drugs for medical problems [8, 9]. In a study conducted internationally, it was revealed that approximately 17.9% of the individuals are affected by depression and the frequency is on rise due to its multi-factorial causation of etiology [10].

Worldwide, approximately 3.9% of individuals are having any one type of major or and minor metal disorder [11]. Moreover, depression showed strong association with medical conditions and depression is high among individuals having cardiovascular issues [12]. Furthermore, it showed strong significant relationship with gender, abuse, drug use, and increasing age [13].

Patients receiving interferon for hepatitis C are at higher risk to have depression both chronic hepatitis c and chronic hepatitis b patients have some degree of depression [14, 15]. A strong association of gender, conduct issue, physical trauma, tobacco cigarette smoking, liquor/ alcohol utilization, and sadness was reported with depression development was reported in numerous worldwide studies [16, 17]. In a study conducted in Zurich; it was found that mental illnesses differed by sex, with females reported higher rates of mood, anxiety and phobic disorder, and males higher rates of substance and alcohol related disorders [18, 19]. The prevalence and incidence of depression is also among the female gender, due to vast number of factors like obesity, low socio-economic status, neglected gender, illiteracy, abuse and trauma etc[20, 21]. The association between sexual violence and depression is well known, and forced sex is associated with adverse mental health outcomes among women [22].

Several studies indicated that women victims of intimate partner violence are at increased risk of mental illnesses and new-onset depression and victims of partner violence account for high

prevalence of depression when compared to non-violence partners [23]. In a research study published in 2010, found that due to injectable drug usage, mental problems, compromised socio-economic status, medical conditions and behavioral problems, the anxiety, depression and other mental health problems showed high prevalence i.e. 22%, 39.5% and 61.45% among high, middle and low income countries [24]. Therefore, strategies relevant to individuals as well at the population levels are of significant importance regarding the control and prevention of mental illness and problems [25].

Pakistan being a low income country and is facing the double burden of diseases. Due to the presence of all significant determinants of depression, this descriptive study was planned and successfully carried out to estimate the frequency and important factors among the selected districts of Punjab and Khyber Pakhtunkhwa provinces of Pakistan; and to suggest measures for control and prevention of depression at the community's level.

METHODOLOGY

After taking approval from the Ethical Review Committee, and informed written consent from the studied population, a cross-sectional descriptive study was conducted among the selected districts of Punjab and Khyber Pakhtunkhwa provinces of Pakistan i.e. Multan and Dera Ghazi Khan Districts from Punjab, & Peshawar and Nowshera districts from Khyber Pakhtunkhwa province of Pakistan. The total study duration was five months i.e. from December 2019 to March 2020. A total of 440 sample size was selected based on 95% confidence interval, and 5% precision and 50% prevalence, and thus 110 individuals were selected from each of the districts. A convenience Sampling Technique was for the collection of data from the respondents. The Patient Health Questionnaire-9 (PHQ-9) was used for collection of information from the study population. An individual was said to be depressed, if he/ she completed the PHQ-9 Quick Depression Assessment; were categorized as mild. Moderate and severe depression if the PHQ-9 Scores calculated were 1-9, 10-14, and 15-27 respectively. Moreover, a self-structured questionnaire was also used to estimate the risk factors among 440 individuals. Data were also collected for preliminary information i.e. age, sex, monthly income, type of occupation, education status, marital status, number of children, family history, knowledge & attitude regarding depression, life style activities, smoking, diet, & alcohol etc. For statistical purposes, Microsoft Word office 2010 and SPSS version 23.0, help was taken and tables were used for results presentation.

RESULTS

Table No1.Frequency Of Various Levels Of Depression Among The Selected Districts Of Punjab &Khyber Pakhtunkhwa Provinces of Pakistan (N= 440)

S.No	Degrees of Depression	Multan	Dera Ghazi Khan	Peshawar	Nowshera	Frequency (%)
A	No Depression	42	71	31	63	207 (47.05)
B	Depression	68	43	79	47	233 (52.95)
i	Mild Depression	44	30	51	27	187 (42.5)
ii	Moderate Depression	21	11	23	15	35 (7.95)
iii	Severe Depression	3	2	5	1	11 (2.5)
	Total	110	110	110	110	440

Table No .2. Demographics of Study Participants Among The Selected Districts Of Punjab &Khyber Pakhtunkhwa Provinces of Pakistan (N= 440)

Variable	Response	Depression F (233) (%)	No Depression F(207)(%)
Age in years	18-27	97 (22.05)	75 (17.05)
	28-37	39 (8.86)	53 (12.05)
	38-47	71 (16.14)	60 (13.64)
	48 & above	26 (5.91)	19 (4.32)
Gender	Male	187 (42.50)	175 (39.77)
	Female	46 (10.45)	32 (7.27)
Occupation	Labor	63 (14.32)	85 (19.32)
	Govt servants	91 (20.68)	59 (13.41)
	Housewife	13 (2.95)	8 (1.82)
	Students	56 (12.73)	26 (5.91)
	Others	10 (2.27)	29 (6.59)
Educational status	Literate	175 (39.77)	153 (34.77)
	Illiterate	58 (13.18)	54 (12.27)
Monthly Income	< 15000	105 (23.86)	82 (18.64)
	15000-30000	54 (12.27)	39 (8.86)
	30000-45000	43 (9.77)	51 (11.59)

	45000 & Above	31 (7.05)	35 (7.95)
Marital Status	Married	137 (31.14)	152 (34.55)
	Unmarried	96 (21.82)	55 (12.50)
BMI	Underweight	13 (2.95)	7 (1.59)
	Normal	125 (28.41)	133 (30.23)
	Overweight	72 (16.36)	38 (8.64)
	Obese	23 (5.23)	29 (6.59)
Family Setup	Joint	165 (37.50)	133 (30.23)
	Separate	68 (15.45)	74 (16.82)
Locality	Rural	58 (13.18)	97 (22.05)
	Urban	175 (39.77)	110 (25.0)

Table No .3. Determinants of Study Participants among the Selected Districts Of Punjab &Khyber Pakhtunkhwa Provinces of Pakistan (N= 440)

Variable	Depression (n=233) (%)	No Depression (n=207) (%)	Total (%)	X²Value (p value)
Taking healthy diet	94 (21.36)	129 (29.32)	223 (50.68)	21.17* (0.00001)
No healthy diet	139 (31.59)	78 (17.73)	217 (49.32)	
Any medical problem	57 (12.95)	21 (4.77)	78 (17.73)	15.4* (0.00008)
No medical problem	176 (40.0)	186 (42.27)	129 (29.32)	
Smoking	113 (25.68)	76 (17.27)	189 (42.95)	(6.21* (0.0126)
Not Smoking	120 (27.27)	131 (29.77)	251 (57.05)	
Drink alcohol	15 (3.41)	2 (0.45)	17 (3.86)	8.83* (0.00295)
No history	218 (49.55)	205 (46.59)	423 (96.14)	
Any other drug addiction	95 (21.59)	9 (2.05)	104 (23.64)	80.57* (0.00001)
No other drug addiction	138 (31.36)	198 (45.0)	336 (76.36)	
Victim of any abuse/ neglect	79 (17.95)	23 (5.23)	102 (23.18)	31.98* (0.00001)

No history	154 (35.0)	184 (41.82)	338 (76.92)	
Exercise regularly	49 (11.14)	132 (30.0)	181 (41.14)	82.68* (0.00001)
Not active	184 (41.82)	75 (17.05)	259 (58.86)	

* The Chi Square Test Values are more than the table value (3.84); thus reject the null hypothesis.

Table No .4. Determinants of Study Participants among the Selected Districts Of Punjab &Khyber Pakhtunkhwa Provinces of Pakistan (N= 440)

Variable	Depression (n=233) (%)	No Depression (n=207) (%)	Total (%)	X²Value (p value)
History of trauma	41 (9.32)	15 (3.41)	56 (12.73)	10.57* (0.00114)
No history	192 (43.64)	192 (43.64)	384 (87.27)	
Taking any medicine	93 (21.14)	21 (4.77)	114 (25.91)	50.6* (0.00001)
No	140 (31.82)	186 (42.27)	326 (74.09)	
Sleep problem	91 (20.68)	27 (6.14)	118 (26.82)	37.79* (0.00001)
No sleep problem	142 (32.27)	180 (40.91)	322 (73.18)	
Affected by flood	57 (12.95)	41 (9.32)	98 (22.27)	1.37** (0.241)
Not affected by flood	176 (40.0)	166 (37.73)	342 (77.73)	
Affected by terrorism	32 (7.27)	13 (2.95)	45 (10.23)	6.63* (0.01)
Not affected by terrorism	201 (45.68)	194 (44.09)	395 (89.77)	
Failure in love	38 (8.64)	10 (2.27)	48 (10.91)	14.85* (0.0001)
No history	195 (44.32)	197 (44.77)	392 (89.09)	
Failure in exam	47 (10.68)	19 (4.32)	66 (15.0)	10.38* (0.0012)
No history	186 (42.27)	188 (42.73)	374 (85.0)	

- * The Chi Square Test Values are more than the table value (3.84); thus reject the null hypothesis.
- ** The Chi Square Test Value (1.37) is less than the table value (3.84); thus will fail to reject the null hypothesis.

DISCUSSION

According to study results; 52.95% (n=233) had prevalence estimated via PHQ-9 questionnaire; and mild depression was 42.50%, moderate 7.95% and severe depression was 2.5%, as was shown in Tables No. 1. In a research study, conducted in 2020, 49% of the study population was found depressed [26] and thus our study findings supported it. Moreover, our results were higher as compared to international studies with prevalence of 22.7%, 25.2%, 37.95% and 40.85% [27, 28, 29]. In our study; 2.5% of severe degree of depression was found whereas in many international studies revealed 30.45%, 14.75%, and 1.1% severe depression among the adult populations. Moreover, in our study, the frequency of depression was high, when compared to a study conducted by Forlani et al., in 2014 and published in American Journal of Geriatric Psychiatry [28]. Furthermore, in another international research findings published in the Canadian Journal of Psychiatry, in 2015; the frequency of depression was high as compared to our results [30]; and thus our study results are in contrast to few and support many international research findings of 2013 & 2020 published by Journal of affective disorders & PLoS One [31, 32].

Out of total depression i.e. n=233; approximately, 42.50% (n=187), 7.95% (n=35) and 2.5% (n=11) were having mild, moderate and severe degree of depression, as was shown in Table No. 1. In a research study of Auerbach et al., published in 2018 in Journal of abnormal psychology, reported 11.2% to 72.5% of depression and thus our results supported the previous research findings [33]. In a research study, published in Journal of Drug and alcohol dependence; 68.7%, 13.5% and 6.0% mild, moderate and severe depression was reported, while our results showed 42.50%, 7.95% and only 2.5% of mild, moderate and severe depression respectively and therefore our results were in contrast to this international study [34].

In an international research study, published in International Review of Psychiatry, conducted by Senra & McPherson in 2020; revealed strong significant association between depression and different medical problems. According to our results, among total individuals (n=440); approximately 12.95% (n=57), had depression and had positive history of any medical condition; and therefore our results confirmed that depression and medical comorbidities had significant

relationship [35]; as was shown in Table No. 3, by significant chi square test value of 15.4. Many previous research findings revealed that the frequency of depression was more among the tobacco users as compared to non-users. In this study; in which n=189 (42.95%) smoked tobacco cigarettes and among them n=113 (25.68%) were suffering from depression with 6.21 Chi Square Test Value and .0126 p-value, and was a significant risk factor and thus indicating correspondence with previous study published in Australian & New Zealand Journal of Psychiatry in 2020 [36].

Although, in an international research study conducted in Brazil, published by Journal of Public Health in 2020, reported that use of alcohol has preventive effects regarding the mood and anxiety conditions but in our study, n=17 (3.86%) revealed positive history of alcohol drinking; and only n=15 (3.41%) had depression; and thus our results negate those research findings [37], although the supported by the significant chi square test value of 8.83. Many researchers revealed that failure in exam had a positive relation with onset of depression and this study reflected similar results, and thus indicating that failure in exams had a major role in the development of depression, as was reported by Williams et al., in 2020 [38]; with significant chi square test value of 21.21. Moreover; taking any medicines, failure in examinations and failure in love also revealed strong positive association and significant chi square test values of 50.6, 10.38 and 14.85 respectively [38]; as was shown in Table No. 4.

In this study, it was found that out of total population n=440; n=104 (23.64%) had history of drug addiction other than tobacco smoking; and out of these population; n=95 (21.59%) had depression; and revealed that depression is attributed to drug addiction and medical conditions as supported by the significant chi square test value of 80.57. Moreover, n=56 (12.73%) of the individuals had trauma history in the past and among that proportion of study individuals n=41 (9.32%) had depression on PHQ-9 depression assessment tool, n=102 (23.18%) had history of abuse/neglect and n=79 (17.95%) were found depressed and thus revealed and supported findings of an international study, published in Journal of Psychiatric Research in 2020, that history of trauma and childhood abuse/ neglect in early life drastically increases the risk of developing depression by significant chi square test values of 10.57 & 31.98 respectively [39].

Non-compliance to physical exercise & activity has a significant role in chronic development of depression. In this research; n=181 (41.14%) of individuals had no history of any exercise in past; and among them n=49 (11.14%) had depression; as was revealed by high chi square test value of 82.68.

Our study results, showed significant relationship and association with food intake of good quality, as was supported by research study conducted by Marx et al., in 2020, and published in Molecular Psychiatry[40]. Approximately, n=223 (50.68%) of adult population were not taking healthy diet; and among them n=94 (21.36%) had depression. Thus healthy diet appeared to have negative association with the development of depression and was protective thus healthy diet decreasing the risk of depression; by significant chi square test value of 21.17as was shown in Table No. 3.

CONCLUSIONS

From the results of this study, it was concluded that according to the PHQ-9 Depression assessment tool;the total prevalence of depression among the studied adult population in the selected districts of Khyber Pakhtunkhwa was moderate to high. Moreover, this study revealed strong relationship of depression with medical problems, alcohol intake, tobacco smoking, health diet, physical exercise, and medicines intake. Furthermore,the depression also showed strong association with past history of trauma & neglect, drug addiction, flood, and terrorism, andthus comprehensive preventive and control strategies were needed to reduce the frequency of depression among the adult population.

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