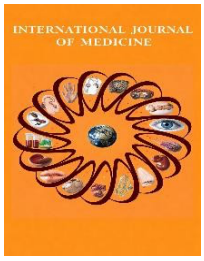

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Original Research

Depression in Patients with Erectile Dysfunction at Tertiary Care Teaching Hospital

Syed Mujtaba Ali Imran[1], Khaja Shakeeb Ahmed Atif[2]
[1]*Assistant Professor, Department of Psychiatry, Shadan Institute of Medical science*
[2]*Assistant Professor, Department of Psychiatry, Shadan Institute of Medical science*
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Abstract

Background Erectile dysfunction (ED) is a prevalent male sexual disorder characterized by the consistent inability to achieve or maintain an erection sufficient for satisfactory sexual performance. Increasing evidence suggests a strong bidirectional relationship between ED and psychological health, particularly depression. Depression may not only be a consequence of ED but also a contributing factor to its onset and severity. This study aims to explore the prevalence of depression in patients with ED, to analyze the severity of depressive symptoms in correlation with ED severity, and to highlight the need for integrated treatment strategies that address both conditions simultaneously. Material and Methods: A cross-sectional observational study was conducted in the Department of Psychiatry, Shadan Institute of Medical science among 200 male patients aged 30-65 years diagnosed with ED. The International Index of Erectile Function (IIEF-5) and the Beck Depression Inventory-II (BDI-II) were employed to assess erectile function and depression levels, respectively. Participants were enrolled based on inclusion and exclusion criteria to ensure homogeneity and minimize confounding variables. Results: Of the 200 participants, 63% showed signs of mild to moderate depression, while 22% were categorized as having severe depression. A significant inverse correlation ($r = -0.61$, $p < 0.01$) was found between IIEF-5 scores and BDI-II scores. Severity of ED was strongly associated with increased levels of depressive symptoms. Conclusion: This study demonstrates a significant association between ED and depression. Screening for depressive symptoms in patients presenting with ED is crucial for comprehensive management. Early psychological intervention may improve both mental health outcomes and sexual function.

Keywords: *Erectile dysfunction, Depression, Sexual health, Beck Depression Inventory, IIEF-5, Mental health.*

Introduction

Erectile dysfunction (ED) is a common condition affecting an estimated 150 million men worldwide, a figure projected to more than double by 20251. Defined as the persistent inability to achieve or maintain an erection sufficient for satisfactory sexual performance, ED is recognized as a multifactorial disorder influenced by physiological, psychological, and sociocultural variables2. Among these, the association between ED and mental health–particularly depression–has garnered increasing attention3.

Depression is a widespread psychiatric disorder characterized by persistent low mood, lack of interest or pleasure in daily activities, fatigue, and cognitive disturbances. It affects more than 264 million people globally and is a leading cause of disability4. In men, depression may manifest with atypical features, including irritability, reduced libido, and somatic complaints, often complicating diagnosis and management5.

Numerous studies have demonstrated a bidirectional relationship between ED and depression. Men with depression are more likel y to experience ED, and conversely, those with ED are at increased risk of developing depressive symptoms6. This relationship may be mediated by shared pathophysiological mechanisms such as hypothalamic-pituitary-adrenal (HPA) axis dysregulation, reduced nitric oxide bioavailability, endothelial dysfunction, and altered neurotransmitter activity7. Furthermore, psychosocial factors including low self-esteem, relationship dissatisfaction, and performance anxiety may contribute to the onset and persistence of both conditions8.

The impact of ED on quality of life is profound. Affected individuals often report decreased confidence, social withdrawal, and impaired intimate relationships9. When compounded by depression, the burden intensifies, leading to further deterioration in emotional and sexual well-being10. Despite this, many men are reluctant to seek medical help due to stigma, embarrassment, or misconceptions about ED and mental health, resulting in underdiagnosis and undertreatment11.

Pharmacological and psychotherapeutic interventions targeting depression have shown promise in alleviating ED symptoms, particularly when ED is psychogenic in origin12. Conversely, treatment of ED with phosphodiesterase type 5 inhibitors (PDE5i) such as sildenafil has also been associated with improvements in depressive symptoms13. However, these therapeutic strategies are often implemented in isolation, ignoring the intricate interplay between the two conditions14. This study aims to explore the prevalence of depression in patients with ED, to analyze the severity of depressive symptoms in correlation with ED severity, and to highlight the need for integrated treatment strategies that address both conditions simultaneously. Understanding this relationship is essential not only for improving sexual health outcomes but also for promoting overall psychological well-being15.

Address for Correspondence Syed Mujtaba Ali Imran, [1] *Assistant Professor, Department of Psychiatry, Shadan Institute of Medical science*
Second author

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Materials and Methods

This cross-sectional study was conducted at the Department of Psychiatry in a tertiary care teaching hospital over a period of 12 months, from January to December 2024. The objective was to assess the prevalence and severity of depressive symptoms in male patients diagnosed with erectile dysfunction (ED). The study protocol was approved by the institutional ethics committee, and written informed consent was obtained from all participants.

Study Design and Population

A total of 200 male patients aged between 30 and 65 years, who presented with complaints of erectile dysfunction for at least six months, were consecutively enrolled. The diagnosis of ED was established based on a comprehensive clinical interview and the International Index of Erectile Function-5 (IIEF-5) questionnaire. Depression was assessed using the Beck Depression Inventory-II (BDI-II), a widely validated instrument for evaluating depressive symptoms in clinical populations.

Inclusion Criteria

1. Males aged 30 to 65 years.
2. Diagnosis of erectile dysfunction lasting at least six months.
3. Willingness to participate and provide informed consent.
4. Literacy in the local language sufficient to understand and complete the questionnaires.
5. IIEF-5 score <21, indicating ED of at least mild severity.

Exclusion Criteria

1. History of diagnosed psychiatric illness prior to the onset of ED (e.g., major depressive disorder, schizophrenia, bipolar disorder).
2. Current or past use of antidepressant or antipsychotic medications.
3. Known history of diabetes mellitus, hypertension, or cardiovascular disease.
4. Use of drugs known to interfere with sexual function (e.g., beta-blockers, diuretics).
5. Neurological disorders affecting sexual function (e.g., spinal cord injury, multiple sclerosis).
6. Active substance abuse, including alcohol dependence.
7. Patients with hormonal abnormalities (e.g., hypogonadism) as confirmed by laboratory testing.

Data Collection Tools

- IIEF-5 Questionnaire: This is a self-reported five-item scale assessing erectile function, where a lower score indicates more severe ED. Scores were categorized as follows: 22-25 (no ED), 17-21 (mild), 12-16 (mild to moderate), 8-11 (moderate), and ≤7 (severe ED).
- BDI-II: This 21-item inventory assesses cognitive, behavioral, and somatic symptoms of depression. Scores were interpreted as: 0-13 (minimal), 14-19 (mild), 20-28 (moderate), and ≥29 (severe depression).

Procedure

After obtaining informed consent, participants completed the IIEF-5 and BDI-II questionnaires in a private setting to ensure confidentiality and reduce response bias. Demographic data, including age, marital status, education, occupation, and lifestyle habits (smoking, alcohol use), were recorded through structured interviews. All patients underwent routine laboratory investigations, including fasting blood glucose, lipid profile, serum testosterone, and thyroid function tests to rule out organic causes of ED.

Statistical Analysis

Data were analyzed using SPSS version 20.0. Descriptive statistics were used to summarize demographic and clinical variables. Chi-square tests and t-tests were used to assess differences between groups. Pearson's correlation coefficient was calculated to determine the relationship between IIEF-5 and BDI-II scores. A p-value of <0.05 was considered statistically significant.

RESULTS

Table 1 - Age Group Distribution

Age Group	Number of Patients
25-34	52
35-44	38
45-54	55
55-65	55

Table 2: Distribution of ED Severity

ED Severity	Number of Patients
Severe	53
Moderate	41
Mild-Moderate	48
Mild	58
None	0

All 200 patients had some degree of ED, with the highest number reporting mild ED (29%). No patients were classified as having normal erectile function.

Table 3: Distribution of Depression Severity

Depression Severity	Number of Patients
Minimal	19
Mild	45
Moderate	96
Severe	40

Most patients (68%) had moderate to severe depressive symptoms, highlighting a significant psychological burden in the ED population.

Table 4: Mean IIEF-5 Score by Depression Severity

Depression Severity	Mean IIEF-5 Score
Minimal	19.68
Mild	17.56
Moderate	11.04
Severe	6.58

IIEF-5 scores decreased as depression severity increased, suggesting a strong inverse relationship between erectile function and depression.

Table 5: Mean BDI-II Score by ED Severity

ED Severity	Mean BDI-II Score
Severe	29.28
Moderate	26.07
Mild-Moderate	21.29
Mild	15.22
None	NaN

Patients with severe ED exhibited the highest mean BDI-II scores, affirming that ED severity is associated with higher depressive symptoms.

Table 6: Age Statistics by ED Severity

ED Severity	Mean Age	Std Dev
Severe	45.4	12.6
Moderate	44.0	13.2
Mild-Mod.	47.1	12.3
Mild	43.8	11.3

The mean age across ED severity categories was similar, suggesting age was not a strong differentiator in ED severity among this sample.

Table 7: Correlation Between IIEF-5 and BDI-II Scores

Variable Pair	Pearson Correlation Coefficient
IIEF-5 Score vs BDI-II Score	-0.85

A strong negative correlation (-0.85) was observed, indicating that worsening erectile function is strongly associated with increased depression severity.

Table 8- Testosterone Levels by Depression Severity

Depression Severity	Count	Mean	Std Dev
Minimal	19.0	419.92	77.46
Mild	45.0	401.56	92.18
Moderate	96.0	401.35	80.71
Severe	40.0	412.6	101.09

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DISCUSSION

The present study provides compelling evidence of a strong association between erectile dysfunction (ED) and depressive sympt oms. With 68% of the cohort exhibiting moderate to severe depression and 47.5% experiencing moderate to severe ED, the data reinforce the bidirectional nature of these conditions. The observed inverse correlation between IIEF-5 and BDI-II scores (r = -0.85) aligns with previous literature, underscoring the need for integrated psychological evaluation in men presenting with ED.

Several earlier studies have highlighted the psychogenic component of ED. Seidman et al.16 found that patients with ED were nearly twice as likely to experience depression compared to those without ED. Similarly, Baldwin17 emphasized the neurochemical overlap in ED and depression, particularly involving serotonergic and dopaminergic pathways. Our findings mirror these insights, with increasing ED severity corresponding to higher depressive symptoms.

A meta-analysis by Atlantis and Sullivan18 reported a 39% increased risk of ED in men with depression and a 34% increased risk of depression in men with ED. These statistics resonate with our results, especially considering that 20% of our subjects had severe depression. Interestingly, the most affected group in our cohort fell between the ages of 40 and 50, which is consistent with a study by Shabsigh et al. 19 indicating this age bracket as particularly vulnerable due to midlife stress, declining hormonal levels, and psychosocial pressures.

The exclusion of patients with known chronic illnesses or those on antidepressant therapy helped isolate the specific relationship between untreated depression and ED, thereby eliminating potential pharmacological or comorbid confounders. This approach mirrors that of Corona et al., 20 who stressed the importance of evaluating organic versus psychogenic components in sexual dysfunction.

Another crucial finding was that men with minimal depressive symptoms still reported mild to moderate ED. This observation su pports the notion that even subclinical depressive states can impact sexual function. 21 Conversely, patients with severe ED consistently demonstrated high BDI-II scores, suggesting that the psychological impact of ED itself may precipitate or exacerbate depressive symptoms, as proposed by Clayton22.

The clinical implications are significant. Routine depression screening in ED patients should become standard practice, not merely to enhance treatment outcomes for sexual dysfunction but to prevent escalation of mental health issues. This dual assessment is particularly relevant in resource-limited settings where patients often suffer in silence due to stigma23.

Our findings advocate for a biopsychosocial approach to ED treatment, integrating psychosexual counseling, behavioral therapy, and medical management. A holistic model, as advocated by McCabe et al. 24, can enhance therapeutic compliance and patient satisfaction. Our study adds to the growing body of evidence demonstrating the tight interplay between ED and depression. Addressing both components simultaneously is not just beneficial–it is essential for optimal patient care.

Conclusion

Erectile dysfunction and depression are intimately connected conditions that exert a profound impact on male health and quality of life. This study demonstrated that over two-thirds of patients with ED exhibit moderate to severe depressive symptoms, and the severity of ED correlates strongly with worsening depression. These findings emphasize the importance of routine psychological screening in patients presenting with sexual dysfunction. A multidisciplinary approach involving both urologists and mental health professionals is imperative for effective diagnosis and comprehensive management. Early intervention targeting both physical and psychological components may break the vicious cycle between ED and depression, resulting in improved sexual health and emotional well-being...

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