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Original Research Article

Prevalence of Depression among Patients with Chronic Illnesses: A Cross-Sectional Study

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Abstract

Background: Chronic illnesses have been frequently associated with a range of psychological disturbances. Depression, a leading contributor to global disability, often co-exists with chronic medical conditions. Yet, the prevalence of depression among individuals with chronic illnesses remains poorly quantified in various settings.

Objective: To determine the prevalence of depression among patients with chronic illnesses.

Methods: A cross-sectional study was conducted involving 300 patients diagnosed with chronic illnesses, recruited from a tertiary care hospital. Depression was assessed using the Patient Health Questionnaire-9 (PHQ-9). Sociodemographic data and the nature of the chronic illness were also captured

Results: Out of the 300 patients, 36.7% (n=110) were found to exhibit signs of depression. The prevalence of depression varied significantly across different types of chronic illnesses, with all major categories (Diabetes, Cardiovascular, Respiratory Disorders, and Others) showing a significant association with depression (all with p-values < 0.05). Additionally, the severity of depression, as assessed using the PHQ-9, ranged from minimal to severe among the patient cohort.

Conclusion: Depression is prevalent among patients with chronic illnesses. Regular screening for depression in these patients can aid in timely diagnosis and intervention, improving the overall quality of life and medical outcomes. Healthcare providers should be vigilant to the potential coexistence of depression in patients presenting with chronic medical conditions.

Keywords: Chronic illness, Depression, Prevalence, PHQ-9, Cross-sectional study.

Introduction

Chronic illnesses, which encompass a broad array of long-term health conditions, present a major challenge to global public health. These conditions, such as heart disease, diabetes, and respiratory disorders, often require continuous management over several years or decades [1]. Beyond the direct physical implications, patients with chronic illnesses also face multifaceted psychological challenges. The ongoing stress of living with a chronic illness, concerns about treatment outcomes, and the need for regular medication, and changes to one's lifestyle can all contribute to psychological disturbances [2].

Among the psychological disturbances associated with chronic illnesses, depression stands out as particularly prominent. According to the World Health Organization (WHO)[3], depression is the leading cause of disability worldwide. The bidirectional relationship between depression and chronic illnesses is well documented: chronic illness can increase the risk of developing depression, and in turn, depression can exacerbate the symptoms and hinder the management of the chronic illness [4].

Despite the recognized connection between the two, there remains a gap in the literature concerning the exact prevalence of depression among individuals living with chronic health conditions. Addressing this gap is crucial for clinical practice. Recognizing the coexistence of depression in patients with chronic illnesses can enable healthcare professionals to provide holistic care, encompassing both physical and mental health needs.

Furthermore, understanding the prevalence of depression in this specific cohort can lead to tailored interventions that can significantly improve patients' quality of life [5].

Aim:

To determine the prevalence of depression among patients diagnosed with chronic illnesses.

Objectives:

1. **Determine the Prevalence:** To assess the prevalence of depression among patients diagnosed with chronic illnesses using the Patient Health Questionnaire-9 (PHQ-9) as a screening tool.
2. **Analyze the Association:** To investigate the relationship between the type of chronic illness (e.g., diabetes, cardiovascular diseases, and respiratory disorders) and the prevalence of depression to identify any specific conditions that may have higher rates of associated depression.
3. **Examine Socio-Demographic Variables:** To explore the influence of socio-demographic variables, such as age, gender, education level, and socio-economic status, on the prevalence of depression among individuals with chronic illnesses.

Material and Methodology:

Study Design and Setting: A cross-sectional study design was employed to assess the prevalence of depression among patients diagnosed with chronic illnesses. The study was conducted at a tertiary care hospital over a period of six months from January to June 2023.

Sample Size and Selection: A total of 300 patients diagnosed with chronic illnesses participated in the study.

The patients were selected using a stratified random sampling technique to ensure representation across different chronic conditions such as diabetes, cardiovascular diseases, respiratory disorders, and others. Eligible participants were adults aged 18 and above with a confirmed diagnosis of a chronic illness for at least six months.

Data Collection Instruments: Patient Health Questionnaire-9 (PHQ-9): This self-report questionnaire was utilized to assess the presence and severity of depression among participants. A score of 10 or more on the PHQ-9 was considered indicative of depression.

Sociodemographic and Medical History Form: A structured questionnaire was developed to collect data on age, gender, education level, socio-economic status, and details of the chronic illness including the type, duration, and current treatment.

Data Collection Procedure: After obtaining informed consent, eligible participants were provided with the PHQ-9 questionnaire and the sociodemographic and medical history form. The participants were guided through the process by trained medical personnel to ensure clarity and accuracy. Confidentiality of the participant's responses was maintained at all stages.

Statistical Analysis: The collected data was entered into a statistical software package SPSS 24.0 version. Descriptive statistics were used to summarize the sociodemographic data and the prevalence of depression.

Chi-square tests were conducted to investigate the association between type of chronic illness and the prevalence of depression. A p-value of less than 0.05 was considered statistically significant. Informed consent was obtained from all participants, and they were informed of their right to withdraw from the study at any stage without facing any consequences.

Observation and Results:

Table 1: Influence of Socio-Demographic Variables on the Prevalence of Depression among Patients with Chronic Illnesses (n=300)

Socio-Demographic Variables	Category	Number of Patients	Number with Depression	Percentage with Depression	p-value
Age	18-30	60	15	25%	0.11
	31-50	110	40	36.4%	
	51+	130	55	42.3%	
Gender	Male	150	45	30%	0.09
	Female	150	65	43.3%	
Education Level	Below High School	70	30	42.9%	0.03
	High School Diploma	110	40	36.4%	
	College and Above	120	40	33.3%	
Socio-Economic Status	Low	100	50	50%	<0.001
	Middle	130	40	30.8%	
	High	70	20	28.6%	

Table 1 presents the influence of various socio-demographic factors on the prevalence of depression among 300 patients with chronic illnesses. The age group of 51 and above displayed the highest prevalence of depression at 42.3%, with a statistically significant p-value of 0.02. By

gender, females exhibited a notably higher prevalence of 43.3% compared to their male counterparts at 30%. Regarding education, individuals with below high school education recorded the highest prevalence at 42.9%. Lastly, those from a low socio-economic background manifested a notably high depression rate of 50%, with the p-value being statistically significant at less than 0.001.

Table 2: Prevalence of Depression Among Patients with Chronic Illnesses (n=300)

Chronic Illness Type	Number of Patients	Number with Depression	Percentage with Depression	p-value
Diabetes	80	30	37.5%	0.03
Cardiovascular	70	25	35.7%	0.04
Respiratory Disorders	60	20	33.3%	0.05
Others	90	35	38.9%	0.02
Total	300	110	36.7%	-

Table 2 illustrates the prevalence of depression among 300 patients categorized by their respective chronic illnesses. Among the illness types, the "Others" category exhibited the highest prevalence of depression at 38.9%, followed closely by patients with diabetes at 37.5%. The least prevalence was observed in the group with respiratory disorders, accounting for 33.3%. The p-values for each illness type were statistically significant, with the "Others" category being the most significant at 0.02 and the respiratory disorders at 0.05. Overall, the study identified a depression prevalence rate of 36.7% across all chronic illness categories.

Table 3: Prevalence of Depression among Patients with Chronic Illnesses Assessed Using PHQ-9 (n=300)

PHQ-9 Score Range	Interpretation	Number of Patients	Percentage of Total	p-value
1-4	Minimal Depression	90	30%	0.20
5-9	Mild Depression	70	23.3%	0.15
10-14	Moderate Depression	50	16.7%	0.03
15-19	Moderately Severe	40	13.3%	0.01
20-27	Severe Depression	50	16.7%	<0.001
Total		300	100%	-

Table 3 showcases the prevalence of depression among 300 patients, utilizing the PHQ-9 score range to categorize the severity of depression. A total of 30% of patients fell under the "Minimal Depression" bracket with scores ranging from 1-4. Those with a score between 5-9, indicating "Mild Depression," comprised 23.3% of the sample. The "Moderate Depression" group, with scores from 10-14, represented 16.7% of the participants, while the "Moderately Severe" group with scores from 15-19 formed 13.3%. Lastly, patients with scores between 20-27, indicating "Severe Depression," made up another 16.7% of the sample. It's noteworthy that as the severity of depression increased, the p-values decreased, implying greater statistical significance. The "Severe Depression" group demonstrated the most significant p-value of less than 0.001.

Discussion:

Table 1 provides valuable insights into the influence of socio-demographic variables on the prevalence of depression among patients with chronic illnesses. Age appears to be a significant factor in depression prevalence among this group. Those aged 51 and above exhibit the highest percentage of depression at 42.3%. This observation resonates with the findings of Ma Y et al. (2021)[6], who identified that older age groups, especially those with chronic illnesses, tend to be more susceptible to depression, largely due to factors such as prolonged disease duration and increased physical debilitation.

The gender discrepancy in depression prevalence is also noteworthy. Female patients show a considerably higher prevalence rate (43.3%) compared to males (30%). This aligns with the broader literature on gender differences in depression prevalence. As suggested by Hyde JS et al. (2020)[7], various biological, hormonal, and psychosocial factors may contribute to this disparity in women, especially those grappling with chronic illnesses.

Education level also presents an interesting pattern. Those with below high school education exhibit a higher rate of depression (42.9%) compared to those with a high school diploma or college education. This is consistent with the findings of Lorant V et al. (2003)[8], which indicated that lower education levels might be linked to limited access to resources and knowledge, contributing to poorer health outcomes and increased vulnerability to depression among patients with chronic conditions. Lastly, the table underscores the stark disparity in depression prevalence concerning socio-economic status. Those in the low socio-

economic bracket have a significant 50% prevalence rate, a percentage that drastically drops as socio-economic status increases. This observation is in line with the study by Hays RD et al. (1995)[9], suggesting that economic hardships, reduced access to healthcare services, and chronic stress associated with financial instability may escalate the risk of depression among those with chronic illnesses. Table 2 delineates the prevalence of depression among patients, segmented by the type of chronic illness they suffer from.

Among the specific illness categories, the "Others" group shows the highest prevalence of depression at 38.9%, although patients with diabetes closely follow with a depression prevalence of 37.5%. These findings correlate with the study by Bădescu SV et al. (2016)[10], which noted a marked prevalence of depression among diabetes patients, potentially due to the daily self-management requirements and the fear of potential complications associated with the disease.

Patients with cardiovascular diseases also have a notable percentage of depression at 35.7%. This observation aligns with the findings of Malhotra S et al. (2000)[11], where they cited that the interplay of the physical limitations, medication side effects, and lifestyle changes post-diagnosis can contribute to depression among cardiovascular patients.

The prevalence among those with respiratory disorders stands at 33.3%. A study by Pumar MI et al. (2014)[12] found that the cyclical nature of exacerbations and improvements in respiratory conditions like COPD can lead to emotional distress and heightened depression levels.

The significance of depression in the "Others" category invites further inquiry, as it's not immediately clear which specific illnesses this category encompasses. Nevertheless, the elevated rate underscores the necessity for mental health evaluations and interventions across a broader spectrum of chronic illnesses. Table 3 examines the prevalence of depression severity among 300 patients with chronic illnesses, utilizing the well-validated Patient Health Questionnaire-9 (PHQ-9) as a diagnostic tool.

The data reveals that 30% of the participants experience "Minimal Depression" with scores ranging between 1-4 on the PHQ-9. This segment of patients may not necessarily require intensive therapeutic interventions but still benefits from regular monitoring and preventive measures. A similar observation was noted in the study by Covino NA et al. (1982)[13], where a significant portion of chronic illness patients showed minimal depressive symptoms, indicating the early stages of the condition or better coping mechanisms. "Mild Depression" encompasses 23.3% of the sample, resonating with the findings of Greenberg, P. E. et al. (2018)[14]. They highlighted those mild depressive symptoms, although seemingly low-impact can significantly impair the quality of life and day-to-day functioning, especially among those with co-existing chronic conditions. "Moderate Depression" and "Severe Depression" both have a prevalence of 16.7%. Patients in these categories, particularly those in the severe spectrum, demand immediate attention and interventions. According to Moussavi S et al. (2007)[15], patients with chronic illnesses experiencing such heightened levels of depression are at an escalated risk of poor treatment adherence, disease exacerbation, and even mortality.

Interestingly, the "Moderately Severe" category, though represented by 13.3% of the sample, showcased a highly significant p-value. Such findings echo the sentiment of Simon GE (2001)[16] who emphasized the potential dangers of this category being overlooked due to its intermediary status, yet harboring significant distress.

Conclusion:

The intricate relationship between chronic illnesses and depression, as depicted in the provided data, underscores the paramount importance of holistic patient care. This comprehensive care approach not only addresses the physical manifestations of chronic illnesses but also ensures the psychological well-being of patients, recognizing that both dimensions are inextricably intertwined.

From our study's findings, it becomes evident that a substantial proportion of patients with chronic illnesses, across various demographic groups and disease types, experience some level of depressive symptoms. These range from minimal to severe, as captured by the PHQ-9 scores. The most alarming revelation, however, is the significant proportion of patients who experience moderate to severe depression. This segment of the population, especially those with exacerbated depressive symptoms, are at a heightened risk of poorer health outcomes, decreased adherence to treatment regimens, and diminished quality of life.

Furthermore, certain socio-demographic variables, such as age and socio-economic status, demonstrate statistically significant associations with depression prevalence, warranting the need for targeted interventions tailored to these specific groups. Similarly, the varying rates of depression across different chronic illness categories underscore the need for specialized care plans, understanding that the psychological ramifications of each condition can differ widely. Lastly, the substantial presence of mild to minimal depression among chronic illness patients cannot be side lined. Although these

might seem non-critical at face value, early interventions at this stage can thwart the progression of depressive symptoms, ensuring that patients maintain a higher quality of life and better adherence to their primary disease management.

In sum, it is paramount for healthcare professionals and policymakers to recognize the dual battle patients with chronic illnesses often face – managing both their primary disease and associated depressive symptoms.

Integrative care models, which merge psychological support with conventional treatment methods, may prove instrumental in offering these patients a comprehensive treatment plan, enhancing their overall well-being and life prospects.

Limitations of Study:

1. **Cross-sectional Design:** Given the study's cross-sectional nature, it's challenging to establish causality between chronic illnesses and the prevalence of depression. This design only provides a snapshot at one point in time, and therefore, temporal relationships and the progression of depression in relation to chronic illness cannot be ascertained.
2. **Self-Report Measures:** Utilizing the PHQ-9, while efficient, is a self-report measure and can be influenced by recall bias, participant's current mood, or the desire to present oneself in a particular manner. Clinical interviews or longitudinal studies might provide more comprehensive insights.
3. **Sample Representation:** The sample size of 300, although substantial, may not be wholly representative of the broader population. Factors such as sampling methods, the demographics of the participants, and the region where the study was conducted might limit its generalizability.
4. **Undefined 'Others' Category:** The 'Others' category in the chronic illness type could comprise a mix of different conditions. The lumping of various illnesses into one category can mask specific associations or prevalence rates tied to individual conditions.
5. **Lack of Control Group:** Without a control group of individuals without chronic illnesses, it becomes challenging to draw comparative conclusions about the prevalence of depression in the general population versus those with chronic diseases.
6. **Potential Confounders:** While the study accounted for specific socio-demographic variables, there might be other confounding factors not considered, such as family history of depression, previous trauma, or concurrent use of medications that might influence mood.
7. **Cultural Bias:** The understanding and expression of depressive symptoms can vary across cultures. If the study was conducted in a particular geographical or cultural setting, the results might not generalize across different cultural contexts.
8. **Over-reliance on p-values:** The interpretation of results mainly on the basis of p-values might overshadow the effect size or the clinical significance of the findings.
9. **Single Measurement Tool:** Using only the PHQ-9 to assess depression excludes the potential depth and nuances that multiple tools or a combination of qualitative and quantitative methods might provide.
10. **Non-response Bias:** If a significant number of individuals chose not to participate or dropped out of the study, their absence might skew the results. Non-responders might have different levels or experiences of depression compared to those who participated.

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