

# INVESTIGATION OF DEPRESSIVE SYMPTOMS AMONG MALE PATIENTS WITH ERECTILE DYSFUNCTION

Nguyen Hoài Bac<sup>1,✉</sup>, Nguyen Van Tuan<sup>1,2</sup>

<sup>1</sup>Hanoi Medical University

<sup>2</sup>National Institute of Mental Health

*Erectile dysfunction (ED) is one of the causes of depression. The presence of depression in patients with erectile dysfunction worsened the condition. We conducted a study among 60 men diagnosed with erectile dysfunction who had depression using the PHQ-9 scale to determine the prevalence and characteristics of depression. The mean age of the subjects was  $39 \pm 13.3$  years old, where 31.7% were single. The participants' average BMI was  $23.1 \pm 2.4$  kg/m<sup>2</sup> and average testosterone level was  $17.5 \pm 6.5$  nmol/L. The rates of mild, moderate, and moderately severe depression of the study subjects were 68.3%, 25% and 6.7%, respectively. The most common and severe symptoms of depression were loss of interest, loss of energy, and depressed mood. We suggest that depression should be noticed and screened in patients with erectile dysfunction.*

**Keywords:** Erectile dysfunction, depression.

## I. INTRODUCTION

Depression is a mood disorder manifested by the suppression of all mental activities and negatively affects a person's emotions, thinking and action. This condition is a serious public health issue that needs to be addressed. It is one of the main causes of disability, increased disease burden, and healthcare expenses worldwide, according to the World Health Organization (WHO).<sup>1</sup> It is estimated that over 264 million people have depression, equivalent to 3.4% of the global population. The lifetime prevalence of depression accounts for 15 - 18%, and it varies around the world.<sup>2</sup> According to Lim (2018), the prevalence of depression is highest in South America (20.6%) followed by Asia (16.7%) and North America (13.4%), Australia has the lowest rate with 7.3%. The difference between regions is not statistically significant.<sup>3</sup> In Vietnam, the prevalence is 8.35% in Nguyen

Viet Thiem's study.<sup>4</sup> Depression is a mental disorder that may present as a co-morbidity in a variety of diseases and medical conditions. Among those, erectile dysfunction (ED) has been proven to be associated with depression. Recent studies have shown that ED can trigger depressive symptoms, with the prevalence of depression in patients with ED ranging from 33.3 to 79.56%.<sup>5,6</sup>

In Vietnam, there have been many studies on depression in patients with type 2 diabetes, chronic renal failure on dialysis, and in elderly patients.<sup>7-9</sup> However, to the author's knowledge, there is limited data on the characteristics of depression in patients with ED. In addition, the presence of depression negatively affects treatment compliance of ED, resulting in lower treatment effectiveness. Moreover, if ED is not treated properly, it can exacerbate depression and detrimentally impact the patient's quality of life. Therefore, early detection of depression in men with ED plays an important role in the management and treatment of erectile dysfunction as well as depression in the community healthcare strategy.

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Corresponding author: Nguyen Hoai Bac

Hanoi Medical University

Email: [nguyenhoaiabc@hmu.edu.vn](mailto:nguyenhoaiabc@hmu.edu.vn)

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Given the aforementioned facts, we conducted the study: “**Investigation of depressive symptoms among male patients with erectile dysfunction**” with the aim to determine the prevalence and characteristics of depression in patients with erectile dysfunction at the Department of Andrology and Sexual Medicine, Hanoi Medical University Hospital from September 2020 to May 2021.

## II. METHODS

### 1. Subjects

The study was conducted on patients with erectile dysfunction who came for examination and treatment at the Department of Andrology & Sexual Medicine, Hanoi Medical University Hospital.

#### Inclusion criteria:

- Over 18 years old males, who had at least one stable sex partner and had regular sexual intercourse (at least once a week).
- Male diagnosed with erectile dysfunction.
- Male with PHQ-9 score > 4.
- Male volunteered to participate in the study.

#### Exclusion criteria

- Male with other disorders of sexual activity such as decreased libido, premature ejaculation, orgasm disorder, primary and secondary hypogonadism.
- Male with other chronic diseases such as cardiovascular diseases, diabetes, hormonal disorders.
- Male having abnormalities of the genital organs that affected sexual activity such as penile curvature, low urinary opening, small penis.
- Male who had been diagnosed with and treated for any mental disorder.
- Male having inadequate information needed for the study.

### 2. Study design

Cross-sectional study.

### 3. Location and time of the study

This study was conducted at the Department of Andrology and Sex Medicine - Hanoi Medical University Hospital during the period from September 2020 to May 2021.

### 4. Sampling method

Convenience sampling, 131 patients meeting all criteria were enrolled in the study.

### 5. Study process

Patients were given a clinical examination including medical history, hormonal tests, blood chemistry panel, and testicular ultrasound according to a routine procedure at the Department of Andrology and Sexual Medicine, Hanoi Medical University Hospital.

#### Diagnostic criteria of Erectile dysfunction in DSM – 5 (5<sup>th</sup> edition of *Diagnostic and Statistical Manual of Mental Disorders*)<sup>10</sup>

A. At least one of the three following symptoms must be experienced on almost all or all (approximately 75%-100%) occasions of sexual activity (in identified situational contexts or, if generalized, in all contexts):

1. Marked difficulty in obtaining an erection during sexual activity.
2. Marked difficulty in maintaining an erection until the completion of sexual activity.
3. Marked decrease in erectile rigidity.

B. The symptoms in Criterion A have persisted for a minimum duration of approximately 6 months.

C. The symptoms in Criterion A caused clinically significant distress in the individual.

D. The sexual dysfunction is not better explained by a nonsexual mental disorder or as a consequence of severe relationship distress or other significant stressors and is

not attributable to the effects of a substance/ medication or another medical condition.

Subsequently, the patients were transferred to a consulting room to complete a research medical record including general characteristics: age, age at the first sexual intercourse, number of sexual partners, sexual frequency, masturbation frequency, and performed PHQ-9 and IIEF-5 scales.

**Depression is diagnosed based on the PHQ-9 scale when it scores 5 or more. The classification of depressive disorder is as follows:**

- 0 - 4: No depression
- 5 - 9: Mild depression
- 10 - 14: Moderate depression
- 15 - 19: Moderately severe depression
- 20 - 27: Severe depression

**Based on the IIEF-5 scale, erectile dysfunction is classified as follows:**

- 22 - 25: No erectile dysfunction
- 17 - 21: Mild erectile dysfunction
- 12 - 16: Mild to moderate erectile dysfunction

- 8 - 11: Moderate erectile dysfunction
- 5 - 7: Severe erectile dysfunction

**6. Data analysis**

Data was processed and analyzed using SPSS 20.0. Descriptive analyses were used to summarize characteristics. The results were demonstrated as mean ± standard deviation, min, max or number (percentage).

**7. Ethical considerations**

Patients voluntarily participated in the study. The information provided by the research subjects was kept completely confidential. This was a cross-sectional, non-interventional descriptive study. The research results and suggestions are used for the purpose of raising awareness about ED, the quality of diagnosis, and treatment of the disorder.

**III. RESULTS**

From September 2020 to May 2021, 131 erectile dysfunction patients who met the criteria were included in the study. Of which, 60 patients had depression, accounting for 45.8%.

**1. General characteristics of the subjects**

**Table 1. General characteristics of the subjects (n = 60)**

Features	Frequency (%)	$\bar{X} \pm SD$	Min-Max
<b>Age (years old)</b>		39 ± 13.3	22 - 74
< 40	36 (60)		
≥ 40	24 (40)		
<b>Educational background</b>			
Under high school	20 (33.3)		
Completed high school	40 (66.7)		
<b>Occupation</b>			
Student	1 (1.7)		
Worker/farmer	11 (18.4)		

Features	Frequency (%)	$\bar{X} \pm SD$	Min-Max
Business	16 (26.7)		
Officer	17 (28.2)		
Retired	4 (6.7)		
Others	11 (18.3)		
<b>Marital status</b>			
Single	19 (31.7)		
Married	41 (68.3)		
BMI (kg/m <sup>2</sup> )		23.1 ± 2.4	18.7 - 28
18 - 23	27 (45)		
> 23	33 (55)		
IIEF-5 scale		12.7 ± 3.5	6 - 21
Mild	4 (6.7)		
Mild to moderate	19 (31.6)		
Moderate	28 (46.7)		
Severe	9 (15)		
Testosterone levels (nmol/L)		17.5 ± 6.5	2.8 - 31.7
< 12	11 (21.2)		
≥ 12	41 (78.8)		

Note: There were 52/60 patients tested for testosterone levels

The average age of the study subjects was 39 ± 13.3 with the majority were under the age of 40, accounting for 60%. Most of the patients had completed high school (66.7%) and were married (68.3%). More than half of the patients were overweight (55%). Regarding the degree of ED, nearly half of the patients had moderate ED (46.7%).

## 2. Sexual behavior of the subjects

Table 2. Sexual behavior of the subjects (n = 60)

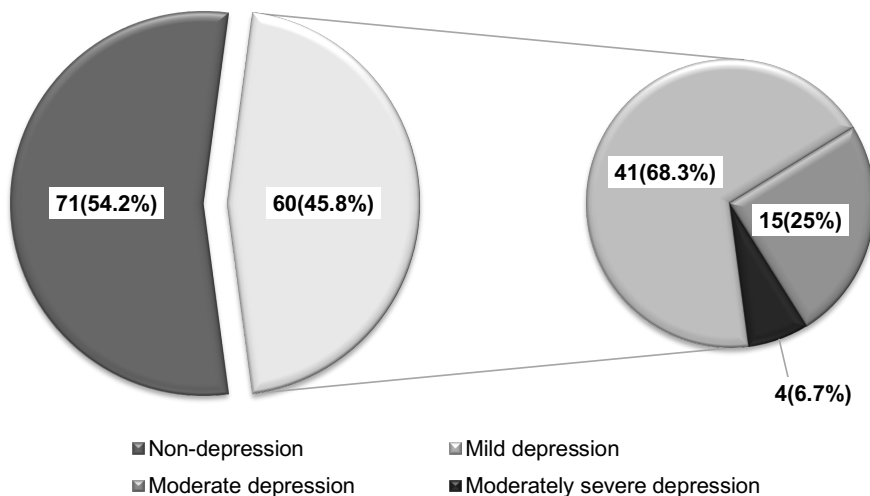
Features	$\bar{X} \pm SD$	Frequency (%)	Min-Max
<b>Age at the first sexual intercourse (years old)</b>	21.5 ± 3.4		13 - 30
< 18		5 (8.3)	
≥ 18		55 (91.7)	

Features	$\bar{X} \pm SD$	Frequency (%)	Min-Max
<b>Number of sexual partners in the last 12 months (person/people)</b>			
1		46 (76.7)	
2		9 (15)	
≥ 3		5 (8.3)	
<b>Masturbation</b>			
Yes		25 (41.7)	
No		35 (58.3)	
<b>Frequency of sexual intercourse (times/week)</b>			
1	1.1 ± 0.6	46 (76.7)	1 - 3
> 1		14 (23.3)	

The age at the first sexual intercourse was  $21.5 \pm 3.4$ ; mainly in the age group of 18 years or older (91.7%) and with a partner in the last

12 months (76.7%). The majority of the patients did not masturbate (58.3%) and have sex once a week (76.7%).

### 3. Prevalence of depression in the subjects



**Feature 1. Prevalence of depression in the subjects**

Nearly half of patients with erectile dysfunction had depression, accounting for 45.8%. In which, the rates of mild, moderate

and severe depression was 68.3%; 25% and 6.7%, respectively.

4. Depression profile in patients with erectile dysfunction

Table 4. Depression profile in patients with erectile dysfunction (N = 60)

PHQ-9 items	No symptom (%)	Having symptoms (%)	± SD	Min-Max
1. Loss of interest	6.7	93.3	1.53 ± 0.68	0 – 3
2. Depressed mood	11.7	88.3	1.28 ± 0.71	0 – 3
3. Sleep disturbance	35	65	0.87 ± 0.79	0 – 3
4. Loss of energy	8.3	91.7	1.4 ± 0.72	0 – 3
5. Change in appetite	85	15	0.17 ± 0.12	0 - 2
6. Feelings of guilt	13.3	86.7	1.18 ± 0.62	0 - 3
7. Weak concentration	16.7	83.3	1.13 ± 0.75	0 – 3
8. Psychomotor agitation/retardation	18.3	81.7	1.05 ± 0.68	0 – 3
9. Suicidal thoughts	95	5	0.05 ± 0.22	0 – 1
Sum			8.67 ± 3.25	5 - 19

The most common symptoms were loss of interest, loss of energy and depressed mood. The severity of symptoms was also in the above order.

IV. DISCUSSION

*General characteristics of the subjects*

The mean age of the study subjects was 39 ± 13.3. This is the age at which men have begun to experience medical issues related to organic causes of erectile dysfunction, particularly metabolic diseases. It was reflected in BMI where more than half of the participants were overweight, accounting for 55% (Table 1). Among the subjects, patients under 40 years old comprised the majority with 66.7%. The fact that depression was more frequent in young men with ED could be explained by their greater sexual desire while also being under more societal pressure. Thus the failure in sexual life due to ED might trigger the onset of depression.<sup>6</sup>

*Sexual behavior of the subjects*

The average age of the first sexual intercourse was 21.5 ± 3.4 years old, with the majority of the participants being 18 or older (91.7%) and had a partner in the previous 12 months (76.7%). (Table 2). Because Vietnam is an East Asian country, sex is still regarded as a sensitive matter so that men tend to keep it for the first time when they are mature. Moreover, maintaining monogamy with a partner is also considered as one of the essential components for establishing a happy family life. In addition, low masturbation rate (41.7%) and frequency of sexual intercourse (76.7% participants had sex once a week) indicated decreased sexual activity in men having both ED and depression.

*Prevalence of depression*

In the present study, nearly half of the patients in the study identified depression on the PHQ-9 scale, accounting for 45.8% (Figure 1). This result was higher than the prevalence reported

in previous studies by Pozzi et al (2020) with 33.3% and by Jeong et al (2011) with 39%; but it was lower than the result of Shabsigh et al (1998) with 54%.<sup>5,11,12</sup> The difference between our study result and other studies is due to the different sampling and evaluation tools of the studies. Factors such as income level, quality of life, and comorbidities may be responsible for the difference in depression rates. The relatively high rate of depression in patients with ED requires more attention to emotional issues in particular and mental health in general in this group of subjects.

Most of the subjects had mild and moderate depression, with more than 2/3 of the patients having mild levels, 1/4 having moderate levels. While the relationship between the two disorders has not been elucidated, the mechanism underlying depression in patients with ED is hypothesized to be related to stress caused by erectile failure. Therefore, depression in patients ED is mainly mild to moderate with no patient having severe degree, and also in the study, all participants reported depressive symptoms after they experienced ED. Patients having depression may have had pre-existing risk factors and ED may act as a trigger for the onset of depression.

#### ***Depression profile in PHQ-9 scale***

Among depressive symptoms, the three main characteristics are depressed mood, loss of interest and loss of energy. In our study, all three of these symptoms presented in the greatest proportion, which shows that depression in patients with ED has similar characteristics to a depressive disorder. However, in terms of incidence and severity, the symptom of loss of interest is the most common rather than depressed mood. Patients complained of symptoms related to loss of libido and physical symptoms rather than admitting

their feelings of sadness. The loss of interest in these patients might derive directly from the patient's reduced ability to satisfy themselves and their partners as a consequence of ED. This is a distinct feature of male depression. Park et al. (2015) studied depression in men in Asia and found that loss of interest was the most common characteristic of this group.<sup>13</sup> Symptoms of depression in men are difficult to recognize, requiring detailed examination and consultation. In addition, there are many limitations in the awareness of depression among doctors who are not a psychiatrist so depressive symptoms are overlooked and confused in many other fields of specialty. Male depression must also be identified and treated to avoid the risk of suicide, which mainly occurs in men. Patients with suicidal ideation in the study received consultation and referral to visit the psychiatric clinic of Hanoi Medical University Hospital.

Studies on the characteristics of depression assessed by the PHQ-9 scale have also been conducted in patients of many different specialties. Nikendei et al (2018) observed that physical symptoms including fatigue and sleep disturbance were more severe than the major symptoms of depressed mood and lack of interest in cancer patients.<sup>14</sup> This was in agreement with the results of the study of Holzapfel et al (2008) conducted on patients with heart failure.<sup>15</sup> Therefore, the symptoms of depression in different diseases have different features related to that disease, for patients with ED, it is loss of interest. In clinical practice, specialists need to be aware of this to screen and detect depression early in patients at their specialty.

#### **V. CONCLUSION**

The prevalence of depression in men with ED was 45.8%; the rates of mild, moderate and severe depression of the subjects were:



68.3%, 25% and 6.7% respectively. The most common symptoms of depression were loss of interest, loss of energy and depressed mood.

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