



## Impact of Gender on the Prevalence of Depression in the Population of Quetta, Pakistan

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### Authors' contributions

This work was carried out in collaboration among all authors. Authors MF, KA, NE and RN did the data curation. Author AN did the formal analysis. Methodology was done by author MB. Project administration was done by author MF. Author NUH supervised the work. Author MF did the writing & original draft. Authors NUH and AN did the writing, review & editing. All authors read and approved the final manuscript.

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### ABSTRACT

**Background:** Depression is one of the most prevalent and debilitating psychiatric disorders in the world. Women are more likely to suffer from depression compared with men.

**Aim:** This study aimed to examine the prevalence of depression symptoms among the population and the relationships between gender and depressive symptoms along with severity level.

**Study Design:** This was a cross-sectional study conducted from June 2020 to March 2021 in a different area of Quetta city.

**Methodology:** A total of 502 participants (female 274, male 228) with ages ranging from 18 to 80 years. The study used Patient Health Questionnaires (PHQ-9) which are already validated (Cronbach's alpha = 0.844) and available online, along with the questionnaire; certain demographic characteristics are also added to measure the symptoms of depression. SPSS Version 26. Mean, standard deviation, frequency, percentage, Chi-square test and Man Whitney U- test were applied for statistical analysis.

**Results:** The results showed that 316 (63%) participants were reported having depressive

symptoms. Of these 316 participants, 166 (33.1%) persons were suffering from mild, 87 (17.3%) from moderate, and 63 (12.6%) from severe depression symptoms out of all those who had symptoms of depression 195(61%) were female. Further it is disclosed that gender is statistically significant demographic characters that influence the prevalence of depression  $p < 0.01$ .

**Conclusion:** Study concluded that gender had a significant role on depression and the increase number of females suggest that female having more depression as compare to males.

*Keywords: Depression; gender disparities; Pakistan; PHQ-9.*

## ABBREVIATIONS

DES : Depression Scale  
 PHQ-9 : Patient Health Questionnaire  
 SD : Standard Deviation  
 SPSS : Statistical Package for the Social Sciences  
 WHO : World Health Organization

## 1. BACKGROUND

Depression is a common mental disorder. Depressive symptoms include sadness, lack of interest or pleasure, fluctuating feelings of guilt or low self-worth, poor sleep or appetite, tiredness, and impaired concentration. These symptoms appear in various types of depression and are classified by their duration, mode of presentation and intensity [1]. It is one of the emotional issues, and the major reasons are hopelessness and helplessness. Depression, ranges from mild to moderate, is characterized by depressive episodes and certain functioning impairments. Agitation and psychomotor impairment, as well as significant somatic symptoms, are common indicators of severe depression [2].

More than 264 million people suffer from depression equivalent to 3.4% of the world's population, prevalence varies between 2-6% across countries [3] and it considered as a second leading cause of disability worldwide, and it is predicted that it would top the list by 2030 [4] According to WHO estimates, the prevalence of depression in Pakistan is at 4.2 percent, and according to 2017 statistics, 50 million individuals in Pakistan suffer from common mental diseases which affect 44 percent of the total population. Women have a greater prevalence rate (57.5%) than men (25%) [5-6].

Women suffer from depression at a much higher rate than men, with 5.1% of females suffering from depression compared to 3.6% of males, these proportions are observed throughout all

ages, areas, educational levels, and socioeconomic or social situations [6].

After an extensive literature search it was found that, different studies conducted at different parts of the world saying females have more depression as compared to males [7-11] While others deny [12-14]. Numerous studies have acknowledged the relationship between depression and gender; many international studies had found that depression is one of the disorders with the greatest gender disparity in prevalence, with women being more likely to suffer from depression than men. However, the prevalence of depression has been steadily increasing and was found to vary across the countries but the reasons for this increased prevalence are not clear [11,15,16].

Further it is being observed that no study reported yet from the population of Quetta Pakistan, that describe the gender differences and its impact on depression. Therefore, the current study was developed to identify the prevalence of depression between male and female involved in this study.

## 2. METHODOLOGY

### 2.1 Study Design Duration Settings

This was a cross-sectional study conducted from June 2020 to March 2021 in a different area of Quetta city.

### 2.2 Sampling

Data was collected by a convenient sampling technique. The research was conducted on 18 years and above people. According to the Roasoft sample size calculator at 95% Confidence interval and 5% margin of error must have at least 385 samples [17].

$$X=Z(c/100)2r(100-r)$$

The inclusion criteria included age 18 years and above, who were healthy with no physical and

mental impairment, can understand the Urdu language and willing to participate while those who were not willing to participate, less than 18 years of age, had any physical or mental disorder, unable to understand Urdu, pregnant ladies and Afghan refugees were excluded.

### 2.3 Study Tool/Questionnaires

The patient health questionnaire (PHQ-9) was used for the study. It was brief, free to use [18] consists of nine items which scores of 5, 10, 15, and 20 represent mild, moderate, moderately severe, and severe depression. Each item is rated on a 4-point Likert scale ranging from 0 (not at all) to 3 (nearly every day). The total score of the PHQ-9 ranges from 0 to 27 [19]. In this study the Urdu version of PHQ-9 has been used as a screening tool for depressive disorder, had high internal reliability (Cronbach's alpha = 0.844) [20]. In addition, the questionnaire also containing the demographic part which including age, gender, marriage status, occupation educational level.

### 2.4 Study Procedure

A total of 770 participants were approached in this study A self-administered questionnaire was utilized to collect data from the participants in this study. The total response rate was 87.6% (n = 675) after 770 questionnaires had been distributed. Out of 675, the 173 were discarded because of incomplete and wrongly filled questionnaires, 502 questionnaires were included for the final analysis.

### 2.5 Ethical Consideration

The study was performed according to National Bioethics Committee Pakistan's guidelines and study was approved by the ethics committee of the Department of Pharmacy Practice, Faculty of Pharmacy, University of Balochistan, Quetta, Pakistan. The informed consent was also taken from the participants before taking the data; while those who were uneducated, the informed consent was obtained from a legal guardian/educated guardian [21].

### 2.6 Data Analysis

SPSS (Statistical Package for the Social Sciences) version 26 was used to enter and evaluate the data. Data was represented using basic statistics. The mean and standard deviation were used to represent continuous

variables. Frequency and percentage were used to express categorical variables. Cross tabulation was done to see the relationship between different characteristics, Man Whitney-U test ( $p < 0.01$ ), chi-square was used to evaluate the relationship ( $p < 0.05$ ).

## 3. RESULTS

### 3.1 Demographic Characteristics

The demographic characteristics are represented in Table 1. Out of 502 respondents, males were 228 (45.4%) and females were 274 (54.6%), 266 (53%) were married, mean age of  $34.36 \pm 13.78$  Year. Study subjects living single were 236 (47%). Surprisingly majority of respondents about 193(38.4%) completed their graduation while About 29 (5.8%) were illiterate. Although high number of respondents 174 (34.7%) were students while  $n=123$  (24.5%) were unemployed.

Table 2 indicates that the participant  $n=106$  (21.1%) acknowledged that they felt little interest while doing things almost every day. More than half the days,  $n=34$  (6.8%) participants felt hopeless. Several Days,  $n=103$  (20.5%) participants felt hopeless.  $n=108$  (23.5%) participants reported having trouble falling asleep almost every day.  $N=160$  (31.9%) participants felt tired almost every day.  $n=89$  (17.7%) people reported poor appetite several Days. Feeling bad about themselves was experienced several days by  $n=69$  (13.7%) of the respondents. Around  $n=72$  (14.3%) participants encountered trouble in concentration on things at a different span of time almost every day.  $n=66$  (13.1%) of the respondents move or speak slowly that people could have noticed from several Days. Almost every day,  $n=44$  (8.8%) of the respondents never thought that they would better off dead or hurt themselves in any way.

Table 3 Presents the prevalence of depression, the study found the point prevalence of screened depression to be 63%. Of these 166 (33.1%) persons were suffering from mild out of these  $n=72$  (31.5%) were males and  $n=95$  (34.6%) were females, 87 (17.3%) from moderate significantly more females  $n=58$  (21.2%) than male  $n=28$  (12.2%), and 63 (12.6%) from severe symptoms also, more females  $n=42$  (15.3) than males  $n=21$ (9.2) had severe depression symptoms and this comparison was statistically significant ( $p < 0.05$ ).

**Table 1. Demographic characteristics**

<b>Characteristics</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Age (34.36 ± 13.78 Years)		
18-27	219	43.6
28-37	84	16.7
38-47	96	19.1
48-57	70	13.9
58 and above	33	6.6
Gender		
Male	228	45.4
Female	274	54.6
Marital status		
Married	266	53.0
Unmarried	236	47.0
Education level		
No Education	29	5.8
Matric	37	7.4
Intermediate	160	31.9
Graduate	193	38.4
Post Graduate	83	16.5
Occupational Status		
Private Job	108	21.5
Government Job	97	19.3
Unemployed	123	24.5
Student	174	34.7

**Table 2. Opinions of participants on depression scale**

<b>Questions</b>	<b>Not at all n(%)</b>	<b>Several days n(%)</b>	<b>More than half the number of day n(%)</b>	<b>Almost every day n(%)</b>
Little interest or pleasure in doing things	266 (53.0)	96 (19.1)	34 (6.8)	106 (21.1)
Feeling down, depressed, or hopeless.	264 (52.6)	99 (19.7)	36 (7.2)	103 (20.5)
Trouble falling asleep or staying asleep, or sleeping too much.	261 (52.0)	80 (15.9)	43 (8.6)	118 (23.5)
Feeling tired or having little energy.	180 (35.9)	109 (21.7)	53 (10.6)	160 (31.9)
Poor appetite or overeating.	293 (58.4)	89 (17.7)	33 (6.6)	87 (17.3)
Feeling bad about yourself or that you are a failure or have let yourself or your family down.	352 (70.1)	69 (13.7)	21 (4.2)	60 (12.0)
Trouble concentrating on things, such as reading the newspaper or watching television.	350 (69.7)	59 (11.8)	21 (4.2)	72 (14.3)
Moving or speaking so slowly that other people have noticed, Or the opposite being so fidgety or restless that you have been moving around a lot more than usual.	367 (73.1)	66 (13.1)	26 (5.2)	43 (8.6)
Thoughts that you would be better off dead or of hurting yourself in some way.	398 (79.3)	42 (8.4)	18 (3.6)	44 (8.8)

**Table 3. Impact of gender on severity of depression**

Variable	Total (%)	Male n (%)	Female n (%)	P value
Depression				
No	186 (37.0)	107 (46.9)	79 (28.9)	< 0.01*
Yes	316 (63)	121 (53.1)	195 (71.1)	
Severity Level				
Mild	166 (33.1)	72 (31.5)	95 (34.6)	< 0.01*
Moderate	87 (17.3)	28 (12.2)	58 (21.2)	
Severe	63 (12.6)	21 (9.2)	42 (15.3)	

\*Significance ( $p = 0.05$ ) Chi square

**Table 4. Mean comparison of depression with respect to gender**

Mean	Male	Female	P value
Depression	6.131 ± 5.63	8.310 ± 5.47	0.01

\* $p = 0.01$  (Man Whitney U-test)

However, in Table 4. When the comparison of mean depression was calculated between male and female difference is statistically proved, the score of a male is  $6.131 \pm 5.63$  and Female is  $8.310 \pm 5.47$  ( $p = 0.01$ ).

#### 4. DISCUSSION

It was the first study of its kind in Quetta, Pakistan, to investigate the prevalence and gender distribution of depression in Balochistan's general population. Gender disparities in depression, particularly differences in prevalence rates, symptom profile, and severity, are of major psychosocial and medical interest.

In our research, we discovered that women have a considerably higher rate of depression than men. This was in agreement to different study conducted around the world, with a wide range of rates; In Thailand, the prevalence rate of depression symptoms was found almost ten time higher in females than males [15]. Similarly in Greece, Ethiopia and other country [11,16] but this relationship among the population has never been reported in a local study before.

One study also show a lower incidence of depressive symptoms among females compare to males, such as Poutanen et al reported that males had more serious depression symptoms than females [12]. However cultural differences, differences in the healthcare system, and disparities in the population have all been contributed to this variation. It was found that there are differences in depressive symptoms between genders.

This might originate from several factors that may contribute to women's high rates of depression this could be related to Pakistan's high rate of violence against women. In many cases, violations of women's rights, discrimination, verbal abuse, harassment, and injustice are evident, significantly impacting women's mental health [22,23].

Women in Pakistan are more likely than men to be subjected to bad socioeconomic conditions and stressful events, face variety of domestic burden in everyday life that are beyond her capacities in order to conduct household work. They must bear practically all of the child-care and domestic chores of the home, including caring for sick and elderly family members, this overabundance contributes to depression [24,25].

Pakistan have a male-dominating culture, women struggle to attain their rights and faced pressure in the cultural setup. Women face barriers toward health facilities, education, employment and being socially isolated, these factors are strongly linked to the development of depression; this gender disparity is substantially linked to psychiatric morbidity among Pakistani women [26]. The study found that women in Quetta that there is less freedom of expression in Quetta, as well as strong traditional bindings, cultural inhibitions, and unequal resource distribution between men and women, all of which contribute to depression [27].

Marriage, in addition to gender, was a key cause of depression among Pakistan's population. Women's well-being and social stability are

mostly dependent on a happy marriage [28]. In addition Ali et.al conducted research in 2009 in Pakistan states that reproductive rights, marital rapes, being under the age of 18 at the time of marriage, as well as parental decision to marry, may lead to depression among Pakistani women [29]. Furthermore, in a male-dominated society, a lack of decision-making power leads to curbed emotions and a decline in mental health.

The Methodological considerations regarding the tools, PHQ-9 questionnaire is used for this study. The validity and reliability of the PHQ-9 questionnaire for measured the symptom of depression have been proved in different studies and suitable for screening depression among the population of different age groups [18,30]. This disparity could be related to the studies' use of different scales for screening depression, such as the Depression Scale (DES) versus the PHQ scale [12].

Although it is important to help them to change their lifestyle, increasing awareness of the benefits of early diagnosis and developing management techniques are also crucial to prevent depression symptoms in women.

## 5. CONCLUSION

This study concluded that depression is highly prevalent among the population of Quetta city, Pakistan and the prevalence rate of depression were higher among the female as compared to males. Finally, this highlighted that, further studies need to be conducted in future to identify the reason of these disparities among the females.

## 6. RECOMMENDATION

The results need further validation by conducting population based studies with a larger sample size by using comprehensive screening tools for diagnosing depression. Increase awareness of the benefits of early diagnosis to prevent major form of depression. It is also recommended that learn and apply new skills to increase happiness, build confidence, self-esteem and manage stress.

## 7. LIMITATIONS

The study was conducted in one city and therefore results of the research are not representative of the entire population of Pakistan.

## AVAILABILITY OF DATA AND MATERIALS

Due to ethical limitations and personal data protection, the datasets collected and/or analyzed during this investigation are not publicly available, but they are available from the corresponding author upon reasonable request.

## CONSENT AND ETHICAL APPROVAL

The study was performed according to National Bioethics Committee Pakistan's guidelines and study was approved by the ethics committee of the Department of Pharmacy Practice, Faculty of Pharmacy, University of Balochistan, Quetta, Pakistan. The informed consent was also taken from the participants before taking the data; while those who were uneducated, the informed consent was obtained from a legal guardian/educated guardian [21].

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## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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