Original Research Article

IMPACT OF GENDER ON THE PREVALENCE OF DEPRESSION IN THE POPULATION OF QUETTA, PAKISTAN

Abstract

Background

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.

Method

The cross-sectional study was conducted in Quetta, Pakistan which included 502 (female 274, male 228) participants with ages ranging from 18 to 80 years. The study use Patient Health Questionnaires (PHQ-9) which is already validated and available online along with the questionnaire certain demographic characteristics are also added to measure the symptom of depression. SPSS Version 20. Mean, standard deviation, frequency, percentage, Chi-square test and Man Whitney U- test were applied for statistical analysis.

Result

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.

Comment [u1]: This is not well-designed forma of abstract please follow the author's' instruction of the journal.

Key Words: Depression, Gender Disparities, Pakistan, PHQ-9

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 races, areas, educational levels, and socioeconomic or social situations (6).

After an extensive literature search it is find out different study conducted at different part of the world saying females have more depression as compare to males (7-11), While other deny (12-14). Numerous studies have acknowledged the relationship between depression and gender many international studies 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.

Methodology

Study Design. Duration. Settings

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

Sampling

Data was collected by a convenient non-probability sampling technique. The research was conducted on 18 years and above people. The sample size for the study was 385, which was calculated by the Roasoft sample size calculator at 95% Confidence interval and 5% margin of error (17). However, larger sample size was then obtained by doubling the result of the formula and eliminating the sampling error, so the sample size was 770. 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.

Comment [u2]: Why non-probability sampling it should be better to use probability sampling methods after identification of the target group

Comment [u3]: 385 or 770? Not clear.

Comment [u4]: It should be better to put the formula.

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.

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.

Comment [u5]: Mismatched sample size

Ethical Consideration

The study was performed according to National Bioethics Committee Pakistan's guidelines (21) and study approved by 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.

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 ($p<0.05$).

Comment [u6]: How you can measure the impact by this too? Also SPSS is not the appropriate software for impact analysis.

Result

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 was 34.36 ± 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 1 Demographic Characteristics

Characteristics	**Frequency**	**Percentage(%)**
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

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.

Questions	Not at all n(%)	Several days n(%)	More than half the number of day n(%)	Almost every day n(%)
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)

Comment [u7]: Lack of consistency in the measurement scale

Table 3 Impact of Gender on Severity of Depression

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).

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

Comment [u8]: This result is not enough to talk about impact it needs econometric model like PSM.

Table 4 Mean Comparison of Depression with Respect to Gender

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

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

*p = 0.01 (Man Whitney U-test)

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 studies 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 measure 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.

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.

Recommendation

The results need further validation by conducting population based studies with a larger sample size by using comprehensive screening tools for diagnosing depression which might facilitate the early detection. It is also recommended to increase the awareness of the benefits of early diagnosis to prevent major form of depression and develop strategies for management, counseling and availability of management therapy at the work place at the community and government level.

Comment [u9]: poor

Limitations

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

Comment [u10]: what about models

Abbreviation

DES:	Depression Scale

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

Ethical Approval and Consent to Participate

The study was performed according to National Bioethics Committee Pakistan's guidelines (21) and study approved by 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 was uneducated the informed consent were obtained from a legal guardian/ educated guardian.

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.

Reference

1. World Health Organization. Mental disorders 2019 [Available from: https://www.who.int/news-room/fact-sheets/detail/mental-disorders.
2. American Psychiatric Association. Diagnostic and statistical manual of mental disorders:DSM-5: American Psychiatric Publishing; 2013.
3. World Health Organization. Depression 2020 [Available from: https://www.who.int/news-room/fact-sheets/detail/depression.
4. Organization WH. The global burden of disease: 2004 update. Geneva: World Health Organization; 2008. Geneva: WHO press; 2008.
5. Sadruddin MM. A Low-Cost Socio-Culturally Situated Mental Health Intervention for the Well-Being of Pakistani Young Women: A Reflective Narrative. Pakistan Perspective. 2019;24(2):1-14.

6. Organization WH. Depression and other common mental disorders: global health estimates. World Health Organization; 2017.
7. Sherchand O, Sapkota N, Chaudhari RK, Khan SA, Baranwal JK, Niraula A, et al. Gender Differences in the Prevalence of Depression among the Working Population of Nepal. Psychiatry Journal. 2018;2018:1-10.
8. Kocalevent RD, Hinz A, Brahler E. Standardization of the depression screener patient health questionnaire (PHQ-9) in the general population. Gen Hosp Psychiatry. 2013;35(5):551-88.
9. Arenliu A, Kelmendi K, Berxulli D. Gender differences in depression symptoms: Findings from a population survey in Kosovo–A country in transition. Psychological Thought. 2016;9(2):236-47.
10. Al-Qadhi W, ur Rahman S, Ferwana MS, Abdulmajeed IA. Adult depression screening in Saudi primary care: prevalence, instrument and cost. BMC psychiatry. 2014;14(1):1-9.
11. Carayanni V, Stylianopoulou C, Koulierakis G, Babatsikou F, Koutis C. Sex differences in depression among older adults: are older women more vulnerable than men in social risk factors? The case of open care centers for older people in Greece. European Journal of Ageing. 2012;9(2):177-86.
12. Poutanen O, Koivisto A-M, Mattila A, Joukamaa M, Salokangas RK. Gender differences in the symptoms of major depression and in the level of social functioning in public primary care patients. The European journal of general practice. 2009;15(3):161-7.
13. Nortvedt MW, Riise T, Sanne B. Are men more depressed than women in Norway? Validity of the Hospital Anxiety and Depression Scale. Journal of psychosomatic research. 2006;60(2):195-8.
14. Cuijpers P, Vogelzangs N, Twisk J, Kleiboer A, Li J, Penninx BW. Is excess mortality higher in depressed men than in depressed women? A meta-analytic comparison. Journal of affective disorders. 2014;161:47-54.
15. Hanklang S, Kaewboonchoo O, Morioka I, Plernpit S-a. Gender differences in depression symptoms among rice farmers in Thailand. Asia Pacific Journal of Public Health. 2016;28(1):83-93.
16. Abate KH. Gender disparity in prevalence of depression among patient population: a systematic review. Ethiopian journal of health sciences. 2013;23(3):283-8.
17. Anokye R, Acheampong E, Budu-Ainooson A, Obeng EI, Akwasi AGJAogp. Prevalence of postpartum depression and interventions utilized for its management. 2018;17(1):1-8.
18. Kroenke K. PHQ-9: global uptake of a depression scale. World Psychiatry. 2021;20(1):135.
19. Kroenke K, Spitzer RL, Williams JB. The PHQ-9: validity of a brief depression severity measure. Journal of general internal medicine. 2001;16(9):606-13.
20. Gallis JA, Maselko J, O'Donnell K, Song K, Saqib K, Turner EL, et al. Criterion-related validity and reliability of the Urdu version of the patient health questionnaire in a sample of community-based pregnant women in Pakistan. PeerJ. 2018;6:5185.
21. NBC N. Human Subject Research Ethics. National Bioethics Committee (NBC), P Dr Farhat Moazam MD, Editor Healthcare Ethics Committee (HCEC): Karachi. 2016.
22. Hussain H, Hussain S, Zahra S, Hussain T. Prevalence and risk factors of domestic violence and its impacts on women's mental health in Gilgit-Baltistan, Pakistan. Pakistan Journal of Medical Sciences. 2020;36(4):627.
23. Rivara F, Adhia A, Lyons V, Massey A, Mills B, Morgan E, et al. The effects of violence on health. Health Affairs. 2019;38(10):1622-9.
24. Kausar N, Khan SD, Akram BJJTJotPMA. Major depression in Jalal Pur Jattan, district Gujrat, Pakistan: Prevalence and gender differences. The Journal of the Pakistan Medical Association. 2015;65(3):292-5.
25. Asim SS, Ghani S, Ahmed M, Asim A, Qureshi AFK. Assessing Mental Health of Women Living in Karachi During the Covid-19 Pandemic. Frontiers in Global Women's Health. 2021;1:24.

26. Qadir F, Khan MM, Medhin G, Prince M. Male gender preference, female gender disadvantage as risk factors for psychological morbidity in Pakistani women of childbearing age-a life course perspective. BMC public health. 2011;11(1):1-13.
27. Gadit AAM, Mugford G. Prevalence of depression among households in three capital cities of Pakistan: need to revise the mental health policy. Plos one. 2007;2(2):209.
28. Zahidie A, Jamali T. An overview of the predictors of depression among adult Pakistani women. Journal of the College of Physicians and Surgeons Pakistan. 2013;23(8):574.
29. Ali FA, Israr SM, Ali BS, Janjua NZ. Association of various reproductive rights, domestic violence and marital rape with depression among Pakistani women. BMC psychiatry. 2009;9(1):1-13.
30. Ahmad S, Hussain S, Akhtar F, Shah FS. Urdu translation and validation of PHQ-9, a reliable identification, severity and treatment outcome tool for depression. Pak Med Association. 2018;68(8):1166-70.