

Impact of COVID-19 pandemic on female sexual life among a sample of Egyptian women

Original Article

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ABSTRACT

Aim: The pandemic of COVID-19 is caused by coronavirus 2(SARS-CoV-2) and leads to severe acute respiratory syndrome. It has dominated people's life including their psychosexual health. Consequently, we wanted to examine this pandemic effect on female sexual functions in a sample of Egyptian women.

Patients and Methods: This cross-sectional study was conducted at the Department of Dermatology, Venereology, and Andrology of Benha University Hospitals. The study was conducted during the COVID-19 pandemic on 100 married females of 18–45 years' old. Female Sexual Function Index (FSFI) was used to evaluate sexual function, while the psychological aspect was assessed using Beck Depression Inventory (BDI), social readjustment rating, Hamilton anxiety rating, and perceived stress scales. The participants were evaluated by answering retrograde questions about their sexual and psychological state before the pandemic. Then they reanswered the questionnaires about their present state during the pandemic..

Results: Total FSFI scores of the participants showed significant reduction during the pandemic when compared with prepandemic scores ($P<0.001$). Desire, arousal, lubrication, orgasm, and satisfaction scores reduced, but pain score increased ($P<0.001$). Concerning psychological evaluation, participants suffered from higher depression, stress, and anxiety levels as evidenced by Beck depression inventory (BDI), Hamilton anxiety rating, Social readjustment rating, and perceived stress scores that increased significantly during the pandemic ($P<0.001$). A negative correlation was observed between FSFI scores and BDI, Hamilton anxiety rating, social readjustment, and stress scores ($P<0.01$, $r=-0.958$, -0.956 , -0.987 , and -0.986 , respectively).

Conclusion: The COVID-19 pandemic seems to have a deleterious impact on female sexual behavior, which can be attributed to elevated stress, anxiety, and depression indices observed throughout the pandemic.

Key Words: COVID-19, female sexual function, pandemic

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INTRODUCTION

The pandemic of COVID-19 is caused by coronavirus 2 (SARS-CoV-2) and leads to severe acute respiratory symptoms. It is mostly transmitted through close person-to-person droplet contact and could progress to pneumonia, acute respiratory distress syndrome (ARDS), and multiorgan failure. SARS-CoV-2 can employ angiotensin-converting enzyme 2 (ACE2) as its host cell receptor to initiate an infection^[1].

COVID-19 epidemiology and quarantine affect female sexual function and sexual health. The pandemic is linked to diminished sexual life quality, including all aspects such as sexual desire, satisfaction, and intercourse frequency. Moreover, the pandemic has caused increased menstrual

disorders and a decreased desire for pregnancy^[2].

It has been demonstrated that the COVID-19 pandemic leads to a significant rise in stress and anxiety, which is mostly caused by social isolation. Typically, major disasters result in sexual dysfunction and diminished sexual life satisfaction. This may indicate that once a problem affects everyone in the same way, it may have detrimental future effects on sexual elements^[3].

Previous studies have assessed the impact of COVID-19 pandemic on female sexual function. However, evaluating Beck depression inventory (BDI), perceived stress, Hamilton anxiety, and social readjustment rating scales together provide a comprehensive evaluation of the female sexual behavior that was not included before. In the

current study, we explained the relation between female sexual dysfunction (FSD) and COVID-19-associated stress and anxiety among a sample of Egyptian women.

PATIENTS AND METHODS

This cross-sectional observational study was conducted at the Dermatology, Venereology, and Andrology Departments at Benha University Hospitals. The study was conducted during the COVID-19 pandemic and included 100 females. Approval of the Ethics Committee, Faculty of Medicine was taken before the study (Ms: 30-7-2021). Informed verbal and written consents were obtained before enrollment in the study.

Participants were married sexually active women (18–45 years). Those taking psychiatric medication or have psychiatric disorder, pregnancy, premature menopause, obesity (BMI > 30), systemic-chronic disease, pelvic surgery causing FSD, dermatologic disorders affecting the genital area, using sedative drugs, or a medication impairing sexual function were excluded. Current COVID-19 infection was an exclusion criterion.

Every patient underwent the following: Comprehensive history, including personal and menstrual history, duration of marriage, husband's age, number of children, and contraception use.

The core of the study was a questionnaire of female sexual function index, Beck depression inventory, Hamilton anxiety rating scale, perceived stress scale, and social readjustment rating scale before and during the pandemic.

The participants were evaluated by answering retrograde questions about their sexual and psychological state before the pandemic. Then they reanswered the questionnaires about their present state during the pandemic.

Questionnaire form

Participants' sexual function was evaluated using the Female Sexual Function Index (FSFI)^[4], a 19-item self-report instrument comprising six domains: desire (two items), arousal [four items], lubrication [four items], orgasm, satisfaction, and pain [three items each]. In this study, Validated Arabic Version of the questionnaire was used^[5]. For each item, a 5-point Likert scale was applied. To score the measure, a domain factor ratio is multiplied by the sum of each domain score to place all domain totals on a scale that is more comparable. The domain factors were as follows: for desire=0.6, for arousal=0.3, for lubrication=0.3, for orgasm=0.4, for satisfaction=0.4, and for pain=0.4. Then, domain totals are summed to obtain the total FSFI score.

The overall FSFI score ranges from 2 to 36, and FSD was considered for values below 26.55^[4]. The scores of 4.28, 5.08, 5.45, 5.05, 5.04, and 5.51 in the desire, arousal, lubrication, orgasm, satisfaction, and pain categories,

respectively, were deemed indicative of dysfunction in those domains.

Beck depression inventory was used for detecting depression^[6]. It is a 21-item self-reporting questionnaire with a score range of 0–3 for each item. The scores of 0–9, 10–18, 19–29, and 30–63 indicate no depression, mild to moderate depression, moderate to severe depression, and severe depression, respectively. In this investigation, its Validated Arabic Version was used^[7].

The Hamilton Anxiety Rating Scale^[8], a 14-item clinician-administered rating instrument in the public domain intended to quantify anxiety symptom severity in individuals, was used to evaluate participants' anxiety. Each item is rated on a 0–4 scale, with the total ranging from 0 to 56. Scores of <17, 18–24, 25–30, and more than 30 indicate mild severity, mild to moderate severity, moderate to severe severity, and very severe anxiety, respectively. In this study, the validated Arabic form of this scale was used^[9].

To evaluate the stress level, perceived stress scale^[10] was applied using its Arabic version^[11].

Stress scale ranges from 32 to 64: <32 no stress, from 32–64 mild stress (It means that you are effective and successful in managing your stress level, but you are required to elicit a limited number of pressures in order to achieve the optimal balance between positive and negative pressures.), 65–95, moderate stress (You are facing a safe level of pressure, but you have some aspects that need improvement.), 96–128: severe stress (Your stress level is very high, and you need to devise new strategies in order to help reduce stress).

The Social Readjustment Rating scale^[12] or the Social Restoration Rating Scale of stressful life events was used in this study. It consists of 43 life events that vary in the extent of the hardship they provoke, some are positive and others are negative, and are used either to measure the actual life changes that have occurred to the individual during the past year, and the scale can also be used to measure the individual's perception or appreciation of the severity of events and the pressures they provoke, even if he had not had it before. The total score indicates the levels of risk of illness. The scores of 300+, 150–299, and <150 indicate at risk, moderate risk, and a slight risk of illness, respectively. The Arabic version of this scale was used^[13].

Statistical analysis

Using SPSS (IBM Corp., Armonk, NY, 2017, Version 25.0), data analysis was conducted. Kolmogorov–Smirnov test assessed the normality. Using Cronbach's Alpha, the reliability was evaluated. The mean and standard deviations (SD) are used to summarize numerical data, while the nonnumerical variables were presented as frequencies and percentages. A t-test analyzed the difference between two independent study groups. The Chi-square test assessed the association between two qualitative variables. Fisher's

exact test was used when applicable. The correlation coefficient characterized the magnitude and direction of the linear relationship between two quantitative variables. All tests had two sides, and a *P* value of 0.05 was regarded as statistically significant.

RESULTS

The mean age of participants was 28.2 years, ranging from 18 to 45 years. The mean BMI was 28.6 kg/m². Of the participants, 50% were housewives, 31% employees,

11% workers, and 8% were teachers. University education was achieved in 19%, while 42% had high school education and 39% had primary school education. Among all studied cases, 56% had rural residency and 44% had urban residency.

Mean partner's age was 34.6 years. Mean marriage duration was 8.5 years. Median pregnancy number was 2, which ranged from 0 to 4 children. Among all studied cases, 11% were nullipara, 11% had one pregnancy, 41% had two pregnancies, 28% had three pregnancies, and 9% had four pregnancies (Table 1).

Table 1: Baseline sociodemographic features of all studied participants

Participants N=100		
	Mean/Count	±SD/%
Age (years)	28.2	±2.2
BMI (kg/m ²)	28.6	±1.4
Occupation		
Housewife	50	50%
Employee	31	31%
Worker	11	11%
Teacher	8	8%
Education		
Primary school	39	39%
High school	42	42%
University	19	19%
Residence		
Rural	56	56%
Urban	44	44%

Interpretation of FSFI, BDI, Hamilton Anxiety rating, perceived stress, and social Readjustment rating scales

FSFI-6 total score decreased significantly during pandemic versus before pandemic (14.8±2.5 versus 22.4±2.3, *P*<0.001). Moreover, lower scores of desire, arousal, lubrication, orgasm, and satisfaction were demonstrated during the pandemic compared with that before (3.7±1 versus 2.1±1, 3.8±0.9 versus 2.1, 4.0±1 versus 2.1±1, 4.0±1 versus 2.1±1, and 4.0±1 versus 2.1±1.1, *P*<0.001, respectively), while the pain domain increased significantly during the COVID pandemic (2.9±1.1 versus 4.1±1, *P*<0.001) (Table 2). Beck Depression Inventory scale and grades increased significantly during pandemic when compared with the levels before the pandemic (17.9±1.1 versus 14.8±1.9, *P*<0.001) (Table 3). Hamilton

anxiety rating scale increased significantly during the pandemic when compared with levels before the pandemic (8.9±1 versus 4±1.1, *P*<0.001) (Table 4).

Mean psychological stress scale increased significantly during the pandemic when compared with the levels before the pandemic (50.5±4.6 versus 40.2±4.8, *P*<0.001) (Table 4). Social Readjustment Rating Scale increased significantly during the pandemic when compared with the levels before the pandemic (299.0±18.6 versus 241.3±18.9, *P*<0.001) (Table 4).

Correlation

FSFI total score showed significant negative correlations with BDI, Hamilton anxiety rating, social readjustment, and stress scores (*P*<0.01, *r*=-0.958, -0.956, -0.987, and -0.986, respectively).

Table 2: Total FSFI-6 score and its domains before and during the COVID-19 pandemic

	Participants N=100				P
	Before pandemic		During pandemic		
	Mean	±SD	Mean	±SD	
Desire	3.7	1.0	2.1	1.0	<0.001
Arousal	3.8	0.9	2.1	1.0	<0.001
Lubrication	4.0	1.0	2.1	1.0	<0.001
Orgasm	4.0	1.0	2.1	1.1	<0.001
Satisfaction	3.9	1.0	2.3	1.0	<0.001
Pain	2.9	1.1	4.1	1.0	<0.001
FSFI-6 total score	22.4	2.3	14.8	2.5	<0.001

Table 3: Comparison of Beck Depression Inventory before and during the COVID-19 pandemic

	Participants N=100				P
	Before		After		
	Mean/Count	±SD/%	Mean/Count	±SD/%	
Beck Depression Inventory scale	14.8	±1.9	17.9	±1.1	<0.001
Minimal	20	20%	0	0%	<0.001
Mild	80	80%	94	94%	
Moderate	0	0%	6	6%	

Table 4: Comparison of Hamilton Anxiety rating before and during COVID-19 pandemic. : Comparison of Perceived stress scale before and during the COVID-19 pandemic. Comparison of Restoring Social Harmony Before and during COVID-19 pandemic

	Participants N=100		P
	Before	During	
	Mean ±SD	Mean ±SD	
Hamilton Anxiety rating scale	4.0±1.1	8.9±1	<0.001
Perceived Stress Scale	40.2±4.8	50.5±4.6	<0.001
Social Readjustment Rating Scale	241.3±18.9	299.0±18.6	<0.001

DISCUSSION

Infectious pandemic diseases that spread quickly have a negative impact on the human psyche. The World Health Organization declared coronavirus illness (COVID-19) to be a pandemic, and it has taken over people’s lives. As a result, the societal activities made to combat its spread have altered how individuals interact with others and behave during sexual encounters. The pandemic’s social isolation and monotonous way of life have surprising effects. Decreased sexual desire or mood swings have also been brought on by elevated levels of stress and worry in people. Consequently, it seems that COVID-19’s effects

are pertinent to sexual health^[14].

While sexual dysfunction is a common problem among women, the question of whether COVID-19 pandemic disturbs their sexual life is raised. Subsequently, COVID-19 treatment should also include sexual health and reproductive health^[15].

The Female Sexual Function Index (FSFI), which evaluates all facets of sexuality, is regarded as the ‘gold standard’ for measuring the sexual functioning of women. The questionnaire was used twice, giving researchers the chance to investigate how certain aspects affect sexual life. Answers were provided before and after the factor’s

action, whose impact we are trying to determine^[14].

Our results demonstrated that desire, arousal, lubrication, orgasm, and satisfaction scores declined, while pain increased significantly during the COVID pandemic than before it.

Consistent with our findings, Fuchs *et al.* (2022)^[16] investigated FSFI scores on 644 patients and observed a significant decline in FSFI scores across all domains. This could be explained by the fact that symptoms like anxiety and a downcast mood greatly increased during the weeks of quarantine and lockdown. People have therefore been devoid of numerous stimuli and have started to exhibit distress. Globally, poor mental and sexual health was a result of social isolation, working from home, frequent bad news in the media, and fear of the future^[17,18].

Also, Fuchs *et al.*, (2020)^[14] reported decreased total FSFI including all domains which ensure a decline in Polish women's sexual life quality throughout the pandemic. Also, Yuksel and Ozgor (2020)^[19] reported that COVID-19 is associated with a deterioration of sexual life quality among Turkish women.

Another point that could explain the deterioration of sexual function during the pandemic is that many couples decided to interrupt their plan to have a child at the time of the pandemic due to the fear of economic instability and queries about pregnancy-related risks due to the infection^[20].

According to a later survey of married couples in Egypt, the pandemic reduced sexual satisfaction for both men and women, but women were more affected, which might be because they experienced more depression and anxiety than men did^[21].

It is well-known that stressful life events impact women's sexual desire and sexual life quality. Chronically high stress levels typically cause a decline in sexual desire^[22].

Also, another study found that the overall FSFI significantly declined during the pandemic, particularly arousal lubrication and satisfaction. Contingency table analysis of the risk of female sexual dysfunction (RFSD) revealed significantly increased RFSD during the pandemic than before^[19].

Inadequate vaginal lubrication was one of the female sexual disorders that have been identified. Numerous issues, including dyspareunia, vaginal itchiness, orgasm dysfunction, or an elevated risk of vaginitis, might result from lubrication problems^[23].

Conversely, Pappa *et al.*(2020)^[24] reported that the desire domain increased significantly during the pandemic. This was explained by the prolonged time spent at home. Our findings revealed that the mean Beck Depression Inventory increased significantly during the pandemic than before it.

In agreement, high levels of depression were observed among the respondents during the pandemic when compared with the levels before the pandemic^[25].

Recent research has revealed that depression symptoms were widespread during the COVID-19 epidemic^[26].

According to results from subsequent online research of Polish women conducted in 2021, participants experienced anxiety and depression as a result of the COVID-19 epidemic. According to WHO research in 2020, women are especially susceptible to the COVID-19 pandemic's detrimental effects on their mental and psychological health^[27].

Our findings revealed that the Hamilton Anxiety rating scale increased significantly during the pandemic when compared with the levels before the pandemic. In line with our results, Sensory *et al.*(2021)^[28] observed a statistically significantly higher average level of anxiety (44%) during the COVID-19 pandemic.

Aligning with our study, Bilen and Kucukkepeci's study^[29] in 2022 showed that among at least two-thirds of patients across all age, sex, and educational groups, the pandemic was linked to a rise in anxiety levels compared with prepandemic periods.

Our finding revealed that the mean Psychological Stress Scale increased significantly during the pandemic compared with levels before it. Pedrozo-Pupo *et al.* (2020) [30] reported higher stress levels in 15% of participants due to COVID-19. Fuchs *et al.*, (2020)^[14] reported increased stress and anxiety levels during the pandemic.

During the COVID-19, stress was a major challenging issue. Numerous factors contributed to this dilemma, including the novelty and rapid transmission of the COVID-19 virus, high mortality, and the unpredicted outcome of infection. Thus, thoughts of self-harm, intense anxiety, and depression have increased during the pandemic^[31].

Our findings revealed that restoring social harmony which measures the individual's ability to cope with stress increased significantly during the pandemic when compared with levels before the pandemic.

COVID-19 has added burdens to individuals' lives, such as lockdowns that have forced many businesses to close, leaving many people without employment and income. Unemployment issues and future uncertainty are undoubtedly linked to other worries and anxieties^[32].

STUDY LIMITATIONS

The relatively small number of participants involved in the study is one of its many shortcomings. In addition, only female sexual activity was assessed; however, male sexual conduct may impact female sexual attitudes. Future research should investigate this. Compared with the time before the pandemic, the individuals were asked to rate

the quality of their sexual experiences. The information gathered through questionnaires from prior experiences may vary depending on the person's psyche and motivation at that time, which may result in some biases.

CONCLUSION

During the COVID-19 pandemic, several interrelated factors may work in concert to negatively impact sexual behaviors. According to the study's findings, female sexual desire, arousal, lubrication, orgasm, and satisfaction were decreased during the pandemic. This may be attributed to the negative psychological effects of the COVID-19 pandemic, such as elevated stress levels, anxiety, and depression.

CONFLICT OF INTEREST

There are no conflict of interest

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