



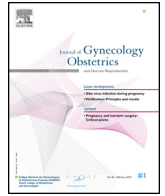
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Commentary

A focused review on the genital and sexual affection of COVID-19 patients



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ABSTRACT

The pandemic of coronavirus disease-2019 (COVID-19) could harm the reproductive and sexual health of both males and females. This could be through psychological, immunological, or systemic effects. In this article, we tried to elucidate the mechanisms that could explain the current and future genital affection of COVID-19 patients.

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In December 2019, several cases with pneumonia of unknown cause firstly appeared in Wuhan city, Hubei province, central China [1]. Later, this pneumonia is shown to be caused by a novel coronavirus and became known as coronavirus disease-2019 (COVID-19) [2]. To date, there is no drug or vaccines approved for the treatment or prevention of the disease.

Currently, there is no enough data on the effect of COVID-19 on genitalia and sexual behavior. However, some studies differed from one country to another stated a change in sexual behavior. From NBC News, in a group of just over 9000 people, only 24% said COVID-19 infection had positively affected their sex lives, 28% were neutral, and 47% said it had affected negatively [3]. Additionally, a study in China showed that sexual activity declined among young men and women [4]. Nevertheless, a survey on lockdown circumstances and its effect on sexual activity in Bangladesh, India & Nepal show that 3.3% increase in sexual activity of participants from 1 to 5 times a week to more than five times [5].

The difference between countries is related to the developmental level of the country and its culture. But on taking a general look, COVID-19 affected the sexuality of too many people. As we have met, the pandemic of COVID-19 and continuous curfew make some people out of work, staying all-time in the home without any

activities, and most of them now face economic issues that lead to stress, depression, anxiety. This induced significant changes in sexual behavior [3]. This is explained psychologically by that some people, when they get stressed, the farthest thing to do is sex, while others their libido and sex behavior sharply increase [5].

As a result of social isolation, some people become suffering from depressed mood, which disrupts chemicals in the brain that has a role in promoting libido in females and males. This problem could be difficult in old adults who already have a medical problem affecting blood flow in their organs and, indeed, the sex organ. Also, depression may lead to too much or too little sleep, which, even with rest, not return the person to a normal mood that decreases the desire for sexual activity. Some people resort to taking medications to reduce their stress and depression. People who take antidepressant drugs like SSRIs, may suffer from decreased libido due to rising levels of the serotonin in the body [6]. Others take dope, which affects their sexual behavior negatively [7].

COVID-19 is not known to be transmitted through sexual intercourse [8]. But as the intimacy included physical contact between partners, which interferes with recommended social distance, kissing, and saliva exchange that could lead to infection transmission. This is, in addition to the current state of stress and fear, lead to avoidance of sexual relations even with a healthy partner.

Furthermore, COVID-19 causes manifestations that negatively affect the patient's sexuality or cause the other partner to refrain from the sexual relationship even after the cure from infection. For

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example, some COVID-19 patients presented with purpuric lesions involving the whole body. This rash has not been explained yet in those patients, but vasculitis or Langerhans cell histiocytosis (LCH) diseases are in the suggestion area.

COVID-19, like some other members of the corona family as SARS, MERS & H5N1, causes cytokine storm. It means that the body releases large amounts of interleukins (e.g., IL-2, IL-6, IL-10, TNF- α) and increased neutrophil-to-lymphocyte ratio (NLR) in the blood [9]. Unluckily, a lot of cytokines favor the recruitment of Langerhans cell progenitors and help Langerhans cell histiocytes escape apoptosis leading to a rare disease called LCH. It causes pruritic and ulcerative lesions in different organs, and we consider here the urogenital. The hallmark of this disorder is the presence of petechial bleeding, the same thing noticed in some cases of COVID-19 [10].

On the blood vessels, an immunological reaction occurs between the immune system and COVID-19, making immune complexes that deposit in the blood vessels leading to their damage and causing vasculitis [11]. It is a systemic disease; thus, in turn, the affection of the female or male genitalia is not so far either directly or indirectly by attacking the spinal cord [12].

Besides that, COVID-19 affects crucial systems in the body; the CVS & CNS. For the heart, it causes acute cardiac injury. This will lead to a decrease in blood supply to the genitalia, and this can end with impotence [13]. If a COVID-19 patient is admitted to the ICU and doctors decided to use the thiazide-type diuretics, the aldosterone receptor blockers, the β -adrenergic receptor blockers, or ACE inhibitors to control blood pressure, it can cause erectile dysfunction. Fortunately, this is not a complication to these anti-hypertension groups [14].

Patients with severe COVID-19 are more likely to present by nervous system manifestations more than the typical manifestations. According to the American Thoracic Society guidelines for community-acquired pneumonia, a study showed that the nervous manifestations included acute cerebrovascular disease, ischemic stroke, or cerebral hemorrhage [15]. Strokes have negative impacts on sexual function and desire. In men, it can cause a significant decline in erection or ejaculation in the period after stroke. In women, there can be problems regarding normal vaginal lubrication, sexual desire, and orgasm. Many patients, after stroke, suffer from fear of getting another stroke, so decrease their sexual activity [16].

The tale of COVID-19 and sexuality does not end at this point. COVID-19 uses the Angiotensin-Converting Enzyme-2 (ACE2) receptors as an entry point for invading the respiratory system. This ACE2 is a constitutive product of adult Leydig cells. This suggests a possible involvement of the testicles in those patients and decreases testosterone secretion, the hormone that proves recently to be protective against COVID-19 [17]. Studies showed that testosterone level increases on the 7th day of abstinence, but this not affected significantly by intercourse in males [18]. However, the reverse appears in females as they show increasing levels of testosterone after intercourse [19]. So, it seems that sexual relationship is more protective for females than males against COVID-19.

Up till now, there is no case report of COVID-19 patients presented with genital or sexual affection. However, fear of future affection for the current cases must be considered. Patients should

be followed up after the curing of COVID-19. We are in a compelling need for studies on the current and future genital affection of COVID-19 patients. Support programs are needed now either for patients or the other healthy people to prevent any drawbacks from the pandemic.

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Declaration of Competing Interest

The authors state that there are no conflicts of interest.

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