

# Postpartum Sexual Function and Dyspareunia in Patients with COVID-19

Merve Aldikactioglu Talmac<sup>1\*</sup>, Pinar Yalcin Bahat<sup>2</sup>, Name Berfu Yumak<sup>2</sup>, Aysegul Bestel<sup>2</sup>, Izel Günay<sup>1</sup>, Ibrahim Polat<sup>1</sup>

<sup>1</sup>Department of Obstetrics and Gynecology, University of Health Sciences, Başakşehir Cam and Sakura State Hospital, Istanbul, Turkey

<sup>2</sup>Department of Obstetrics and Gynecology, University of Health Sciences, Kanuni Sultan Suleyman Training and Research Hospital, Istanbul, Turkey

## ABSTRACT

The study aimed to better understand the influence of COVID-19 infection on the sexual health of postpartum women and to add new information to the literature, which lacks sufficient data on this subject.

The study consisted of a control group of 70 postpartum women diagnosed with COVID-19 and 71 healthy postpartum women. The groups had similar demographics. The “Carol Postpartum Sexual Function and Dyspareunia Assessment Scale” was used in this study (NCT04389489).

The Carol Postpartum Sexual Function and Dyspareunia Assessment Scale, including the libido, lubrication area, pain area during penetration, and pain area during vaginal intercourse dimensions, was used to assess the two groups, which had similar demographic characteristics; scores were meaningfully lower in the case group ( $p < 0.05$ ). The discomfort or pain when touching the vulva and discomfort and pain after vaginal intercourse dimension scores did not vary significantly between the study and control groups ( $p > 0.05$ ).

This study addresses the issue of insufficient data on the effect of COVID-19 infection on the sexual health of postpartum women. Health professionals should be aware of the effects of COVID-19 infection on women's sexual existence and provide appropriate therapy services.

**Keywords:** COVID-19, Dyspareunia, Postpartum Period, Sexual Health

## Introduction

The postpartum period is an important phase in a woman's life, during which many physical and psychological changes can occur (1). Some of these changes can lead to problems such as sexual dysfunction. Sexual dysfunction encompasses issues such as the inability to perform sexual activities at the desired level, decreased sexual desire, pain during sexual intercourse, and similar conditions (2). Currently, the “Carol Postpartum Sexual Function and Dyspareunia Assessment Scale” is used to evaluate the problems of women experiencing sexual dysfunction throughout the postpartum period (3). This scale was designed to identify pain and other symptoms of women experiencing sexual dysfunction.

Coronavirus disease 2019 (COVID-19), is an infectious illness caused by a novel coronavirus called SARS-CoV-2. The virus emerged in Wuhan, China, in December 2019, and its rapid

transmission resulted in a worldwide pandemic (4).

Currently, insufficient data on the evaluation of postpartum sexual function and dyspareunia in women with COVID-19 are available [5]. However, studies on the effects of COVID-19 infection during pregnancy and the postpartum period provide some possible clues about certain risks. For example, COVID-19 infection may affect the recovery process and sexual function of a woman's body due to respiratory distress (6). Even so, it is still uncertain whether COVID-19 infection directly impacts sexual function. Nevertheless, the inflammation caused by COVID-19 infection and the resulting stress may lead to hormonal imbalances and changes in sexual organs (7).

This article aimed to contribute to a well-considered impression of the effect of COVID-19 infection on the sexual health of puerperal women and to add new information to the literature, which lacks sufficient data on this subject.

\*Corresponding Author: Merve Aldikactioglu Talmac, Postal address: Başakşehir Olimpiyat Bulvarı Yolu; 34480

E-mail: drmrve@hotmail.com, Phone: +90 (532) 560 23 66

ORCID ID: Merve Aldikactioglu Talmac: 0000-0001-7219-1772, Pinar Yalcin Bahat: 0000-0003-2558-1924, Name Berfu Yumak: 0000-0002-3723-1078, Aysegul Bestel: 0000-0002-0700-6400, Izel Günay: 0009-0007-5650-5998, Ibrahim Polat: 0000-0002-1418-634X

Received: 29.05.2023, Accepted: 03.10.2023

## Materials and Methods

This single-centre, case–control study was conducted between May and August 2020 in Istanbul Kanuni Sultan Süleyman Training and Research Hospital, which has an annual birth rate of approximately 11,000 births. The centre accepted more than 50 pregnant women who tested positive for COVID-19 every month during the clinical pandemic period. The Institutional Ethics Committee approved the study protocol, which was also registered on ClinicalTrials.gov (NCT04389489).

The study group consisted of 70 puerperal women diagnosed with COVID-19, and the control group included 71 patients who were healthy puerperal women. All participants were women of reproductive age (18-45 years). The number of patients was determined according to the power analysis performed according to the "Turkish version of the Carol Postpartum Sexual Function and Dyspareunia Assessment Scale: Validity and Reliability Study" [8]. Patients who have had a caesarean section or vaginal delivery at term and had no sexual dysfunction for any other reason were selected. Attention was given to the fact that the groups had similar demographic characteristics. The "Carol Postpartum Sexual Function and Dyspareunia Assessment Scale" was used. The scale collects information about discomfort or pain intensity/frequency experienced at different stages of sexual activity and is used in the evaluation of postpartum dyspareunia. The exclusion criteria were a previous diagnosis of sexual dysfunction or dyspareunia, previous perineal damage (Grade 3 or 4), a history of vaginismus, and a history of psychiatric illness.

Each item receives a fractional score in the Carol Scale, which consists of 11 items. The total score of the numerous areas and issues allows the relevant disorder to be classified according to different degrees. This scale can be applied face-to-face as well as by phone call. The Cronbach's alpha coefficient of the original measure was 0.79. The scale, which has a 4-factor structure consisting of 11 items, includes the "preparation for sexual activity," "discomfort or pain when touching the vulva," "discomfort or pain related to vaginal intercourse," and "discomfort or pain after vaginal intercourse" dimensions, and the Cronbach alpha coefficients of these factors are 0.69, 0.86, 0.93, and 0.86, respectively (8). In the study, the Carol scale was applied face-to-face to patients in the first three months postpartum.

The descriptive statistics were analysed using various measures, such as the mean, standard deviation, median, minimum, maximum, frequency, and ratio values. The distribution of the variables was evaluated through the Kolmogorov–Smirnov test. Independent quantitative data were analysed using the Mann–Whitney U test, whereas independent qualitative data were examined using the chi-square test. In cases where the conditions for the chi-square test were not met, the Fisher test was applied. The analysis was carried out using the SPSS program (version 28; SPSS Inc., Chicago, IL, USA)

## Results

Demographic information, including age, BMI, education level, gestational week at birth, chronic disease, and drug use, of the patients in the case and control groups are presented in Table 1. In addition, gravidity, parity, abortion number, episiotomy rate, breastfeeding rate, and contraception rate of the groups are also shown in the same table.

The "Carol Postpartum Sexual Function and Dyspareunia Assessment Scale" includes the libido, lubrication area, pain during penetration, and pain during vaginal intercourse dimensions; the scores on these dimensions were significantly ( $p < 0.05$ ) lower in the case group than in the control group. The discomfort or pain when touching the vulva and discomfort and pain after vaginal intercourse dimension scores did not vary significantly between the case and control groups ( $p > 0.05$ ) (Table 2).

## Discussion

According to the article published in Midwifery in 2018, the authors developed a new tool called the Carol Scale to assess postpartum sexual function and dyspareunia. The authors suggest that the scale could be used in clinical practice to evaluate and monitor sexual function and dyspareunia in postpartum women and to guide interventions to improve sexual health outcomes in this population (3). This study is the first to assess postpartum sexual function and dyspareunia in puerperal females with COVID-19 infection using the Carol Scale; it was carried out to understand the effect of COVID-19 infection on the sexual health of puerperal females and to add new information to the literature, which lacks sufficient data on this

**Table 1.** Demographic Characteristics

	Control Group			Study Group			P	
	Mean±SD/n-%	Median		Mean±SD/n-%	Median			
Age	29.5 ± 7.0	29.0		29.4 ± 6.1	28.5		0.788	m
Height	160.6 ± 7.1	160.0		162.4 ± 5.1	162.5		0.077	m
Weight	70.6 ± 11.0	70.0		74.0 ± 13.0	72.0		0.080	m
BMI	27.4 ± 4.2	27.0		28.1 ± 4.8	27.8		0.550	m
Chronic Disease	(-) 57 (+) 14	80.3% 19.7%		63 7	90.0% 10.0%		0.105	X <sup>2</sup>
Thyroid Metabolism Disorders	4	5.6%		3	4.3%			
Hypertension	4	5.6%		0	0.0%			
Diabetes Mellitus	2	2.8%		1	1.4%			
Autoimmune Disease	1	1.4%		1	1.4%			
Vascular Disease	1	1.4%		0	0.0%			
Asthma	1	1.4%		1	1.4%			
Familial Mediterranean Fever	1	1.4%		0	0.0%			
Using Medicine	(-) 65 (+) 6	91.5% 8.5%		68 2	97.1% 2.9%		0.151	X <sup>2</sup>
Education Status (Year)	8.6 ± 3.5	8.0		10.3 ± 3.3	8.0		0.012	m
Gestational Week at Birth	37.1 ± 4.1	38.0		37.6 ± 2.6	38.0		0.860	m
Labor Type	CS 33 NSD 38	46.5% 53.5%		49 21	70.0% 30.0%		0.005	X <sup>2</sup>
Gravida	2.9 ± 1.8	3.0		2.5 ± 1.4	2.0		0.375	m
Parity	2.5 ± 1.3	2.0		2.3 ± 1.2	2.0		0.383	m
Abortus	0.4 ± 1.2	0.0		0.5 ± 0.6	0.0		0.087	m
Episiotomy	(-) 55 (+) 16	77.5% 22.5%		15 6	21.4% 8.6%		0.569	X <sup>2</sup>
Quarantine	(-) 71 (+) 0	100.0% 0.0%		2 68	2.9% 97.1%		0.000	X <sup>2</sup>
Lactation	(-) 11 (+) 60	15.5% 84.5%		15 55	21.4% 78.6%		0.364	X <sup>2</sup>
Contraception	(-) 42 (+) 29	59.2% 40.8%		42 28	60.0% 40.0%		0.919	X <sup>2</sup>
Coitus Interruptus	14	19.7%		9	12.9%			
Barrier	6	8.5%		14	20.0%			
Hormonal	1	1.4%		2	2.9%			
Tubal Ligation	6	8.5%		3	4.3%			
Hysterectomy	2	2.8%		0	0.0%			
Auxiliary at home	(-) 54 (+) 17	76.1% 23.9%		44 26	62.9% 37.1%		0.089	X <sup>2</sup>
Treatment of COVID-19	(-) 71 (+) 0	100% 0.0%		24 46	34.3% 65.7%		0.000	X <sup>2</sup>

<sup>m</sup> Mann-Whitney U test

X<sup>2</sup> Chi-square test

**Table 2.** The Carol Postpartum Sexual Function and Dyspareunia Rating Scale

	Control Group		Study Group		p
	Mean±SD	Median	Mean±SD	Median	
The Carol Postpartum Sexual Function and Dyspareunia Rating Scale					
Preparation for Sexual Activity					
Libido Area	4.6 ± 1.7	4.0	3.6 ± 1.5	4.0	0.000 m
Lubrication Area	2.5 ± 0.8	3.0	1.6 ± 0.7	2.0	0.000 m
Area of Discomfort or Pain When Touching the Vulva	3.7 ± 3.2	3.0	3.0 ± 2.9	1.0	0.146 m
Discomfort and Pain Related to Vaginal Sex					
Area of Pain During Penetration	4.5 ± 3.6	4.0	3.0 ± 3.1	1.0	0.015 m
Area of Pain During Vaginal Sex	4.5 ± 3.5	4.0	3.2 ± 3.3	1.0	0.032 m
Discomfort and Pain After Vaginal Sex	4.0 ± 3.4	3.0	3.2 ± 3.2	1.0	0.081 m

<sup>m</sup> Mann-Whitney U Test

subject. According to our study, the sexual health of postpartum women did not appear to be significantly impacted by COVID-19 infection.

COVID-19 is transmitted by touching infected surfaces and breathing in particles. There is no evidence of sexual transmission in the available data [9]. There is a relationship between sexual activity and psychological health, the immune response, and cognitive training, and sexual activity can reduce psychosocial stress [10]. The COVID-19 pandemic may affect sexual function due to its effects on general health (11). Our study findings revealed that the diagnosis of COVID-19 in puerperal women did not significantly reduce their sexual function. There may be several reasons, such as that the effects of COVID-19 infection on sexual health are less pronounced than those of other health problems, the disease does not directly affect the genital area, and sexual dysfunction may be a longer-term effect. It is important to emphasize that additional research and studies are necessary to comprehend the impact of COVID-19 infection on sexual health.

Using the Female Sexual Function Index (FSFI) scale, studies determined that sexually active adult women experienced a noteworthy decline in their sexual function amidst the COVID-19 pandemic (12, 13). Pain, satisfaction, arousal, and orgasm were among the areas of sexual function that showed the most pronounced impacts (14). Likewise, our study found a significant decrease in libido and lubrication and increased pain during penetration and vaginal sexual activity in the case group compared to the control group. These

results indicated less sexual arousal and more pain in the case group.

Zülfikaroğlu conducted a study to investigate the effects of the COVID-19 pandemic and social isolation on the sexual functions of women undergoing treatment for vaginismus. The study revealed that the frequency of sexual activity did not change significantly during the pandemic, but there was a notable increase in stress and depression scores. Surprisingly, most sexual function scores, including pain scores, improved during the pandemic (15). In this study, it was also noticed that women who were treated for vaginismus during the pandemic did not experience recurrence. Likewise, our study showed that scores for discomfort and pain when the vulva was touched and after vaginal intercourse were not affected.

This study has some limitations. The sample size was limited, as the study was conducted only with COVID-19-positive puerperal women. Therefore, the generalization of results is limited and studies with larger sample sizes are required. In addition, the study focused on whether puerperal women tested positive only for COVID-19. Other factors, such as delivery method, postpartum depression, and breastfeeding, were ignored. Given the limitations of this study, it is thought that future studies that are more comprehensive and include larger sample sizes will help to better understand the impact of COVID-19 infection on the sexual health of puerperal women.

In the postpartum period, women may face sexual health problems due to hormonal changes, birth

trauma, and caring for their baby. The COVID-19 pandemic has led to many factors, such as stress, anxiety, social isolation, and economic difficulties, that affect the lives and sexual health of many women. This study contributes to the insufficient data on the impact of COVID-19 infection on the sexual health of postpartum women. Health care professionals should be aware of the effects of COVID-19 infection on women's sex lives and provide appropriate counselling.

**Acknowledgement:** The authors would like to express their gratitude to the hospital's information processing unit for providing easy access to the data used in this study and to the valuable patients who generously consented to use their data.

## References

1. Meng, J., et al., Effects of an evidence-based nursing intervention on prevention of anxiety and depression in the postpartum period. *Stress Health*, 2022. 38(3): p. 435-442.
2. Ozerdogan, N., et al., Sexual dysfunction in the third trimester of pregnancy and postpartum period: a prospective longitudinal study. *J Obstet Gynaecol*, 2022. 42(7): p. 2722-2728.
3. López-Lapeyrere, C., et al., The development and validation of a new postpartum sexual function and dyspareunia assessment tool: The Carol Scale. *Midwifery*, 2018. 58: p. 27-36.
4. Tezcan, M.E. and R. Mercan, Romatoloji Perspektifinden COVID-19. *Namik Kemal Tıp Dergisi*, 2020.
5. Aolymat, I., et al., The Impact of the COVID-19 Pandemic on Female Sexual Function in Jordan: Cross-sectional Study. *JMIR Form Res*, 2023. 7: p. e40772.
6. Ashton, R., et al., COVID-19 and the long-term cardio-respiratory and metabolic health complications. *Rev Cardiovasc Med*, 2022. 23(2): p. 53.
7. José, F.G., et al., [SARS-CoV-2 infection: implications for sexual and reproductive health. A position statement of the Asociación Española de Andrología, Medicina Sexual y Reproductiva (ASESA)]. *Rev Int Androl*, 2020. 18(3): p. 117-123.
8. Evcili, f., carol postpartum cinsel fonksiyon ve disparoni değerlendirme ölçeği'nin türkçe versiyonu: geçerlik ve güvenilirlik Çalışması. *Anadolu Hemşirelik ve Sağlık Bilimleri Dergisi*, 2019. 22(1): p. 49-57.
9. Aitken, R.J., COVID-19 and human spermatozoa—Potential risks for infertility and sexual transmission? *Andrology*, 2021. 9(1): p. 48-52.
10. Huyut, M.T. and S. Soygüder, The multi-relationship structure between some symptoms and features seen during the new coronavirus 19 infection and the levels of post-covid anxiety and depression. *Eastern J Med*, 2022. 27(1): p. 1-10.
11. Pennanen-Iire, C., et al., Sexual Health Implications of COVID-19 Pandemic. *Sex Med Rev*, 2021. 9(1): p. 3-14.
12. Yuksel, B. and F. Ozgor, Effect of the COVID-19 pandemic on female sexual behavior. *International Journal of Gynecology & Obstetrics*, 2020. 150(1): p. 98-102.
13. Schiavi, M.C., et al., Love in the time of COVID-19: sexual function and quality of life analysis during the social distancing measures in a group of Italian reproductive-age women. *The journal of sexual medicine*, 2020. 17(8): p. 1407-1413.
14. Hessami, K., et al., Women's sexual function before and during COVID-19 pandemic: A systematic review and meta-analysis. *J Obstet Gynaecol Res*, 2022. 48(9): p. 2285-2295.
15. Zülfiyaroglu, E.E., The Impact of the COVID-19 Pandemic and Social Isolation on the Sexual Functioning of Women Who Have Been Treated for Vaginismus. *Cureus*, 2022. 14(9): p. e28736.