



PSYCHOLOGICAL IMPACT OF CHRONIC DISEASES ON MENTAL DEPRESSION

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ABSTRACT

Research Background: Chronic diseases such as diabetes and hypertension are increasing worldwide and require long-term management, often affecting patients' psychological well-being (WHO, 2023; Beaglehole et al., 2019). The present study has focused on examining mental depression levels and gender differences among patients with chronic diseases.

Objectives: The study objective was to find out the psychological impact of chronic diseases on the level of mental depression among patients with diabetes and high blood pressure. Another objective was to compare the level of mental depression between male and female patients suffering from chronic diseases.

Procedure: A purposive sampling technique has been used to select participants for the present study. The total sample has included 300 patients who have been diagnosed with chronic diseases, and these participants have been selected from the Satara and Solapur districts of Maharashtra. The age of the participants has been limited to the range of 30 to 60 years. The study mental depression scale developed by Dr. Veenita Sharma has been used.

Conclusions: It can be concluded that patients with high blood pressure have shown higher levels of mental depression than patients with diabetes, whereas gender has not shown a significant difference in mental depression between male and female patients, and the interaction between type of chronic disease and gender has also not shown a significant effect on mental depression levels.

Keywords: Chronic Diseases, Mental Depression

INTRODUCTION

Chronic diseases, also known as non-communicable diseases (NCDs), are long-term health conditions that usually develop slowly and continue for a prolonged period. These conditions require regular medical attention and continuous management to control symptoms and prevent complications (World Health Organization [WHO], 2023). Unlike acute illnesses, which appear suddenly and recover within a short time, chronic diseases progress gradually and often affect more than one organ system. Over time, they may lead to serious and lasting health complications. At the global level, chronic diseases have been identified as major contributors to illness, disability, and early death, creating substantial social, economic, and healthcare challenges for individuals and societies (Beaglehole et al., 2019). Some of the most commonly reported chronic diseases include diabetes mellitus, hypertension, cardiovascular diseases, chronic respiratory disorders, and cancer. Among these conditions, diabetes and hypertension are particularly widespread, and their occurrence has increased significantly in recent decades (Beaglehole et al., 2019; Mills et al., 2020).

Chronic diseases are non-infectious in nature, meaning that they are not caused by microorganisms and cannot be transmitted from one person to another. Their development is influenced by multiple factors, including genetic predisposition, environmental conditions, and individual lifestyle behaviors. Because of the involvement of several contributing factors, chronic diseases are considered multifactorial conditions (Mills et al., 2020).

Mental depression is one of the most frequently observed psychological outcomes among individuals suffering from chronic diseases. Clinically, depression is defined as a condition characterized by persistent feelings of sadness, emptiness, or low mood lasting for at least two weeks, along with other symptoms that affect sleep, appetite, concentration, energy levels, feelings of self-worth, and, in severe cases, thoughts of suicide (Institute of Medicine, 2001). Depression is commonly explained

through the biopsychosocial model, which emphasizes the combined influence of biological, psychological, and social factors. Biological factors may include genetic vulnerability or imbalance in neurotransmitters, psychological factors may involve negative thinking patterns or feelings of helplessness, and social factors may include stressful life experiences or lack of social support. These factors interact with one another in causing and maintaining depressive symptoms (Hametapel, 2024).

From the viewpoint of psychopathology, depression is categorized as a mood disorder that involves prolonged sadness, reduced functioning in daily life, and a variety of emotional, cognitive, behavioral, and physical symptoms. The intensity and expression of these symptoms may vary from one individual to another. Epidemiological findings have indicated that the lifetime occurrence of major depressive disorder (MDD) in certain countries is approximately 17%, while the one-year prevalence is about 7% (WHO, 2017; Nierenberg, 2014; Cambridge University Press & Assessment, 2014; PubMed, 2011). Among children and adolescents, the prevalence of depression before puberty ranges from 1% to 2%, which increases to nearly 5% during adolescence (International Association for Child and Adolescent Psychiatry and Allied Professions [IACAPAP], 2015). Differences between genders have also been widely reported, with women experiencing depression at nearly twice the rate of men. These differences are believed to result from a combination of biological influences and psychosocial experiences (Cambridge University Press & Assessment, 2014).

According to the DSM-5 (American Psychiatric Association, 2013), the diagnosis of major depressive disorder requires the presence of at least five symptoms within a period of two weeks. Among these symptoms, either a depressed mood or a marked loss of interest or pleasure in daily activities must be present. Other common symptoms include continuous low mood, loss of interest in usual activities, noticeable changes in weight or appetite, disturbances in sleep, slowed or restless physical movements, persistent fatigue, feelings of worthlessness or excessive guilt, difficulty in concentration or decision-making, and repeated thoughts of death or suicidal ideation. These symptoms must be severe enough to interfere with social relationships, occupational responsibilities, or other important areas of daily functioning.

Chronic conditions such as diabetes and hypertension place continuous physical strain and psychological pressure on individuals. Living with such conditions often creates emotional tension, feelings of helplessness, and a sense of hopelessness, which may gradually contribute to the development of depression (Lerman et al., 2020; Smith et al., 2018). Therefore, understanding how frequently depression occurs, how severe it becomes, and what factors contribute to its development among patients with chronic diseases is essential for early psychological identification and effective intervention.

In addition, gender differences play an important role in shaping psychological responses to chronic illness. Men and women may differ in the way they understand stress, express emotional distress, and cope with long-term health conditions. These differences can influence both the severity and the pattern of depressive symptoms (Kuehner, 2017). For this reason, comparative studies examining levels of mental depression among male and female patients with chronic diseases are important, as they provide meaningful insights that can support the development of gender-sensitive clinical interventions and mental health services.

OBJECTIVES OF THE STUDY

1. To find out the psychological impact of chronic diseases on level of mental depression among the patients of diabetics and high blood pressure.
2. To compare the level of mental depression among the male and female patients of chronic diseases.
3. To study the significant interaction effect between patients of chronic diseases and gender of chronic patients in terms of their mental depression.

HYPOTHESES OF THE STUDY

1. There will be a significant psychological impact of chronic diseases on mental depression among the patients of diabetic and high blood pressure.
2. There will be no significant difference in mental depression between male and female patients of chronic diseases.
3. There will be no interaction effect between patients of chronic diseases and gender of chronic patients in terms of their mental depression.

RESEARCH PROCEDURE

Variables of the Study:

1. **Independent Variables**
 - **Chronic Disease Patients**

- a. Diabetics Disease Patients
- b. High Blood Pressure Patients
- **Gender of Patients**
 - a. Male Chronic Disease Patients
 - b. Female Chronic Disease Patients
- 2. Dependent Variables**
 - a. Level of Mental Depression

Sample Size and Selection Procedure:

A purposive sampling technique has been used to select participants for the present study. The total sample has included 300 patients who have been diagnosed with chronic diseases, and these participants have been selected from the Satara and Solapur districts of Maharashtra. From the total sample, 150 participants have been selected from patients diagnosed with diabetes. In this group, equal numbers of male and female participants have been included, with 75 males and 75 females, in order to maintain gender balance. Similarly, another 150 participants have been selected from patients diagnosed with high blood pressure. Among these participants, 75 have been male and 75 have been female. The age of the participants has been limited to the range of 30 to 60 years.

Data Collection Material:

1. Mental Depression Scale: Dr. Veenita Sharma (2016)

In the present investigation, the Mental Depression Scale developed by Dr. Veenita Sharma (2016). The scale consists of 50 items, each designed to capture various emotional, cognitive, and behavioural symptoms associated with depression. Respondents are required to provide answers in a dichotomous format, indicating either “Yes” or “No” for each statement.

STATISTICAL ANALYSIS AND RESULTS

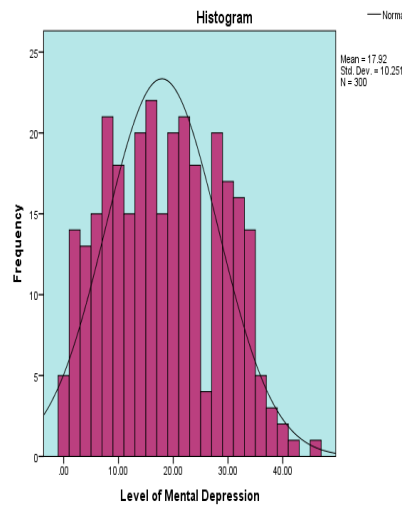
Table: 1: Assessing normality of the variable mental depression

Variable	Descriptive Statistics		Statistic	Std. Error
Level of Mental Depression	Mean		17.920	0.592
	95% Confidence Interval for Mean	Lower Bound	16.755	
		Upper Bound	19.085	
	5% Trimmed Mean		17.800	
	Median		17.000	
	Variance		105.084	
	Std. Deviation		10.251	
	Minimum		00.00	
	Maximum		45.00	
	Range		45.00	
	Inter quartile Range		17.00	
	Skewness		0.145	0.141
Kurtosis		-0.922	0.281	

Table 1 shows that the trimmed mean value (17.800) is very close to the simple mean value (17.920). The mean score of the level of mental depression has been found to be 17.920, with a standard error of 0.592. With regard to the nature of the distribution, the skewness value has been found to be 0.145, indicating that the distribution has been slightly positively skewed. This result has suggested that a slightly larger proportion of respondents have obtained lower to moderate depression scores, with relatively fewer respondents showing very high scores. However, the skewness value has remained very close to zero,

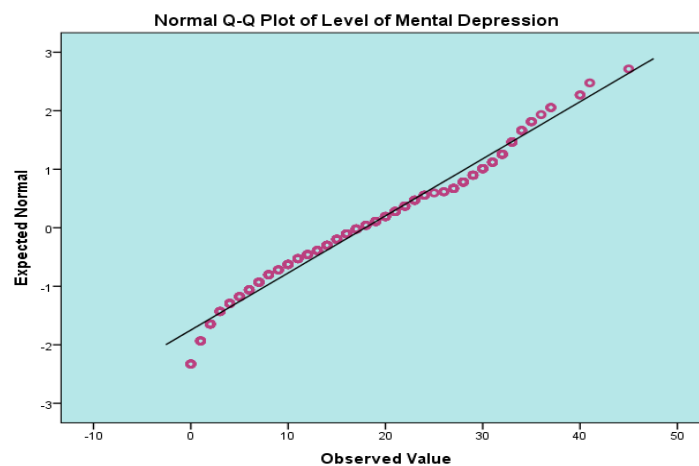
indicating that the distribution has not been substantially distorted. The kurtosis value has been -0.922 , which has indicated a platykurtic distribution. Therefore, the distribution has been considered approximately normal.

Plot No. 1: Normality of variable mental depression in the form of histogram



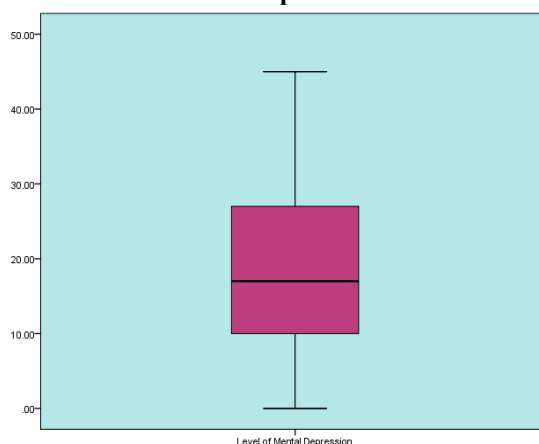
Histogram No. 1 has displayed the distribution of the dependent variable, level of mental depression. In the histogram, the horizontal axis has represented mental depression scores, while the vertical axis has shown the number of respondents in each score category. Observation of the histogram has indicated that most respondents' scores have been concentrated around the central region, particularly near the mean value. As the scores have moved toward the lower and higher ends, the number of respondents has gradually decreased, indicating that only a few cases have occurred at the extreme ends of the distribution. The histogram has also included a normal curve line that has closely matched the pattern of the bars.

Plot No. 2: Shows the Normal Q-Q plot of variable mental depression



Plot No. 2 most data points have been located close to the diagonal reference line, especially in the central region, indicating that the scores have generally followed a normal distribution. A few minor deviations have been observed at the lower and higher ends, but these have not suggested any serious violation of the assumption of normality.

Plot No. 3: Shows the normal box plot of variable mental depression



Plot No. 3 the median score has been around 17.00, while the interquartile range has extended from Q1 = 10.00 to Q3 = 27.00, indicating that most scores have fallen within this range. The whiskers have shown the total range from 0.00 to 45.00. No outliers have been observed, and the central position of the median has suggested that the distribution has been relatively symmetrical.

Table 2: Descriptive statistics of mental depression scores based on each cell.

Chronic Diseases Patients	Gender of Diabetic Patients	Mean	SD	N
Diabetic Disease Patients	Male Diabetic Patients	16.547	9.449	75
	Female Diabetic Patients	15.360	9.312	75
	Total	15.953	9.368	150
High Blood Pressure Patients	Male High Blood Pressure Patients	20.120	10.234	75
	Female High Blood Pressure Patients	19.653	11.286	75
	Total	19.887	10.739	150
Total	Male Chronic Disease Patients	18.333	9.978	150
	Female Chronic Disease Patients	17.507	10.534	150
	Total	17.920	10.251	300

Table No. 2 has shown the mean and standard deviation values for groups formed on the basis of type of disease and gender. The table has also included total values, which have helped in comparing the results across different categories. Among diabetic patients, male participants have recorded a mean mental depression score of 16.547, whereas female patients have shown a mean score of 15.360. When both male and female diabetic patients have been considered together, the overall mean score has been 15.953. These values have indicated only minor differences between male and female diabetic patients.

A similar comparison has been made for patients with high blood pressure. Male patients have reported a mean mental depression score of 20.120, while female patients have recorded a mean of 19.653. The combined mean score for both male and female patients with high blood pressure has been 19.887. These findings have suggested that mental depression scores among patients with high blood pressure have been slightly higher than those observed among diabetic patients.

When all chronic disease patients have been taken together, male patients have shown a mean mental depression score of 18.333, whereas female patients have reported a slightly lower mean score of 17.507. The overall mean score for the total sample has been 17.920. In general, the findings have shown only small differences in mental depression scores across disease types and gender groups. The standard deviation values have reflected a moderate level of variation within each group, while slightly higher levels of depression have been observed among patients with high blood pressure compared to diabetic patients.

Table 3: Levene’s Test of Equality of Error Variances for Mental Depression Scores.

Variable	F	df1	df2	Sig.
Mental Depression	2.259	3	296	0.082

From Table 3, we can observe that we have obtained homogeneity of variances of the dependent variable across groups. The degrees of freedom in this table have been $df_1 = 3$ and $df_2 = 296$, and the F value has been 2.259. The corresponding p-value has been 0.082. The results have shown that the significance value has remained above 0.05, suggesting that the assumption of equal variances has not been breached.

Table 4: Summary of ANOVA for the Dependent Variable Mental Depression

Source	Sum of Squares	df	Mean Square	F	Sig	Partial Eta Squared
Patients of Chronic Diseases	1160.333	1	1160.333	11.373	0.001	0.037
Gender of Chronic Patients	51.253	1	51.253	0.502	NS	0.002
Patients of Chronic Diseases X Gender of Chronic Patients	9.720	1	9.720	0.095	NS	0.000
Error	30198.773	296	102.023			
Total	127758.000	300				
Corrected Total	31420.080	299				

Significant Level, $df (1,296) \text{ ---- } 0.05 = 3.87 \quad 0.01 = 6.72$

Eta Squared effect size, $0.01 = \text{small } 0.06 = \text{moderate } 0.14 = \text{large effect (Cohen, 1988)}$

From table 4, a two-way ANOVA was conducted that examined the effect of chronic diseases and gender of chronic patients on an individual’s mental depression. Our dependent variable, mental depression, was normally distributed for the groups formed by the combination of patients of chronic diseases, such as patients of diabetes and patients of high blood pressure, as well as gender of chronic patients, such as male and female patients of chronic diseases, as assessed by the histogram, skewness, and kurtosis. There was homogeneity of variance between groups as assessed by Levene's test for equality of error variances.

The main effects analysis has revealed that the type of chronic disease has a significant effect on mental depression, $F(1,296)=11.373, p < 0.01$. A significant difference has been found in mental depression between patients with diabetes and patients with high blood pressure. Therefore, the type of chronic disease has been found to have a significant influence on the mental depression of patients. The partial eta squared value of 0.037 indicates a small effect size, meaning that 3.7 percent of the variance in mental depression is explained by the type of chronic disease. On the basis of hypothesis no. 1, is accepted. Patients with high blood pressure have shown higher levels of mental depression than patients with diabetes. These findings have clearly suggested that the type of chronic disease plays a meaningful role in determining the level of mental depression among chronic disease patients.

The main effects analysis further has shown that the gender of chronic patients is not significant, $F(1,296)=0.502, p > 0.05$. No significant difference has been found in mental depression between male and female chronic disease patients. The partial eta squared value of 0.002 indicates a very small effect size, meaning that 0.2 percent of the variance in mental depression is explained, suggesting a negligible effect. Since the result is statistically insignificant, the basis of hypothesis no. 2, is accepted. These results have indicated that gender does not play a significant role in influencing mental depression among chronic patients.

The interaction effect between the type of chronic disease and gender of chronic patients has also been found to be insignificant, $F(1,296)=0.095$, $p > 0.05$. This indicates that the effect of the type of chronic disease on mental depression does not differ across gender. In other words, the difference in mental depression between diabetic patients and high blood pressure patients has remained consistent for both male and female patients. The partial eta squared value of 0.000 indicates a very small and negligible effect, explaining 0.0 percent of variance in mental depression. Therefore, on the basis of hypothesis no. 3, is accepted. It is concluded that no significant interaction effect has been found between type of chronic disease and gender on the level of mental depression among patients with chronic disease.

CONCLUSIONS

- The findings have shown that the type of chronic disease has had a significant effect on mental depression. Patients with high blood pressure have reported higher levels of mental depression than patients with diabetes.
- The results have indicated that gender has not had a statistically significant effect on mental depression. Male and female patients have shown similar levels of mental depression, suggesting that gender has not been a major influencing factor.
- The interaction between type of chronic disease and gender has not been significant. Differences in mental depression between diabetes and high blood pressure patients have remained similar across both male and female groups, indicating that their combined effect has not influenced depression levels significantly.

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