A Retrospective Assessment of Male Sexual Dysfunction in COVID-19 Infected Patients: A Witness in Kolkata, India

Rajendra Prasad Chatterjee, Shilpa Chatterjee, Suranjan Pal, Biswajit Das, Nilanjana Mitra and Reena Ray Ghosh

ABSTRACT

The psychological conditions of healthcare professionals deteriorate during the COVID-19 outbreak, which is effective worldwide. Sexual activity is a natural part of human existence and its effectiveness is recognized as a key indicator of good health and quality of life. In this study, we aimed to analyze the influence of COVID-19 on sexual activity in four recovered male patients. These males showed deterioration in all elements of sexual function. To the best of our knowledge, this is the first study that we are reporting from Kolkata, India, that used validated assessment to document sexual functioning in males following post-COVID-19 illness.

Keywords: Anxiety, COVID-19 infection, erectile dysfunction, premature ejaculation.

I. INTRODUCTION

The Coronavirus Disease of 2019 (COVID-19) has ravaged the globe leading to a total of 524,262,429 confirmed cases and about 6,293,036 deaths as of May 18, 2022 [1]. The World Health Organization (WHO) classified Severe Acute Respiratory Syndrome Corona Virus 2 (SARS-CoV-2) infection as a global pandemic due to its rapid spreading over 225 nations [2]. Due to the current nature of the pandemic, health-care management were severely strained and several territories experienced significant medical supply shortages [3], [4]. As a result, all nations have constrained their citizens to adhere to lockdown strategies in order to avoid quick spread and therefore many families have been burdened on a financial and social level [5], [6]. According to several reports, sexual activity was compromised due to covid pandemic with increased number of cases of male sexual dysfunction [7]. Patients have experienced a loss in erectile function (EF), which has been corroborated with decline in their respective International Index of Erectile Function (IIEF) evaluation [8], [9]. Several researches looked into the
increased occurrence of erectile dysfunction throughout the covid pandemic to try to figure out what was causing it. Hypogonadism, endothelial dysfunction, and cardiac failure have all been posited as biological underpinning processes [10]-[12]. Several other studies found that psychological interference, such as anxiety or melancholy, were the primary cause of erectile dysfunction throughout the pandemic [13], [14]. In most countries, a number of measures were imposed, including transportation limits, entertainment restrictions, social distancing measures and so on. Even healthy men may experience changes in their sexual satisfaction and thus sexual partner relationships are deteriorating [15], [16]. In majority of studies, men's sexual function has not been studied, which have concentrated on women or a mix of women and men [17], [18].

Here, we aimed to study the COVID-19 pandemic's potential impact on male sexual function and to evaluate the possible risk factors associated with it.

To the best of our knowledge, this is the first study that we are reporting from Kolkata, India, that used validated assessment to document sexual functioning in males following post-COVID-19 illness.

II. Case Details and Clinical History

This study includes four male patients (patient #A, patient #B, patient #C and patient #D) from the same geographical area (Kolkata, West Bengal, India) work as laboratory technician, data entry operator, advocate and educator, respectively. They never had a history of drug or alcohol abuse. The descriptive characteristics of the participants were shown in Table 1.

Each patient was involved in a single marital relationship, with or without children. The individuals’ medical histories revealed no chronic disabling conditions or treatment use throughout the past. They all claimed to have healthy sexual relations with their wives and to have never consulted a sexologist or gynecologist. They denied using any drugs, such as sildenafil citrate or any other aids to improve their sexual activity.

A. Patient #A

Fever, shortness of breath, and a dry cough were noticed by the first patient. The quantitative real-time polymerase chain reaction (qRT-PCR) test with nasal and oropharyngeal swab sample confirmed the presence of SAR-CoV-2. The patient abruptly developed the shortness of breath (oxygen saturation [PaO2] = 85 mmHg), necessitating admittance to an isolation hospital (ID & BG Hospital, Kolkata, India). Paracetamol, azithromycin, panadol, vitamins, calcium and zinc were among the medications given to the patient during treatment. For seven days, the patient was in ventilation and improved after a 12-day hospitalization. The patient returned home after receiving a negative RT-PCR report.

B. Patient #B

The symptoms of the second patient were the same as the first, but lacks the breathing difficulties. After being diagnosed with COVID-19, the patient spent 14 days at home in self-isolation. Fortunately, the intensity of the symptoms did not worsen. The patient was treated according to the same medical protocol as the previous patient. In two weeks, the symptoms had subsided and 16 days after the commencement of the disease, the patient's RT-PCR result was negative.

C. Patient #C

A painful throat, a dry cough, along with fever plagued the third patient. COVID-19 was detected by RT-PCR. There was no breathlessness, and the patient spent 14 days in self-isolation in his home. He was given the same treatment without the use of a bronchodilator. The symptoms were improved at the completion of the isolation period, and the RT-PCR result was negative.

D. Patient #D

Fever and loss of appetite are the two symptoms initially felt by the fourth patients. The nasal and oropharyngeal swab sample collected, tested to detect the SAR-CoV-2 by RT-PCR and he got positive. He was in home isolation for 15 days, again tested to know the status of the infection and he got his negative report by RT-PCR.

**TABLE I: Socio-Demographic Information, Sexual Function and Depression Score of the Selected Patients**

<table>
<thead>
<tr>
<th>Patient Particulars</th>
<th>Patient #A</th>
<th>Patient #B</th>
<th>Patient #C</th>
<th>Patient #D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (year)</td>
<td>33</td>
<td>40</td>
<td>39</td>
<td>32</td>
</tr>
<tr>
<td>Weight (Kg)</td>
<td>78</td>
<td>80</td>
<td>80</td>
<td>84</td>
</tr>
<tr>
<td>Height (cm)</td>
<td>165</td>
<td>169</td>
<td>183</td>
<td>168</td>
</tr>
<tr>
<td>Smoking</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Alcohol Intake/Dependency Education Level</td>
<td>High School</td>
<td>College</td>
<td>University</td>
<td>University</td>
</tr>
<tr>
<td>Approx. Monthly Income (INR)</td>
<td>Rs. 25000</td>
<td>Rs. 20000</td>
<td>Rs. 40000</td>
<td>Rs. 45000</td>
</tr>
<tr>
<td>Random Blood Sugar (mg/dL)</td>
<td>91</td>
<td>96</td>
<td>140</td>
<td>86</td>
</tr>
<tr>
<td>Body Mass Index (BMI)</td>
<td>32.08</td>
<td>25.17</td>
<td>24.57</td>
<td>33.56</td>
</tr>
<tr>
<td>Erectile domain score-before [after]</td>
<td>18** [18]</td>
<td>25** [10]**</td>
<td>26** [11]**</td>
<td>17** [17]**</td>
</tr>
<tr>
<td>PEDT score-before [after]</td>
<td>14** [14]**</td>
<td>12* [13]**</td>
<td>10* [12]**</td>
<td>6* [11]**</td>
</tr>
<tr>
<td>Beck depression inventory score-before [after]</td>
<td>3’ [15]**</td>
<td>7’ [32]**</td>
<td>2’ [14]**</td>
<td>1’ [13]**</td>
</tr>
</tbody>
</table>

*Mild ED; **Mild to moderate ED; ***Moderate ED; ****Normal with no ED; #Definite PE; †No PE; •Normal mood; ••Mild mood disturbance; •••Severe depression.
The information was collected at the patients' follow-up consultations two months after their recovery. After getting their negative PCR reports, the patients began to experiment with sexual activity 7, 10, 12 and 20 days later. When compared to the other three patients who experienced deterioration, the third patient's intercourse frequency did not change (Table I). The third patient stated that his morning erection had altered in frequency or hardness, while the other patients felt that it had become worse. Before and after the COVID-19, the patients' sexual functionality was evaluated. The patients’ completed the IIEF questionnaire which is 15-point self-administered questionnaire evaluates 5 important dimensions of men sexual functioning. Erectile activity (Q1-5 and 15), intercourse satisfaction (Q6-8), orgasmic activity (Q9-10), sexual eroticism (Q11-12), and overall pleasure (Q13-14) are some of the categories covered.

### III. DISCUSSION

The proposed work is a brief study that uses three internationally recognized validated questionnaires to evaluate the sexual competence and emotional states of four COVID-19 infected men who have just recovered. In contrast to their status prior to getting the disease, these men displayed a range of symptoms, including decreased sexual function, a proclivity to start or advance an already-existing PE, and mood disturbances ranging from mild to severe melancholy. All of the patients, however, had normal sex-related hormone levels (testosterone-total and free, LH, FSH, prolactin and estradiol). In the disease's course the first patient experienced shortness of breath, which was worrisome and demanded hospitalization. Perhaps the most extreme mood shift occurred in the second patient suffered from acute depression. With this pandemic, several academics predicted a rise in depression is common among people, particularly among those who got it through the illness [19]. The second patient's extreme depression lowered his erectile dysfunction (ED) score. The true factors behind the depression-ED relationship are unknown. Depression, on the other hand, is thought to inhibit parasympathetic nerve activity, resulting in a decrease in blood flow leads to relaxation of the smooth muscle in the penis, preventing proper tumescence and erection. In our current study, where an increase in Beck Depression Inventory-Second Edition (BDI-II) scores were linked to a decrease in the patients’ desire domain scores following treatment. Only the third patient demonstrated a significant difference in his Premature Ejaculation Diagnostic Tool (PEDT) score after getting infected. His ejaculation pattern altered from normal to definite premature ejaculation (PE) as a result. This alteration could be attributable to the onset of ED in this patient, who had a good erectile domain score before to starting ED. Even so, his score declined subsequently, putting him in the moderate ED category. Researchers have looked at the link associated among ED-PE and discovered that about 38% of male with definite PE also suffer from ED [20]. The great responsiveness of the psychometric tests used for follow up may be to blame for this large comorbidity [21]. PE and depression may have a bidirectional link. Sadness affects male sexual function and couples' sexual relationships, which can lead to mood swings and depression. However, the actual mechanism underlying depression and its progression related PE has yet to be determined. Patient’s after surviving from COVID-19, their moods were linked to a decrease in orgasmic pleasure, intimacy and overall satisfaction (Table II).

This is in line with the findings of other researchers who found that depression is linked to a reduction in male sexual function domains [22]-[24]. As far as we know, this is the first follow up investigation to show that COVID-19 has a negative influence on erotic performance in healed patients and that has been linked to mood alterations using suitably validated psychometric tests from Kolkata, India. The patient's behavior during the illness or recovery phase, the virus's virulence, and the level of virus transmission could all be factors in the data disagreement between studies. This study has few limitations includes small number of enrolled patients used within a single geographical location of Kolkata. Therefore, further research using big population pool is necessary to validate the findings and understand the broader scenario.

### IV. CONCLUSION

COVID-19 has been linked to mood disorders and sexual dysfunction in men. The influence of COVID-19 on male sexual activity is explored in this research, broadening the disease's clinical frontiers. Future research could reveal more about the mechanism underlying COVID-19-related male sexual dysfunction, as well as the disorder's natural history, tailor the optimal approach for prompt care and reduce COVID-19's negative influence on male sexual life. It is strongly suggested that healed patients be followed up on a regular basis to provide psychological treatment that may aid in the treatment of their mood swings and the enhancement of their sexual abilities, as well as their physical and mental wellness.

### ETHICS APPROVAL

This study was approved by the Institutional Ethical Committee.

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<table>
<thead>
<tr>
<th>TABLE II: SEX-RELATED HORMONAL PROFILE OF THE SELECTED PATIENTS</th>
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<tr>
<td></td>
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<tr>
<td>-----------------</td>
</tr>
<tr>
<td>Total testosterone (ng/ml)</td>
</tr>
<tr>
<td>Free testosterone (pg/ml)</td>
</tr>
<tr>
<td>FSH (mIU/ml)</td>
</tr>
<tr>
<td>LH (mIU/ml)</td>
</tr>
<tr>
<td>Prolactin (ng/ml)</td>
</tr>
<tr>
<td>Estradiol (pg/ml)</td>
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</table>

FSH: Follicle stimulating hormone; LH: Luteinizing hormone
AVAILABILITY OF DATA AND MATERIAL
All data and material will be available upon request to the corresponding author.

CONSENT TO PARTICIPATE
Well informed permission was acquired from all discrete contributors included in this study.

V. AUTHORS CONTRIBUTION
RPC and RRG contributed to the conception and design of the study, RPC, SC, and NM contributed to the analysis and interpretation of data and drafting the article, RPC, SP, and BS contributed to the drafting and final revision of the article. All authors have read and approved the final manuscript.

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CONFLICT OF INTEREST
Authors declare that they do not have any conflict of interest.

REFERENCES