

## Investigating the Rate of Sexual Disorders in Men With a Recent COVID-19 Infection Referred to the Tadbir Clinic in Urmia

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### Abstract

#### Introduction

The Covid-19 pandemic has had destructive social, psychological, and economic effects worldwide. Various studies reported a decrease in male sexual potency during the covid-19 pandemic and an increase in patients with erectile dysfunction disorders. The present study seeks to determine the rate of sexual disorders in men with a recent history of COVID-19.

#### Methods

The present study adopted a prospective design. The study population included patients referred to the lung and urology clinic at Tadbir Clinic in Urmia City in the previous two months, from 2020 to 2021, with recent complaints of impotence or its exacerbation. The International Index of Erectile Function (IIEF) questionnaire was administered to the patients to collect data regarding their sexual activity. Based on the scores obtained from the questionnaire, the patients were divided into three groups: those without disorders, those with mild to moderate disorders, and those with moderate to severe disorders.

#### Results

The mean sexual score in patients was  $15.68 \pm 6.06$ . While 17.4% of the patients did not have erectile dysfunction, 82.6% had some degree of erectile dysfunction. The prevalence of erectile dysfunction among patients hospitalized in the ICU was significantly higher than among those hospitalized in the ward. Patients with a history of hospitalization had a lower average sex score than those without a history of hospitalization.

#### Conclusion

The rate of sexual dysfunction in patients with a history of hospitalization in the ward and ICU was higher. Moreover, patients who had been hospitalized in the ICU were more likely to develop sexual dysfunction than those who had been hospitalized in the ward. This study found that Covid-19 had a significant impact on male sexual health.

**Keywords:** Covid-19, erectile dysfunction, pandemic, impotence

### Introduction

Following the outbreak of COVID-19 in December 2019, a wide-scale quarantine was imposed worldwide, resulting in numerous psychological and physical complications for individuals. Specifically, COVID-19 can negatively impact the sexual health of patients, particularly men. For instance, depression became more prevalent as people faced social and economic difficulties and experienced significant stress. People often began taking antidepressant medications to treat depression, which may result in diminished sexual health due to testosterone reduction (1), and some people took drugs that may interfere with their sexual health (2).

On the other hand, the cytokine storm in COVID-19 virus infection can cause immunosuppression and hyperinflammation, leading to severe vascular complications such as the development of micro-thrombosis, DIC, and inflammation of the endothelium. The expression of ACE2 in the endothelium increases and facilitates virus entry into the Leydig cells of the testis in males. This causes testicular damage with the infection of the testes and ultimately causes hypogonadism due to the reduction in testosterone and disruption of spermatogenesis (3,4,5).

Evidence shows that COVID-19 can adversely affect sexual health due to various factors, including heart complications, fever, and steroids. For example, COVID-19 can cause cardiac complications such as myocarditis, arrhythmias, and acute cardiovascular disease in patients. In this regard, the use of cardiac drugs like beta blockers and antihypertensive medications may induce sexual disorders in patients (6,7). Moreover, fever is one of the main symptoms of COVID-19, which can cause irreversible damage to the germ cells in the testicles and lead to impotence and infertility in men (8). The use of steroids during the treatment of COVID-19 is associated with sexual impotence in patients, leading to a decrease in libido and erectile dysfunction (9). Various studies have been conducted worldwide regarding sexual disorders after Covid-19 infection through multiple questionnaires. This study is the first to examine the impact of Covid-19 on male sexual health in Iran using a questionnaire.

## Methods

### Study population

In this prospective study, patients with a history of the last two months of COVID-19 who were referred to the lung and urology clinics at Tadbir Clinic in Urmia between 2020 and 2021 were included. The study protocol was approved by the ethical committee of Urmia of Medical Sciences (IR.UMSU.REC.1400.063).

### Inclusion and Exclusion criteria

Inclusion criteria in the study were contracting COVID-19 within the past two months, being male, and being at least 18 years old. The exclusion criteria were a recent history of taking antidepressants and antihypertensive drugs (Beta-blockers and diuretics), previous history of genital surgery, prior history of urinary tract infection symptoms, previous history of sulfasalazine drug use, history of smoking and alcohol use, presence of testicular atrophy, and presence of varicocele.

### Evaluation

In hospitalized patients, patient information, the presence of pulmonary symptoms, hospitalization, and treatment measures were collected based on the summary of the case in the hospital; for outpatients, medication prescriptions were collected. The International Index of Erectile Function (IIEF) questionnaire was administered to the patients to collect data regarding their sexual activity. Based on the scores obtained from the questionnaire, the patients were divided into three groups: those without disorders, those with mild to moderate disorders, and those with moderate to severe disorders.

### Statistical Analysis

For qualitative variables, a Chi-square test was used. On the the hand, for quantitative variables, an independent t-test or Mann-Whitney-U test (according to the normality of the data) was employed to check the mean difference. One-way analysis of variance (ANOVA), Pearson's or Spearman's correlation (according to the normality of the data) was used to investigate the relationship between the presence of impotence and the severity of the patient's symptoms. A p-value less than 0.05 was considered statistically significant.

## Results

This study examined 100 male patients, of whom eight were excluded based on the exclusion criteria. The average age of the studied patients was  $45.8 \pm 12.57$  years. The average age of patients with and without erectile dysfunction was  $45.36 \pm 12.67$  and  $45.50 \pm 12.48$  years, respectively. Statistical analysis revealed no significant difference between the two groups (P-value = 0.96). In the current study, 9.8% of patients were treated with favipiravir, 28.3% with remdesivir, 75% with corticosteroids, and 2.2% with IVIG during infectious COVID-19 (Table 1). According to the statistical analysis, no significant relationship existed between the use of specific drugs to treat COVID-19 and sexual disorders (P-value = 0.1). Also, 5% of patients had a history of taking antidepressants.

		Percentage	P-Value	
Severity of sexual disorder	Without disorder	17.4		
	Mild	39.1		
	Mild to moderate	15.2		
	Moderate	9.8		
	Severe	18.5		
History of hospitalization	Ward	With ED	5.4	0.023
		Without ED	15.2	
	ICU	With ED	8.7	
		Without ED	3.3	
	Outpatient treatment		67.4	
	Drug History	Favipiravir	9.8	
Remdesivir		28.3	0.052	
corticosteroids		75	0.36	
IVIG		2.2	0.68	

**Table 1:** Evaluation of Severity of sexual disorder, History of hospitalization and Drug History

The mean sex score was  $15.68 \pm 6.06$ , with a minimum score of 5 and a maximum score of 23. Among the patients, 17.4% were not experiencing erectile dysfunction, while 82.6% had some degree of erectile dysfunction. According to questionnaire scores, 17.4% had no sexual disorder, 39.1% had a mild disorder, 15.2% had a mild to moderate disorder, 9.8% had a moderate disorder, and 18.5% had a severe disorder (Table 1). Of the 92 patients, 19 had been admitted to the ward, while 62 had been treated as outpatients. Further, 11 of the admitted patients were transferred to the ICU. Compared to 38.5% of patients hospitalized in the ward, 61.19% of these patients had erectile dysfunction. Based on statistical analysis, there was a significant difference between these two groups, which means that patients hospitalized in the ICU had significantly higher rates of erectile dysfunction (P-value=0.023). The average score of sexual disorder obtained from the questionnaire was  $15.41 \pm 5.84$  in patients without a history of hospitalization and  $12.26 \pm 4.37$  in patients with a history of hospitalization. Statistical analysis demonstrated a significant relationship

between the mean score of sexual disorder and hospitalization history (P-value=0.03). In addition, the average score of sexual symptoms in hospitalized patients with a history of ICU hospitalization was  $9.55 \pm 2.91$ , and in patients with a history of ward hospitalization was  $15.46 \pm 5.63$  (Table 2). Statistical analysis indicated a significant correlation between the history of hospitalization in the ICU and the sex score of the patients (P-value = 0.001). Thus, patients admitted to the ICU had a higher rate of sexual disorder than those admitted to the ward.

	Sexual score	P-value
Had Hospitalization history	$12.26 \pm 4.37$	0.03
Did not have hospitalization history	$15.41 \pm 5.84$	
has ICU Hospitalization history	$9.55 \pm 2.91$	0.001
Did not have ICU hospitalization history	$15.46 \pm 5.63$	

**Table 2:** Evaluation of Hospitalization

### Discussion

Our study evaluated the effect of the Covid-19 infection on men's sexual health, and we found that Covid-19 can adversely affect men's sexual health. In this study, the average sexual score was  $15.68 \pm 6.06$ . The average age was  $45.8 \pm 12.57$  years, and no significant correlation was found between age and patients with and without sexual disorders. This finding is consistent with the studies of Culha et al. and Bulut et al., who indicated no significant difference between patients with and without erectile dysfunction in terms of age, marital status, education level, income, and medical history (10,11). In the present study, 82.6% of patients had some degree of erectile dysfunction. This rate was significantly higher in patients hospitalized in the ICU than in patients hospitalized in the ward. Furthermore, In patients with a history of hospitalization, the average sex score was lower than in patients without a history of hospitalization. Also, patients with a history of ICU hospitalization had a lower average sex score than patients without a history of ICU hospitalization.

A systematic review study by Bakr et al. (12) found that the rate of erectile dysfunction among different studies ranged from 32% to 87%, and depression, anxiety, and post-traumatic stress disorder (PTSD) may also contribute to increased erectile dysfunction. In the study of Bulut et al. (11), the rate of erectile dysfunction was 82.4% of patients, which is consistent with the present study. However, a lower rate of erectile dysfunction (31.9%) was found in Fang et al.'s study (13).

A number of global studies have been conducted to determine the impact of the Covid-19 pandemic on men's sexual health. According to a study in China, 40% of men had decreased sexual health (14). Recent studies in Bangladesh, India, Nepal, and Italy revealed that the Covid-19 pandemic had little effect on the sexual health of males. (15,16). In a report in the United States, 23.4% of men reported reduced sexual desire due to depression during the Covid-19 pandemic. (17). A study conducted in England showed a 13% increase in

erectile dysfunction services compared with the months before the pandemic, and erectile dysfunction searches on Google reached the highest level of the year (18). These findings have been made across a wide range of countries, and governments responded differently to the Covid-19 pandemic. Furthermore, racial groups exhibit different sexual attitudes. Consequently, the effects of Covid-19 on the sexual health of patients of different nationalities vary.

### Conclusion

This study demonstrated a significant increase in sexual disorders, particularly erectile dysfunction, in men with a history of Covid-19 infection. Additionally, patients hospitalized in the ICU were found to have a significantly higher prevalence of sexual disorders than patients hospitalized in the ward. Finally, patients hospitalized in the ICU faced sexual disorders more than patients without a history of ICU hospitalization.

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