Original Article

The Sexual Function, Desire, and Satisfaction of Couples during the Outbreak of COVID-19 in Qazvin

Abstract

Background: The COVID-19 pandemic has significantly affected the lives of the community. The resulting social constraints and the physical and psychological consequences are also expected to affect sexual health. The present study aims to determine the status of sexual function, desire, and satisfaction of couples during the outbreak of COVID-19. **Materials and Methods:** This is a descriptive online cross-sectional study on 400 married individuals living in Qazvin, Iran, from October 15 to November 12, 2020. The multi-stage random cluster method is used for sampling. The following questionnaires have been used for data collection: Female Sexual Function Index (FSFI), Rosen male sexual function, Larson's sexual satisfaction, and Hurlbert Index of Sexual Desire (HISD). The questionnaires were sent to participants through online messengers. The obtained data were analyzed by SPSS software (v25). **Results:** The findings show that only 19.20% of study participants had sex three or more times a week. Most of the participating women (56.90%) had sexual dysfunction, while most men (64.30%) had proper sexual function. Also, the majority of participants had moderate sexual desire (46%) and high sexual satisfaction. The primary predictors of sexual dysfunction in men and women during the outbreak of COVID-19 were "employment in health centers" (B = -9.34, p = 0.007) and "spouse working in health centers" (B = -6.16, p = 0.007), respectively. **Conclusions:** The psychological burdens of the COVID-19 pandemic and resulting measures, such as prevention protocols, affect couples' sexual relations. Therefore, interventions are necessary to improve the quality and health of the sexual life of couples.

Keywords: *Coronavirus, COVID-19, sexual behavior, sexual dysfunctions, sexual health*

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Introduction

The respiratory syndrome caused by the new coronavirus is a pandemic disease transmitted by direct and indirect contact, and prevention is the primary measure to control it.[1] The prevalence of COVID-19 is increasing daily, and by June 2022, the number of patients in Iran reached 6.3 million. Numerous studies have been performed on the disease transmission ways, such as sexual secretions of patients with COVID-19. The results did not show any evidence in the presence of the virus in vaginal discharge or semen.[2] However, the transmission of the virus through sexual behaviors is possible.[3]

It is essential to care about the sexual aspect of life, as otherwise, it can cause psychological disturbances, incompatibilities, and failure in marital life. Likewise, sexual problems can have an adverse effect on other aspects of individual and social life.[4] Stress due to the possibility of disease transmission through close contact may turn into anxiety, fear, lack of interest, and frustration in sexual intercourse and affect sexual function and satisfaction.[5] The starting point of sexual function is the desire for sexual activity, a set of forces and desires that lead a person to or away from sexual behaviors. Sexual desire is a motivational state related to sexual activity and can shape sexual function and affect its quality.[6] The harmful effect of COVID-19 on sexual life is likely to affect married people in Iran, which has also been indicated in studies.[7,8] The findings of Karagöz *et al*.[9] (2020) showed a decrease in overall sexual satisfaction in male and female subjects during the pandemic.

Sexual function and desire are closely related to psychological well-being and may be harmed by issues such as fear, anxiety,

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stress, and depression.[10] As previously mentioned, mental confounding has been reported in studies conducted during the coronavirus outbreak. The resulting psychological burden can affect sexual desire and function. This may also affect the quality of sexual relationships and sexual satisfaction.[11] Sexual pleasure in humans is mostly the product of the mind, and psychological factors play an essential role in sexual function and satisfaction.[12] The negative effects of COVID-19 may occur in people who do not even have the disease. For example, measures to prevent disease can reduce interpersonal communication and contact. Also, people may not have much desire for intimacy for fear of infection. The lack of comprehensive and up-to-date information on the sexual status of married peoples' lives in Iran after the pandemic necessitates such research. Hence, the present study aimed to determine the status of sexual function, desire, and satisfaction of couples during the outbreak of COVID-19 in Qazvin, Iran, in 2020.

Materials and Method

The present descriptive cross-sectional study was conducted from October 15 to November 12, 2020. The inclusion criteria for this study were having literacy, consent to participation in the study, no underlying sexual disease, no mental and chronic physical illness, non-pregnancy and lactation, and non-use of drugs that affect sexual function (e.g. Tadalafil, Fluoxetine, Yohimbine, Sildenafil, and Bremelanotide). The exclusion criterion was incomplete questionnaires (over than 5% of the questions were unanswered).

The sample size was determined using Cochran's formula with a 95% confidence level (Z = 1.96), 0.05 error level (d = 0.05), and test power of 80%. Due to the size of the unknown population, p = 0.50 was considered significant. For higher generalizability, the sample consisted of 400 married people living in Qazvin, Iran, selected by the multi-stage random cluster sampling method.

The city was divided into five regions, and two main clusters were randomly selected by the simple random method. Then, five centers were randomly selected from the health centers in these two main clusters. Among the residents of the region of each center, 80 eligible married people were selected as the study population using a systematic sampling method. In coordination with the health centers, the participants' telephone numbers were obtained, and they were invited by telephone calls to participate in the research. Oral consent was obtained from participants before enrolling in the study. The link to questionnaires was provided in cyberspace by a messenger (Telegram, WhatsApp, Soroush, IGap, and Gap) chosen by each participant. The questionnaire was designed as an electronic form.

The demographic characteristics of individuals, including age, gender, employment status, education level, employment in health centers, spouse's employment in health centers, fear of sexual intercourse, having information about the sexual intercourse protocols, use of masks during sexual intercourse, and foreplay preferences, were collected.

Two separate questionnaires were used to assess the sexual function of male and female participants during the quarantine. The standard questionnaire for assessing the sexual function of men developed by Rosen *et al*.[13] (1997) was used for male participants. This questionnaire consisted of 15 questions on a five-point Likert scale (with scores of 1 = extremely poor to 5 = very good). Scores 15 to 25 indicated low, 25 to 50 indicated moderate, and scores above 50 showed high sexual function.[14] The validity of this questionnaire was measured as desirable by Pakpour *et al*.[15] (2014), and Cronbach's alpha was 73%. The standard sexual function evaluation questionnaire with 19 questions was used to measure the female sexual function index (FSFI). The minimum score was 2, the maximum was 36, and a score of 28 or lower indicated sexual dysfunction.[16] This questionnaire had the necessary reliability and validity, and Cronbach's alpha coefficient was 85%.[17,18] In the present study, Cronbach's alpha was calculated as 0.82 and 0.89 for male and female sexual function questionnaires, respectively.

The Hurlbert index of sexual desire (HISD) questionnaire consists of 25 items to measure the sexual desire of both genders. Each item was scored on a five-point Likert scale (from always = 0 to never = 4). The minimum possible score was 0, and the maximum was 100. Scores below 50 indicated a low sexual desire, 51 to 75 moderate desire, and 75 to 100 indicated desirable. The validity of this questionnaire was satisfactory, and Cronbach's alpha was 0.86.[19] The Cronbach's alpha in this study was calculated as 0.90.

Larson's (1988) sexual satisfaction questionnaire had 25 questions, scored on a five-point (1–5) Likert scale. Scores below 50 indicated sexual dissatisfaction, 51 to 75 indicated low sexual satisfaction, 76 to 100 moderate, and scores above 100 indicated high satisfaction. The content and face validity of this tool have been reported as desirable, and Cronbach's alpha has been calculated for its reliability ($\alpha > 0.7$).[20] Cronbach's alpha in this study was calculated as 0.90.

The obtained data were statistically analyzed by IBM SPSS version 25. Descriptive statistics were used to describe and categorize the data, and inferential statistics were used to test the hypothesis. The Spearman correlation coefficient was used to investigate the relationship between quantitative variables. The Chi-square and Fisher's exact tests were used to investigate the frequency differences between the levels of demographic variables. Linear regression was applied to assess predictive factors. In all tests, a significance level of 0.05 was considered.

Ethical considerations

Participants' rights were protected by ensuring privacy during data collection. The confidentiality of information with researchers was emphasized at the beginning of the questionnaire. Informed consent was provided by each participant before being included in the study. The consent form was displayed to participants at the beginning of the online questionnaire, and they were directed to the questionnaire page after confirmation. Entering the name and telephone number of participants in the informed consent form was optional. This study was registered with the ethics committee of Qazvin University of Medical Sciences with the ethics code of IR.QUMS.REC.1399.270 on October 10, 2020.

Results

In the present study, 400 married people living in Qazvin participated, of which 112 were male (28%) and 288 were female (72%). The mean and standard deviation (SD) of the participants' age was 36.28 (6.96). Only 19.20% of participants had sexual intercourse three or more times a week. The mean quarantine period for people was 36.28 (48.02) [Table 1].

The mean and standard deviation of the total score of sexual function for men and women were 25.05 (8.29) and 55.63 (14.37), respectively. The mean and standard deviation of sexual satisfaction for male and female participants and the total score were 97.71 (5.86), 95.68 (14.10), and 97.15 (15.14), respectively. The mean and standard deviation of the total score for sexual desire was 63.27 (19.66), and the sexual desire of men and women was 61.11 (20.77) and 68.91 (15.08), respectively.

Table 1: Demographic information of the participants

Variable	Frequency (percentage)			Statistical test *p* value
	Female n(%)	Male n(%)	Total n(%)	
Fear of sexual intercourse				
Yes	89 (30.90)	28 (25)	117 (29.20)	X^2_1=1.35*
No	199 (69.10)	84 (75)	282 (70.80)	*p*=0.244
Having information about sexual intercourse protocol				
Yes	148 (51.40)	46 (41.10)	194 (48.50)	X^2_1=3.43*
No	140 (48.60)	66 (58.90)	206 (51.50)	*p*=0.07
Use of masks in sexual intercourse				
Yes	2 (0.70)	9 (80)	11 (2.80)	X^2=20.79**
No	259 (89.90)	101 (90.20)	360 (90)	*p*<0.001
I did not have intercourse	27 (9.40)	2 (1.80)	29 (7.20)	
Foreplay				
Yes	216 (75)	87 (77.70)	303 (75.80)	X^2=6.64**
No	45 (15.60)	23 (20.50)	68 (17)	*p*=0.04
I did not have intercourse	27 (9.40)	2 (1.80)	29 (7.20)	
Employment status				
Unemployed	8 (2.80)	5 (4.50)	13 (3.30)	X^2_3=42.52*
Employed	197 (68.40)	99 (88.40)	296 (74)	*p*<0.001
housewife	78 (27.10)	0 (10)	78 (19.40)	
Retired	5 (1.70)	8 (7.10)	13 (3.30)	
Employment in health centers				
Yes	68 (23.60)	8 (7.10)	76 (19)	X^2_1=14.21*
No	220 (76.40)	104 (92.90)	324 (81)	*p*<0.001
Spouse's employment in health centers				
Yes	49 (17)	10 (8.90)	59 (14.70)	X^2_1=4.19*
No	239 (83)	102 (91.10)	341 (85.30)	*p*=0.042
Education				
High school	9 (3.10)	5 (4.50)	14 (3.50)	X^2_2=2.67*
Diploma	43 (14.90)	12 (10.70)	55 (13.80)	*p*=0.309
Academic	236 (82)	95 (84.80)	331 (83.70)	
Quarantine				
Yes	134 (46.50)	39 (34.80)	173 (43.30)	X^2_1=4.50*
No	154 (53.50)	73 (65.20)	227 (56.80)	*p*=0.03

*Chi-square. **Fisher's exact

Most of the female participants (56.90%) had sexual dysfunction, while most males (64.30%) had proper sexual function [Table 2]. The sexual function of the female participants in this study had a significant direct relationship with sexual satisfaction (r = 0.72, $p < 0.001$) and sexual desire (r = 0.71, $p < 0.001$) and a significant inverse relationship with age (r = -0.20, $p < 0.001$). Similarly, the sexual function of male participants was directly and significantly related to sexual satisfaction (r = 0.76, $p < 0.001$) and sexual desire (r = 0.73, $p < 0.001$), but no significant relationship with age (r = -0.12, $p = 0.205$). There was a significant direct relationship between the frequency of sexual intercourse and sexual function in male (r = 0.45, $p = <0.001$) and female participants (r = 0.52, $p = <0.001$).

Multivariate regression analysis indicated that the primary predictor of sexual dysfunction in women during the outbreak of COVID-19 was "spouse working in health centers" (B = -6.16, $p = 0.007$) for women and "employment in health centers" (B = -9.34, $p = 0.007$) for men. It predicted a 69% variance in women's [Table 3] and a 78% variance in men's sexual function [Table 4].

Discussion

The results of the present study indicated that women's sexual function bordered on dysfunction. The findings are consistent with studies by Fuchs *et al*.[7] (2020) on Polish women and Culha *et al*.[21] (2020) on Turkish women. The psychological outcomes of the COVID-19 pandemic have compromised the sexual function of married women. In contrast, the sexual function in men had a desirable status. Li *et al*. (2020) and Karsiyakali *et al*. (2020) observed a decrease in sexual function during the COVID-19 pandemic, which contradicted the findings of the present study.[8,22] The reason for this disparity in the results could be due to the pandemic conditions at the time of collecting data. At some times, the number of people infected with the coronavirus increased and the epidemic was at its peak.

Table 2: Frequency of levels of sexual variables

Variable	Classification	n(%)		
Women's sexual function				
	Dysfunction	164 (56.90)		
	No dysfunction	36 (43.10)		
Men's sexual function				
	Poor	4 (3.60)		
	Moderate	36 (32.10)		
	Good	72 (64.30)		
		Women	**Men**	**Total**
Sexual desire				
	Low	79 (27.40)	13 (11.60)	92 (23)
	Moderate	132 (48.50)	52 (46.40)	184 (46)
	High	77 (26.70)	47 (42)	124 (31)
	Statistical test		X^2_2=1.35*, p=0.001	
Sexual satisfaction				
	Dissatisfaction	2 (0.70)	0 (0)	2 (0.50)
	Low	27 (9.40)	13 (11.60)	40 (10)
	Moderate	110 (38.20)	56 (50.00)	166 (41.50)
	High	149 (51.70)	43 (38.40)	192 (48)
	Statistical test		X^2=6.57**, p=0.076	

*Chi-square. **Fisher's exact

Table 3: Analysis of linear regression results by enter method for women sexual function

Model 1	Unstandardized Coefficients		Standardized Coefficients	Confidence interval		*p*
	B	Std. Error	Beta	Lower	Upper	
(Constant)	6.70	2.48		1.59	11.36	0.010
Number of sexual intercourse	0.94	0.25	0.14	0.43	1.44	<0.001
Sexual desire	0.12	0.01	0.29	0.08	0.152	<0.001
Sexual satisfaction	0.13	0.02	0.25	0.09	0.17	<0.001
Age	-0.02	0.04	-0.01	-0.10	0.06	0.601
Fear of sexual intercourse*	-3.08	0.62	-0.16	-4.27	-1.80	<0.001
Employment in health centers*	-3.43	0.66	-0.17	-4.74	-2.12	<0.001
Spouse's works in health centers*	-6.16	0.77	-0.27	-7.69	-4.63	<0.001

*No=0, Yes=1

Table 4: Analysis of linear regression results by enter method for men sexual function

Model 2	Unstandardized Coefficients		Standardized Coefficients	Confidence interval		*p*
	B	Std. Error	Beta	Lower	Upper	
(Constant)	-5.06	8.26		-21.46	11.33	0.54
Number of sexual intercourse	2.94	0.65	0.23	1.65	4.23	<0.001
Sexual desire	0.54	0.05	0.57	0.43	0.65	<0.001
Sexual satisfaction	0.24	0.06	0.23	0.11	0.36	<0.001
Age	-0.14	0.10	-0.06	-0.34	0.06	0.170
Fear of sexual intercourse*	-5.93	1.74	0.18	2.47	9.40	0.001
Employment in health centers*	-9.34	3.38	-0.13	-16.06	-2.61	0.007
Spouse's works in health centers*	-7.86	2.53	-0.16	-12.88	-2.84	0.002

*No=0, Yes=1

In these situations, the psychological burden on the society was also higher. Cultural differences in societies can also affect the expression of sexual problems and research results.

The total score of sexual satisfaction in both sexes indicated moderate sexual satisfaction during the COVID-19 outbreak. Sexual satisfaction might have decreased compared to pre-pandemic, but no authentic data source exists for such a comparison. Karagöz *et al*.[9] (2020) found a decrease in overall sexual satisfaction in male and female subjects during the pandemic. Cocci *et al*.[23] (2020) further revealed a decrease in sexual satisfaction during quarantine, with more than half of the respondents expressing complete sexual dissatisfaction. In their study, depression and dissatisfaction with quarantine led to a decrease in sexual satisfaction. In the sexual satisfaction questionnaire of the present study, questions related to the function of the sexual partner have been mentioned. This could affect the participant's sexual satisfaction score. Also, society's culture can affect a person's expectations of sex.

In the present study, the sexual desire in female and male participants was in the upper medium range, indicating no sharp decline in the sexual desire of married couples. The study by Karagöz *et al*.[9] (2020) indicated no change in sexual desire in women during the COVID-19 outbreak. However, Culha *et al*.[21] (2020) found that anxiety due to the spread of the virus reduced sexual desire in healthcare workers. This difference in results can be attributed to differences in the study population.

The two variables of "employment in healthcare centers" and "spouse's employment in healthcare centers" were identified as negative predictors of sexual function in men and women. These results are consistent with the study of Culha *et al*.[21] (2020), who found that healthcare providers had a lower sexual function and were affected by the disease outbreak in all aspects of sexual intercourse (frequency, type of relationship, foreplay, and duration of intercourse). Likewise, the frequency of intercourse and sexual desire in both sexes were related to sexual function during the COVID-19 outbreak. In other studies, the quality of sexual life and function was also associated with two variables of sexual desire and the frequency of sexual intercourse.[22-24] As mentioned, the psychological impacts of the disease outbreak affected sexual desire and the frequency and quality of sexual intercourse. In both sexes, fear of sexual activity was a negative factor in sexual function. This finding was confirmed by Karagöz *et al*.[9,25]

A limitation of the present study was the questionnaire method relying on self-reporting and using two different questionnaires for male and female participants. Also, the study results were based on cross-sectional data from the local sample, while the severity of the outbreak varied in different regions and seasons. Nevertheless, the findings can be generalized to married people engaging in sexual intercourse during a pandemic, as other transmissible respiratory viral diseases can cause similar conditions. Sampling was accomplished in a short time to prevent the effect of time and other confounders. The researcher followed up on the samples carefully and regularly. The cultural context in Iran, which generally forbids the open expression of sexual matters and problems, was another limiting factor. Naturally, the information entered by participants was guaranteed to remain confidential. Further large-scale longitudinal studies are needed in different regions and populations for a more comprehensive understanding of the impact of the pandemic on sexual and reproductive health.

Conclusion

The findings of the present study demonstrated the negative effects of the COVID-19 pandemic on the sexual function of married people. Sexual function was poorer among healthcare workers and their partners. Therefore, measures are necessary to prevent damage to the sexual life of married couples during pandemics and seasons when viral infectious diseases are prevalent. Sexual health education and special protocols can also be helpful, and nurses have a prominent role in educating the general public. Also, measures (e.g. reducing workload and proper distribution of labor, providing protective equipment, and free diagnostic tests) are required to prevent harm to the sexual life of medical staff, along with special training for individuals

and their families. Further longitudinal and cross-sectional studies are recommended to evaluate the sexual health of married people (especially medical staff). The findings should be recorded in a health database to be accessible when necessary, such as during a pandemic, pandemic with the pervasive problems of society, to examine the effects on sexual life and make decisions.

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Conflicts of interest

Nothing to declare.

References

1. Moradi M, Namdar P, GHapanvari F, Yekefallah L. Lived experiences of the patients hospitalized with COVID-19: a phenomenological study in a province of Northwest Iran. PRIJNR. 2021;25:327-40.
2. Cui P, Chen Z, Wang T, Dai J, Zhang J, Ding T, *et al*. Severe acute respiratory syndrome coronavirus 2 detection in the female lower genital tract. Am J Obstet Gynecol 2020;223:131-4.
3. Cipriano M, Giacalone A, Ruberti E. Sexual behaviors during COVID-19: The potential risk of transmission. Arch Sex Behav 2020;49:1431-2.
4. Yekefallah L, Namdar P, Mohammadi S, Dost Mohammadi S, Minaei Moghaddam S, Mafi M. Effect of Multimedia Sexual Index Promotion Package on Sexual Function, Desire, and Satisfaction of Married People: A Randomized Clinical Trial. Health Educ Health Promot 2023;11:117-24.
5. Gaspari V, Orioni G, Viviani F, Raone B, Lanzoni A, Bardazzi F. Does COVID-19 influence sexual behaviors? Dermatol Ther 2020;33:e14004. doi: 10.1111/dth. 14004.
6. Hogue JV, Rosen NO, Bockaj A, Impett EA, Muise A. Sexual communal motivation in couples coping with low sexual interest/arousal: Associations with sexual well-being and sexual goals. PLoS One 2019;14:e0219768. doi: 10.1371/journal.pone. 0219768.
7. Fuchs A, Matonóg A, Pilarska J, Sieradzka P, Szul M, Czuba B, *et al*. The impact of COVID − 19 on female sexual health. Int J Environ Res 2020;17:7152. doi: 10.3390/ijerph 17197152.
8. Karsiyakali N, Sahin Y, Ates HA, Okucu E, Karabay E. Evaluation of the sexual functioning of individuals living in Turkey during the COVID-19 pandemic: An internet-based nationwide survey study. Sex Med 2021;9:100279. doi: 10.1016/j.esxm. 2020.10.007.
9. Karagöz MA, Gül A, Borg C, Erihan İB, Uslu M, Ezer M, *et al*. Influence of COVID-19 pandemic on sexuality: A cross-sectional study among couples in Turkey. Int J Impot Res 2020;33:815-23.
10. Rosen NO, Corsini-Munt S, Dubé JP, Boudreau C, Muise A. Partner responses to low desire: Associations with sexual, relational, and psychological well-being among couples coping with female sexual interest/arousal disorder. J Sex Med 2020;17:2168-80.
11. Mertens G, Gerritsen L, Duijndam S, Salemink E, Engelhard IM. Fear of the coronavirus (COVID-19): Predictors in an online study conducted in March 2020. J Anxiety Disord 2020;74:102258. doi: 10.1016/j.janxdis. 2020.102258.
12. Bravi CA, Tin A, Montorsi F, Mulhall JP, Eastham JA, Vickers AJ. Erectile function and sexual satisfaction: The importance of asking about sexual desire. J Sex Med 2020;17:349-52.
13. Rosen RC, Riley A, Wagner G, Osterloh IH, Kirkpatrick J, Mishra A. The international index of erectile function (IIEF): A multidimensional scale for assessment of erectile dysfunction. Urology 1997;49:822-30.
14. Gonzáles AI, Sties SW, Wittkopf PG, Mara LS, Ulbrich AZ, Cardoso FL, *et al*. Validation of the International Index of Erectile Function (IIFE) for use in Brazil. Arquivos brasileiros de cardiologia 2013;101:176-82. doi: 10.5935/abc.20130141.
15. Pakpour AH, Zeidi IM, Yekaninejad MS, Burri A. Validation of a translated and culturally adapted Iranian version of the international index of erectile function. J Sex Marital Ther 2014;40:541-51.
16. Mohammadi kh, Heydari M, Faghihzadeh S. The female sexual function index (FSFI): Validation of the Iranian version. Payesh 2008;7:269-78.
17. Dadgar S, Karimi FZ, Bakhshi M, Abdollahi M, Rahimzadeh Borj F. Assessment of sexual dysfunction and its related factors in pregnant women referred to Mashhad health centers (2017-2018). Iran J Obstet Gynecol Infertil 2018;21:22-9.
18. Mousazadeh T, Motavalli R. Sexual function and behavior in pregnant women of Ardabil in 2016. J Health Care 2018;20:40-7.
19. Yousefi N, Farsani K, Shakiba A, Hemmati S, Nabavi Hesar J. Halbert index of sexual desire (HISD) questionnaire validation. Clinical Psychology and Personality2013;11:107-18.
20. Bahrami N, Yaghoobzadeh A, Sharif Nia H, Soliemani M, Haghdoost A. Psychometric properties of the Persian version of Larsons sexual satisfaction questionnaire in a sample of Iranian infertile couples. Iran J Epidemiol 2016;12:18-31.
21. Culha MG, Demir O, Sahin O, Altunrende F. Sexual attitudes of healthcare professionals during the COVID-19 outbreak. Int J Impot Res 2021;33:102-9.
22. Li G, Tang D, Song B, Wang C, Qunshan S, Xu C, *et al*. Impact of the COVID-19 pandemic on partner relationships and sexual and reproductive health: Cross-sectional, online survey study. J Med Internet Res 2020;22:e20961. doi: 10.2196/20961.
23. Cocci A, Giunti D, Tonioni C, Cacciamani G, Tellini R, Polloni G, *et al*. Love at the time of the Covid-19 pandemic: Preliminary results of an online survey conducted during the quarantine in Italy. Int J Impot Res 2020;32:556-7.
24. Mahanty C, Kumar R, Mishra BK. Analyses the effects of COVID-19 outbreak on human sexual behaviour using ordinary least-squares based multivariate logistic regression. Qual Quant 2021;55:1239-59.
25. Wang C, Pan R, Wan X, Tan Y, Xu L, Ho CS, *et al*. Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. Int J Environ Res Public Health 2020;17:1729. doi: 10.3390/ijerph 17051729.