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Original Article

Prevalence of Erectile Dysfunction Among Men with Newly Diagnosed Psychiatric Disorders in Damietta Governorate

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Abstract

Background: Epidemiological studies have demonstrated that prevalence of erectile dysfunction [ED] is elevated in males with psychiatric diseases. Depressive disorders, anxiety disorders, obsessive-compulsive disorder [OCD], and psychotic disorders are the primary psychiatric conditions that directly disrupt the erectile process.

Aim: This study aims to assess the prevalence and the severity of ED in psychiatric disorders patients in Damietta governorate men.

Patients and methods: This cross-sectional study included 300 adult males who were newly diagnosed with a psychiatric disorder. Full history taking and general and local examinations were done for every patient at the time of recruitment. Psychiatric disorders diagnoses were done based on the DSM-5. Erectile function was assessed by using the Arabic version of the international index of Erectile function

Results: The prevalence of ED based on the IIEF score in our study was 54% of the included patients. However, the severity of ED is different, 36% were mild 16% were mild to moderate, and 2% were moderate. Prevalence of ED was calculated in each psychiatric disorder, and we found that 100% of all schizophrenic patients had ED [60% of them were mild, and 40% were mild to moderate], 47% of the depressed patients developed ED [29.4% of them were mild, 11.8% of them were mild to moderate, and 5.9 % of them were moderate], 35.2 % of the anxiety patients developed ED [17.6% were mild, and 17.6 were mild to moderate], and 72.7 % of the OCD patients had ED [63.6% were mild and 9.1% were mild to moderate]

Conclusion: ED is prevalent in patients with psychiatric disorders who didn't receive any medications so, it may be helpful to assess these persons' sexual functioning prior to therapy, to avoid any decline in sexual function caused by the introduction of psychiatric medicines

Keywords: Erectile Dysfunction; Depression; Anxiety; Schizophrenia.

INTRODUCTION

Erectile dysfunction [ED] is a medical condition characterized by the ongoing inability to achieve and sustain a firm erection of the penis that is sufficient for satisfactory sexual intercourse [1]. Erectile dysfunction can significantly impact the overall well-being of individuals and their spouses due to its detrimental impacts on both physical and psychosocial aspects of health. Research has shown that erectile dysfunction is widespread among males, with evidence indicating that an estimated 322 million people worldwide would be affected by ED by the year 2025 [2].

The involvement of the psychiatrist in the treatment of erectile dysfunction is centered around three categories of patients, determined by the cause of the dysfunction: patients with functional or psychogenic ED, patients with mixed organic psychogenic ED, and patients with ED and concurrent psychopathology [3].

Epidemiological studies have demonstrated that the occurrence and frequency of ED are elevated in males with psychiatric diseases. Depressive disorders, anxiety disorders, obsessive-compulsive disorder, and psychotic disorders are the primary psychiatric conditions that directly disrupt the erectile process [4].

Multiple primary researches have specifically examined the correlation between erectile dysfunction and depression. While several research have indicated a correlation between exposure to depression and an increased risk of erectile dysfunction, other studies have found no connection between depressive symptoms and the occurrence of ED [5]. Depression, a condition that can greatly affect one's quality of life, is commonly found in patients with ED, with documented occurrence rates ranging from 8.7% to 43.1% [6,7].

ED has been found to occur in up to 37% of individuals with anxiety disorders. The exact impact of anxiety on erectile dysfunction is not yet determined. However, it is suggested that anxiety plays a role in a harmful loop that hinders the sexual interaction between the patient and their partner, leading to communication difficulties and further impairing sexual functionality [4].

Men experiencing their initial episode of psychosis, which refers to the first occurrence of a psychotic illness such as schizophrenia, acute and transient psychotic disorders, depression with psychotic features, schizoaffective disorders, or a manic episode with psychotic features, are prone to developing ED and experiencing longer periods of untreated psychosis. This creates a harmful cycle where the rates of ED are elevated [8]. Consequently, it is recommended to regularly evaluate patients who exhibit indications of psychiatric problems for ED [3]**.** So, this study aims to assess the prevalence and the severity of ED in psychiatric disorders patients in Egyptian men.

PATIENTS AND METHODS

Study populations: This cross-sectional study was conducted on a sample of 300 adult males who were recently diagnosed with a psychiatric disease and received treatment at the psychiatric and dermatological outpatient clinics in Al-Azhar University hospitals in New Damietta, Egypt. The principles of the Helsinki Declaration were adhered to in our investigation. The study received ethical approval from the institutional review board of Damietta Faculty of Medicine [Al-Azhar University]. Prior to recruitment, written informed consent was obtained from each patient. We included the patients according to the following criteria;

The inclusion criteria were: Male patients; Ages from 18–50 years; Married and cohabitating with their wives; Newly diagnosed with psychiatric disorders.

The exclusion criteria were: Patients who are less than 18 or older than 50 years; Patients that are known with confirmed ED due to other causes; administration of drugs that may lead to the development of E.D including anti-anxiety agents, antidepressants, antipsychotics, or mood stabilizers; and all individuals with endocrine disorders, neurological disorders, prostate disorders, pelvic trauma or spinal cord injury, Peyronie's disease or curvature, alcoholism, metabolic syndrome, and chronic illnesses such as diabetes mellitus, hypertension, liver disease, renal failure, and cardiovascular disease.

Data collection: Full history taking [with special attention on the history of psychiatric disorder, sexual activity, marital state, drug intake, and any systemic disease which may be the cause of ED], and general and local examinations were done for every patient at the time of recruitment. Psychiatric disorders diagnoses were done based on the DSM-5 published by the American Psychiatric Association in May 2013 [3].

Erectile function was assessed by using the Arabic version of the international index of erectile function [9]. The IIEF Questionnaire was created to fulfill the requirement for a self-report assessment of both erectile function and sexual function that may be administered with the assistance of a physician. The IIEF Questionnaire assesses the quality of male sexual function based on five domain scores: erectile function, orgasmic function, sexual desire, intercourse pleasure, and overall satisfaction. This questionnaire comprises only five items, and each item in the IIEF-5 is evaluated using a five-point ordinal scale, where lower scores indicate decreased sexual function. Therefore, a question's functionality was rated on a scale of 0 to 5, with 0 being the lowest level of functionality and 5 being the highest level of functionality. The IIEF5 has a score range of 1 to 25, with one item having scores between 1 and 5. A score above 21 indicates normal erectile function, while a score at or below this cutoff indicates erectile dysfunction [ED]. ED is categorized into four groups using the IIEF-5 scores on this scale: severe [1–7], moderate [8–11], mild to moderate [12–16], mild [17– 21], and no ED [22–25] [10].

Statistical analysis: The data input and statistical analyses were conducted using SPSS [Statistical Package for the Social Sciences] version 26 [SPSS Inc., Chicago, IL, USA]. The normality of the quantitative data was initially assessed using the Kolmogorov–Smirnov test. The Mean and SD were used to depict the continuous data, and the comparison between the groups for these variables was conducted using the One-Way ANOVA test, followed by post hoc analysis. The categorical data were represented using numerical values and percentages, and the comparison between groups with respect to categorical variables was conducted using the chi-square test. A Pearson correlation analysis was conducted to ascertain the correlation between the various study variables. A p-value < 0.05 was considered significant if < 0.05.

RESULTS

Our study included 300 men newly diagnosed with psychiatric disorders. The mean age of the studied patients was 31.5 ± 9.6 years old. The psychiatric disorders were depression [34%], Anxiety [34%],

OCD [12%], and Schizophrenia [10%] [table 1]. As regards the IIEF score, the mean total IIEF score was 19.76 ± 3.01 ranging from 12 – 24. The prevalence of ED based on the IIEF score in our study was 54% of the included patients. However, the severity of ED is different, 36% were mild 16% were mild to moderate, and 2% were moderate [table 2]. We compared the different types of psychological disorders regarding the total IIEF score, and we found that the least value of IIEF score was found in the schizophrenic group which was 16.6 ± 1.5, with a statistically significant difference between all groups [P value = 0.001] [Table 3]. Prevalence of ED was calculated in each psychiatric disorder, and we found that 100% of all schizophrenic patients had ED [60% of them were mild, and 40% were mild to moderate], 47% of the depressed patients developed ED [29.4% of them were mild, 11.8 % of them were mild to moderate, and 5.9 % of them were moderate], 35.2 % of the anxiety patients developed ED [17.6% were mild, and 17.6 were mild to moderate], and 72.7 % of the OCD patients had ED [63.6% were mild and 9.1% were mild to moderate] [table 4]. Correlation analysis between the Age category and prevalence of ED revealed that ED is prevalent in the age category 40 – 50 years old more than in other categories [P value = 0.001] [Table 5], Also we found a significant negative correlation between the Age and the IIEF score [r=-0.7, P value = 0.001] [Figure 1]

Table [1]: Baseline characteristics of the studied patients.

	Variables	Mean ± SD or N [%].
Age	Mean ± SD Range	31.5 ± 9.6 18 - 50
Type of psychiatric disorders. [n, %] [N=300]	Schizophrenia Depression Anxiety OCD	30 [10.0%] 102 [34.0%] 102 [34.0%] 66 [22.0%]

Table [2]: Total International Index of Erectile Function.

	Variables	Mean ± SD or N [%].
Total IIEF score	Mean ± SD Range	19.76 ± 3.01 12 - 24
Total IIEF categories	No Mild Mild to moderate Moderate Sever	138 [46.0%] 108 [36.0%] 48 [16.0%] 6 [2.0%] 0 [0.0%]

Table [3]: Comparison between the different types of psychological disorders regarding the totalIIEF score.

	IIEF score	P value *a	P value between every 2 groups.
Schizophrenia	16.6 ± 1.5	0.001	P1 = 0.001*; P2 = 0.001* P3 = 0.001* P4 = 0.64 P5 = 0.34; P6 = 0.03*
Depression	20.1 ± 3.2		
Anxiety	20.5 ± 2.6		
OCD	19.3 ± 2.7		

a: One-way ANOVA test. ***:** Significant P value. **P1:** comparison between the Schizophrenia group and the depression group. **P2:** comparison between the Schizophrenia group and Anxiety. **P3:** comparison between the Schizophrenia group and OCD. **P4:** comparison between the depression group and anxiety. **P5:** comparison between the depression group and OCD. **P6:** comparison between anxiety group and OCD.

Table [4]: Association between the IIEF category and type of Psychiatric disorders.

	Variables	Schizophrenia [N=30]	Depression [N= 102]	Anxiety [N = 102]	OCD [N = 66]	P value
Normal [n, %]		0 [0.0%]	54 [52.9%]	66 [64.7%]	18 [27.3%]	0.001*[a]
Abnormal [n, %]	Mild	18 [60.0%]	30 [29.4%]	18 [17.6%]	42 [63.6%]	
	Mild to moderate	12 [40.0%]	12 [11.8%]	18 [17.6%]	6 [9.1%]	
	Moderate	0 [0.0%]	6 [5.9%]	0 [0.0%]	0 [0.0%]	
	sever	0 [0.0%]	0 [0.0%]	0 [0.0%]	0 [0.0%]	
	Total	30 [100.0%]	48 [47.0%]	36 [35.2%]	48 [72.7%]	

Table [5]: Association between the Age category and the prevalence of ED according to the IIEF.

Variables	Normal [N=138]	Abnormal [N=162]	P value
20 – 29 years [n, %]	102 [34.0%]	48 [16.0%]	0.001*[a]
30 – 39 years [n, %]	36 [12.0%]	54 [18.0%]	
40 – 50 years [n, %]	0 [0.0%]	60 [20.0%]	

a: Chi-square test. ***:** Significant P value. Percentage per total.

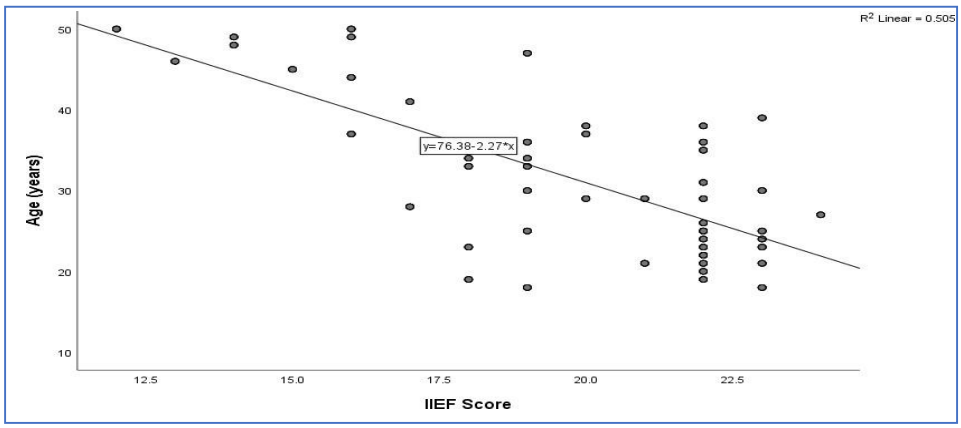

Figure [1]: Correlation between IIEF score and Age of the studied patients

DISCUSSION

The aim of the present study was to determine the prevalence rate of Erectile dysfunction in male psychiatric patients. The study's findings suggested a greater occurrence rate of ED in psychiatric patients. These findings were consistent with the results of previous studies, which have documented a greater prevalence rate of erectile dysfunction among individuals with psychiatric conditions [11, 12]. The elevated prevalence of sexual dysfunction among psychiatric patients is impacted by various factors, including the specific medical and mental illnesses they have, as well as the marital and relational difficulties they experience with their spouses. Additionally, cultural and social factors also play a role in this phenomenon [13]. The prevalence of erectile dysfunction [ED] varies throughout studies due to multiple factors and the use of different measurement methodologies. Reported rates of ED range from 13.5% in Egypt to as high as 80.0% in other countries [14, 15]. Furthermore, Epidemiologic research have demonstrated that the frequency and occurrence of erectile dysfunction are elevated in males with psychiatric diseases [4].

In the present study, we found that among 300 psychiatric outpatients, the most common age group was the age group from 18 to > 29 years 50.0% and the prevalence of ED was increased by increasing the age group. In an Indian study done on male patients presenting with sexual dysfunction in a psychiatric clinic, **Grover *et al.*** [16] found that 57.4% of them were in the age group of 20 to 30 years. 27.8% were from 30 to 40 years, 7.4% were from 40 to 50 years and 7.4% were from 50 to 60 years. Also, in another Indian study, **Kalra et al.** [17] found that the age range of male sexual dysfunction presenting to the psychiatric clinic was 18–50 years. Among these individuals, 53.0% were between 18 and 30 years old, 33.0% were between 31 and 40 years old, and 14.0% were between 41 and 50 years old.

In our study, the overall prevalence of ED in psychiatric patients is 54%, which is similar to **Abdelatti *et al.*** [11], who used the IIEF questionnaire to assess the sexual functions of 80 psychiatric patients in comparison to 80 nonpsychiatric patients, and they found that 51.2% of the psychiatric patients had abnormal IIEF.

In this work, the results revealed that among the psychiatric patients, those with depression and OCD had the highest prevalence rate of ED [16.0% for each type]. The prevalence of schizophrenia and anxiety disorders among the patients was 10.0% and 12.0% respectively. This finding contradicts the findings of the study conducted by **Fanta *et al.*** [18] which stated that the prevalence of sexual dysfunction among male individuals with schizophrenia was 84.5%. Furthermore, **Macdonald *et al.*** documented that 45.0% of individuals diagnosed with schizophrenia experience sexual dysfunction [19]. The difference may arise from the disparity in sample sizes and the focus of our study just on erectile dysfunction, while their study encompassed sexual dysfunction as a whole.

Men experiencing their first episode of psychosis, which is the initial manifestation of a psychotic illness such as schizophrenia, acute and transient psychotic disorders, depression with psychotic features, schizoaffective disorders, or a manic episode with psychotic features, are prone to developing ED and experiencing longer periods of untreated psychosis. This creates a harmful cycle where the rates of ED are elevated [8,19].

In our study, 100.0% of the schizophrenic patients had ED. The increased occurrence of sexual dysfunctions in schizophrenia patients can be attributed to the disruption in their theory of mind, which refers to their impaired ability to comprehend the thoughts and emotions of others in terms of their mental states. This disruption will impede the individual's capacity to establish interpersonal connections. Establishing these ties is crucial for forming sexual partnerships [20]. The previous studies have established that sexual dysfunction is more prevalent among individuals diagnosed with schizophrenia.

MacDonald *et al.* [19] found that 50.0% of psychotic men report some form of sexual dysfunction and at least one sexual dysfunction was reported by 82.0% of male schizophrenics. **Hashem *et al.*** [21] found 80.0% of paranoid schizophrenics and 86.0% of non-paranoid schizophrenics had at least one sexual dysfunction. **Oyekanmi *et al.*** [22] reported that one or more forms of sexual dysfunction existed among 111 [40.4%] of 275 psychotic outpatients. **Baggaley** [23] reported that sexual dysfunction is estimated to affect 30.0–80.0% of schizophrenic patients. **Dossenbach *et al.*** [24], found that sexual dysfunction affected 50.0% of schizophrenics, **Hocaoglu *et al.*** [25] reported that male schizophrenics have significantly more self-reported sexual dysfunction than healthy controls [46.0% vs. 8.0%].

Multiple studies have demonstrated that the elevated occurrence of sexual dysfunctions in individuals with schizophrenia is directly linked to the sexual adverse effects resulting from the use of antipsychotic medications in these patients. **Tenback *et al.*** discovered that depot antipsychotic therapy led to sexual dysfunction [26]. Furthermore, **Atmaca *et al*.** determined that individuals with schizophrenia experience sexual dysfunction as a significant issue, even when treated with modern antipsychotic medications [27].

Kockott and Pfeiffer conducted a study to investigate sexual disorders in non-acute psychiatric patients. They discovered that schizophrenic patients who take neuroleptic drugs are more commonly afflicted by these disorders, while schizophrenic patients who do not take medications experience less dysfunctions [28]. Furthermore, additional research has demonstrated that the use of antipsychotic medication does not have an impact on sexual function at the onset of drug therapy [29]. Therefore, it is crucial to thoroughly evaluate sexual function in patients who have recently been diagnosed with a psychosis episode [30].

Several primary studies have specifically examined the correlation between erectile dysfunction [ED] and depression. While several research have indicated a correlation between exposure to depression and an increased risk of ED, other studies have found no connection between depressive symptoms and the occurrence of ED. Depression, a condition that can greatly affect one's quality of life, is commonly found in patients with ED, with documented occurrence rates ranging from 8.7% to 43.1% [6, 7].

In the present study, 47.0% of the patients with depression had ED. **Williams and Reynolds** [31] showed that 22.22% of depressed patients suffered from erectile dysfunction. **Seidman *et al.*** [32] reported that systematically collected data confirm that major depressive disorder is frequently associated with erectile dysfunction. The same authors showed that depression is associated with erectile dysfunction. **Morehouse *et al.*** [33], reported that depressed patients experience erectile dysfunction. The difference between the reported studies is due to different sample sizes, age groups, and medical histories of the included patients in each study.

Clinical research has provided conflicting evidence regarding sexual dysfunction in patients with OCD [34]. In our study, 22 % of the included patients had OCD, and 48 [72.2%] of them had ED. This is in agreement with **Aksoy *et al.*** [34], who included 40 patients with OCD between 20 and 60 years old and found that 57.1% of the OCD male patients had sexual dysfunctions and concluded that Sexual dysfunction unrelated to pharmacotherapy has been found to occur in OCD patients so, an early examination is recommended.

In terms of anxiety disorders, Anxiety plays a significant role in the development of sexual dysfunction. Sexual avoidance tendencies are often influenced by anxiety related to sexual performance or relationship concerns, such as closeness and partner rejection [35]. In our study, we found that 35.2% of the anxiety patients had ED which, is in agreement with a systematic review Metanalysis done by **Velurajah *et al***. [4] reported that anxiety disorder populations are at a higher risk of developing ED.

The impact of anxiety on sexual functioning in this group has not been definitively determined. However, it is believed that an atypical anxiety response trigger heightened sympathetic activity, which in turn diverts attention from erotic stimuli, leading to compromised arousal and erection [36]. Hence, it is imperative for clinicians in psychiatric practice and primary care to regularly assess patients with anxiety disorders for sexual dysfunction and make appropriate referrals to urology for necessary support. This is particularly important for patients who display common risk factors for both conditions, such as the use of psychotropic medications. When treating patients with anxiety disorders with psychotropic drugs, practitioners should assess their initial erectile function and make necessary dosage adjustments. This approach can enhance medication adherence without hurting their overall quality of life [37].

In our study, we discovered a notable inverse relationship between the patient's age and the IIEF score, as well as a noteworthy direct relationship between the age group and the IIEF category. Furthermore, we observed a greater occurrence of ED in the older age category. This finding contradicts previous Egyptian research. **Olfson *et al***. discovered a negative correlation between age and sexual function [38], whereas **Mohamed** observed that sociodemographic factors, including aging, negatively impact sexual function in individuals with paranoid schizophrenia [39].

To the best of our knowledge, it is the first study in Egypt that studied the prevalence of ED in a newly diagnosed psychiatric disorder. The only limitation of our study is the absence of a control group [nonpsychiatric group] which is recommended to be done in future research.

In conclusion, ED is prevalent in patients with psychiatric disorders who didn't receive any medications so, assessment of sexual functioning in these individuals before treatment may help prevent deterioration of sexual function that may occur upon introduction of psychotropic medications.

Conflict of interest and financial disclosure: None to declare.

Author's contribution: All authors contributed equally.

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