Associated Factors of Marital Satisfaction in Iranian Women During the COVID-19 Pandemic: A Population-Based Study

Mojdeh Banaei[1], Sanaz Safarzadeh[1], Azam Moridi[1], Mohammad Dordeh[2], Sareh Dashti [3], Fatemeh Abdi [4] and Nasibeh Roozbeh[1, *]

[1]Mother and Child Welfare Research Center, Hormozgan University of Medical Sciences, Bandar Abbas, Iran
[2]Department of Psychology, Bandar Abbas Branch, Islamic Azad University, Bandar Abbas, Iran
[3]Department of Community Health, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, Serdang, Malaysia
[4]Social Determinants of Health Research Center, Alborz University of Medical Sciences, Karaj, Iran

Corresponding author: Mother and Child Welfare Research Center, Hormozgan University of Medical Sciences, Bandar Abbas, Iran. Email: nasibe62@yahoo.com

Abstract

Background: The increasing prevalence of COVID-19 in Iran has increased the risk for anxiety and stress in families. Due to the significance of the impact of family health on the society's mental health and the fundamental role of marital relationships, which is an indicator of marital satisfaction, this study was conducted to investigate associated factors of marital satisfaction in Iranian women during the COVID-19 pandemic.

Methods: This online cross-sectional study was carried out to assess associated factors of marital satisfaction in Iranian women during the COVID-19 pandemic from April 1 to April 20, 2020. The study sample consisted of 317 married women of childbearing age eligible to enter the study. Data were collected using a socio-demographic and obstetric questionnaire, the female sexual function index, the ENRICH Marital Satisfaction Scale, and the General Health Questionnaire. Data analysis was performed using SPSS software version 22.

Results: A total of 317 married women participated in the study. The average age of the participants was 31.85 ± 6.94 years. Based on the multiple linear regression model, only five variables, including sexual satisfaction (B = 2.414, P < 0.001), physical symptoms (B = 0.245, P = 0.045), anxiety and insomnia (B = -0.319, P = 0.002), social dysfunction (B = 0.265, P = 0.003), and depression (B = -0.441, P < 0.001), could significantly predict marital satisfaction during the COVID-19 pandemic.

Conclusions: Sexual satisfaction, physical symptoms, anxiety and insomnia, social dysfunction, and depression can significantly affect marital satisfaction during the COVID-19 pandemic. Therefore, planning to identify these factors and provide the appropriate strategy can increase marital satisfaction in times of crisis.

Keywords: Marital Satisfaction, Women, Iran, COVID-19

1. Background

COVID-19 is a new virus that has affected many countries around the world and created much concern among people (1-3). The virus is transmitted through droplets (4, 5), and has widely spread worldwide. Accordingly, the World Health Organization has declared COVID-19 to be the sixth leading cause of public health emergencies in the world (6). Other than its physical effects, COVID-19 has had adverse effects on the quality of life and mental health (7, 8). Studies in China reported that both the medical staff and members of the community, especially couples, experienced psychological problems, including anxiety, depression, and stress, following the increase in the number of confirmed cases and deaths due to COVID-19 (9-11). Impairments in mental health can occur due to the reduction in interpersonal communication in various aspects. Mental health impairments can have negative effects on the quality of marriage, which is one of the prerequisites for family health (12). By improving individuals' mental health, couples' marital satisfaction can also be improved (13). Marital satisfaction is a way of achieving life goals. It is defined as a partner's perception that their needs and desires are met by the other partner (14). Various variables affect marital relationships, resulting in satisfaction or dissatisfaction of couples (15). Various variables affect marital relationships, during the couples' life. These variables resulting in satisfaction or dissatisfaction from of couples marital relationship (15). Some of these variables include income and employment, number of children sexual func-

tion, and disease [16]. Among these, illness and physical and psychological trauma have negative and serious effects on couples' marital satisfaction [14]. Several studies have shown that marital satisfaction is affected by couples' mental health and that mental health problems cause issues in spouses [17]. Women are at higher risk for most mental disorders than men. On the other hand, providing mental health for women ensures family health and, subsequently, community health [18]. The rapid spread of COVID-19 has caused considerable panic worldwide [19], and negative emotions, such as anger, fear, and stress, can negatively affect a couple's marital satisfaction [20]. The increasing prevalence of COVID-19 in Iran has increased the risk for anxiety and stress in families. Concerning the significance of the impact of family health on the society's mental health and the fundamental role of the quality of marital relationships in marital satisfaction or dissatisfaction, this study was conducted to investigate associated factors of marital satisfaction in Iranian women during the COVID-19 pandemic.

2. Methods

2.1. Participants and Procedure

We conducted a cross-sectional study on 317 Iranian women from April 1 to April 20, 2020. We determined the sample size considering a 95% confidence interval, 5% error, and 10% withdrawals using $n = \frac{\left[P(1-P)Z^2\right]}{d^2}$ a convenience sampling technique. Due to the emergence of the COVID-19 pandemic, the Iranian Government provided public recommendations, including reduced face-to-face interactions, staying at home, and following social distancing guidelines. Therefore, we conducted this cross-sectional study in the form of an electronic network survey. Our study aimed to identify associated factors of marital satisfaction among Iranian women during the COVID-19 pandemic using an anonymous online questionnaire. The questionnaire was placed on an online survey platform, and the link to the questionnaire was sent to the respondents through social media, including WhatsApp, Telegram, and Instagram. An electronic informed consent was obtained from all the participants before registration. The participants were provided with information about the study and were free to choose whether to participate in the survey by answering a question about their willingness to participate. Only participants who chose "yes" were directed to the questionnaire page.

The inclusion criteria were (1) women of 18 years and older, (2) married women, (3) having enough knowledge

of Persian language, (4) living in Iran during the COVID-19 outbreak, and (5) providing informed consent electronically before registration. The exclusion criteria were (1) pregnant, lactating, or menopausal women, (2) not having sexual activity during the last 6 months, (3) history of COVID-19-related deaths in the family, (4) history of COVID-19-related hospitalization in the family, (5) history of reduced income due to COVID-19 in the family, (6) history of increased domestic violence related to COVID-19 in the family, (7) the measures were taken so that each cell phone or computer could be used only once to fill the questionnaire. Measures were taken so that each cell phone or computer could be used only once to fill the questionnaire to ensure the quality of the collected data and prevent duplications. The background system was also incorporated with logic checks to identify invalid questionnaires. Data from all valid questionnaires were automatically extracted into a data file, and two independent researchers checked the results. Information about the study protocol is available on the Hormozgan University of Medical Sciences website (http://research.hums.ac.ir/).

2.2. Measures

The survey tools included a socio-demographic and obstetric questionnaire, the female sexual function index (FSFI), the ENRICH Marital Satisfaction Scale, and the General Health Questionnaire (GHQ).

2.2.1. The Socio-demographic and Obstetric Questionnaire

The socio-demographic and obstetric questionnaire consisted of 23 items on age, spousal age, education level, spousal education level, employment status, duration of marriage, number of parity and gravidity, number of sexual intercourses before and during the COVID-19 pandemic, and consanguinity.

2.2.2. The Female Sexual Function Index

The 19-item The FSFI self-report questionnaire was used to assess the women's sexual function [21]. We used the Iranian version of FSFI validated by Fakhri et al. [22]. The FSFI questionnaire assesses six subdomains of sexual function, including sexual desire, excitement, lubrication, orgasm, satisfaction, and pain (i.e., pain associated with vaginal penetration). The subdomains are scored based on a five-point Likert scale, and a higher score indicates better sexual function. The cut-off scores for the subdomains of sexual function are < 4.28 for desire, < 5.08 for excitement, < 5.45 for lubrication, < 5.05 for orgasm, < 5.04 for satisfaction, and < 5.51 for pain. The cut-off score of ≤ 26.55 for the total questionnaire has been proposed to diagnose

female sexual dysfunction. Accordingly, a woman scoring less than 26.55 should be considered at risk for sexual dysfunction (23, 24). The internal consistency of the FSFI questionnaire is equal to or greater than 0.82 based on Cronbach's alpha, and test-retest reliability over 2-4 weeks was similarly high for all the subdomains (r = 0.79 - 0.86) and for the total scale (r = 0.88) (21, 23, 24). The reliability of the questionnaire was also confirmed in this study (Cronbach's alpha = 0.96).

2.2.3. The ENRICH Marital Satisfaction Scale

A short version of the ENRICH Marital Satisfaction Scale was used to assess marital satisfaction. The Scale contains ten questions on satisfaction scored based on a five-point Likert scale, ranging from completely disagree (1) to completely agree (5), with higher scores indicating more marital satisfaction (25). The reliability of the original version of the Scale was confirmed (Cronbach's alpha = 0.86) (25), and Cronbach's alpha for the Persian version of the Scale was reported 0.74 (26). The reliability of the Scale was confirmed in this study with Cronbach's alpha of 0.81.

2.2.4. The General Health Questionnaire

The General Health Questionnaire (GHQ) is a self-administered screening instrument for psychiatric disorders in nonclinical populations (27). It consists of 28 items with four subscales, including somatic symptoms, anxiety and insomnia, social dysfunction, and severe depression. The items are scored based on a 3-point Likert scale, ranging from 0 to 84. The cut-off for the presence of distress is 23.24 (28). The test-retest reliability of GHQ has been reported to be high (0.78 to 0.90) (29), and its inter- and intra-rater reliability has been reported to be excellent (Cronbach's alpha = 0.90-0.95) (30). The reliability of the questionnaire was confirmed in this study (Cronbach's alpha = 0.84).

2.3. Ethics

Ethical approval to undertake the survey was obtained from the Mother and Child Welfare Research Center, the Hormozgan University of Medical Sciences, Bandar Abbas, Iran (ethical code: IR.HUMS.REC.1399.004). Before completing the survey, the participants were given a brief introduction on the purpose and aims of the survey and were asked to confirm if they were willing to participate in the study.

2.4. Statistical Analysis

Data analysis was performed using the SPSS software (Version 22 for Windows, SPSS Inc, Chicago, IL, U.S.A.). Descriptive statistics, such as frequency, mean, and standard deviations, were used to explain the socio-demographic and obstetrics variables.

Pearson correlation coefficients, independent sample *t*-test, and one-way analysis of variance (ANOVA) were used to examine the relationship between the total marital satisfaction score and each of the socio-demographic and obstetrics variables. Then, all significant variables with P < 0.05 were entered into the multiple linear regression model. Finally, the variance inflation factor (VIF) index was used to investigate multicollinearity, and variables with VIF < 10 were entered into the model.

3. Results

3.1. Demographic and Obstetrics Characteristics

A total of 317 married women with an average age of 31.85 ± 6.94 years participated in the study. A majority (77%) of the participants had university education, and 45.5% of them were housewives. The frequency of sexual intercourses before and during the COVID-19 pandemic was 7.69 ± 5.72 and 7.27 ± 6.46, respectively. Moreover, the mean total score for general health and sexual function was 26.48 ± 11.13 and 23.69 ± 7.58, respectively. Other demographic, obstetrics, and sexual characteristics are shown in Tables 1 and 2.

3.2. Associated Factors of Marital Satisfaction

First, Pearson correlation coefficients, independent sample *t*-test, and one-way ANOVA were used to examine the relationship between the total marital satisfaction score and each of the socio-demographic, obstetrics, and sexual variables. Then, all significant variables based on Pearson correlation, one-way ANOVA, and independent sample *t*-test with P < 0.05 (Table 3) were entered into the multiple linear regression model. The model significantly predicted marital satisfaction (P < 0.001). Based on the multiple linear regression model, only five variables, including sexual satisfaction (B = 2.414, P < 0.001), physical symptoms (B = 0.245, P=0.045), anxiety and insomnia (B = -0.319, P = 0.002), social dysfunction (B = 0.265, P = 0.003) and depression (B = -0.441, P < 0.001), could significantly predict marital satisfaction during the COVID-19 pandemic (Table 4). The most important associated factor was sexual satisfaction (standardized coefficients = 0.511), and if other variables remained constant, the marital satisfaction score increased about 2.41% by increasing the sexual satisfaction score. The least significant associated factor was physical symptoms. Multicollinearity did not exist in the model as VIF for all the variables was < 10 (or Tolerance > 0.1).

Table 1. Socio-demographic and Obstetrics Characteristics of the Participants During the COVID-19 Pandemic [a]

Variables	Values
Education level	
Primary	0
Secondary	9 (2.8)
High school and diploma	64 (20.2)
University	244 (77)
Spousal education level	
Primary	7 (2.2)
Secondary	22 (6.9)
High school and diploma	87 (27.4)
University	201 (63.4)
Employment status	
Housewife	157 (49.5)
Employee	160 (50.5)
Spousal employment status	
Government employee	132 (41.6)
Manual worker	31 (9.8)
Self-employed	144 (45.4)
Unemployed	10 (3.2)
Consanguinity	
Yes	71 (22.4)
No	246 (77.6)
The duration of marriage (y)	8.74 (6.63)
The age difference of couples (y)	-3.82 (3.30)
Gravida	1.38 (2.08)
Parity	1.04 (0.92)
Sex frequency before the COVID-19 pandemic (per month)	7.69 (5.72)
Sex frequency during the COVID-19 pandemic (per month)	7.27 (6.46)

[a] Values are expressed as mean (SD) or No. (%).

Table 2. The Mean (SD) of FSFI, GHQ, and EMS in the Participants During the COVID-19 Pandemic

Variables	Mean (SD)
General health	26.48 (11.13)
Physical symptoms	5.95 (3.66)
Anxiety and insomnia	7.37 (4.90)
Social dysfunction	9.56 (4.12)
Depression	3.58 (4.38)
Sexual function	23.69 (7.58)
Desire	3.54 (1.14)
Excitement	3.77 (1.56)
Lubrication	4.37 (1.61)
Orgasm	3.11 (1.30)
Satisfaction	4.42 (1.67)
Pain	4.46 (1.67)
Marital satisfaction	35.63 (7.90)

4. Discussion

The present study results showed that marital satisfaction, mental health, and sexual function in Iranian couples were affected by the COVID-19 crisis. Based on the results of previous studies, several factors affect couples' marital satisfaction (31, 32). The results also revealed that psychological and sexual factors had a significant role in couples' marital satisfaction in the COVID-19 crisis. Moreover, the results indicated that 35% of the couples had marital satisfaction, which is much lower than the rate reported in other studies in Iran. Zarei et al. reported that 75% of couples had moderate to high marital satisfaction before the COVID-19 pandemic and that the number of people not satisfied with their marriage was very low (31). This study showed that the COVID-19 crisis had a significant impact on marital satisfaction. Thus, it appears that COVID-19 consequences in family relationships and its impact on various aspects of people's lives should be considered.

In this study, anxiety, stress, depression, and insomnia were shown as associated factors of marital satisfaction during the COVID-19 pandemic in Iran. Other studies showed that psychological well-being was significantly related to marital satisfaction (33, 34). Maltby et al. reported that marital dissatisfaction was associated with poorer health, depressive symptoms, personality problems, inappropriate behaviors, and poor social status. More satisfied couples use more effective and appropriate coping styles, experience deeper positive emotions, and have better public health (35). Shahi et al. showed a negative relationship between marital satisfaction and stress and depression, indicating that marital satisfaction decreased with increasing stress and anxiety (36). The result of these two studies are in line with those of the present study. One of the conditions that increases stress and anxiety in people is the increased risk of illness in the community. Some studies have shown that the COVID-19 pandemic can affect mental health. People's emotional responses are likely to include extreme fear and insecurity. In addition, negative social behaviors are often associated with distorted fear and perception, which can lead to a wide range of mental health disorders, including insomnia, stress, anxiety disorders, and depression, all of which are associated with marital satisfac-

Table 3. The Relationship Between the Total Marital Satisfaction Score and the Socio-demographic, Obstetrics, and Sexual Variables

Variables	Marital Satisfaction	
	Test Statistics	P-Value
Age	r = -0.053	0.344
The age difference of couples	F = 0.027	0.627
Education	F = 0.150	0.007
Spousal education	r = 0.234	< 0.001
Employment status	t = 2.340	0.020
Spousal employment status	F = 4.429	0.005
Consanguinity	t = -0.273	0.785
Duration of marriage (y)	r = -0.084	0.135
Gravida	r = -0.076	0.175
Parity	r = -0.213	< 0.001
Sex frequency before the COVID-19 pandemic	r = 0.147	0.009
Sex frequency during the COVID-19 pandemic	r = 0.149	0.008
The General Health Score	r = -0.319	< 0.001
Physical symptoms	r = -0.140	0.012
Anxiety and insomnia	r = -0.411	< 0.001
Social dysfunction	r = 0.287	< 0.001
Depression	r = -0.503	< 0.001
The sexual function index	r = 0.467	< 0.001
Desire	r = 0.294	< 0.001
Excitement	r = 0.414	< 0.001
Lubrication	r = 0.364	< 0.001
Orgasm	r = 0.412	< 0.001
Satisfaction	r = 0.562	< 0.001
Pain	r = 0.292	< 0.001

Abbreviations: r, Pearson correlation coefficient; F, one-way ANOVA; t, independent sample t-test.

tion. According to the present study, marital satisfaction is expected to be affected by COVID-19 [37]. Mental health professionals need to provide the necessary support for those exposed to this condition. Another associated factor of marital satisfaction in the present study's participants was their sexual function during the COVID-19 outbreak.

The results of the univariable analysis showed the effect of sexual function on all its subdomains, while multivariate analysis showed only a significant effect of sexual function on sexual satisfaction. Our results also showed that marital satisfaction increased with increasing sexual function scores and that there was a positive relationship between the two variables. Similarly, some studies reported a significant relationship between sexual function and marital satisfaction [38, 39], which is in line with the present study findings. Sexual function is a part of human behavior under the influence of biological, psychological, and social factors. Previous studies showed that each of these factors had a different effect on the sexual cycle. Mollaioli et al. showed the effect of lifestyle and biological factors on sexual health. An unhealthy lifestyle has a different effect on each element of the sexual cycle [40]. Moreover, Ghormode et al. as cited in Murthy and Nimhans, indicated a significant relationship between women's mental health and sexual quality of life. Lack of sexual motivation and arousal were the most common problems associated with women's mental health. [41].

It is important to note that in the COVID-19 crisis, women's sexual desire and arousal are more affected, directly affecting sexual function and satisfaction. Mental health affects the quality of sexual intercourse and plays a vital role in initiating women's sexual function. The quality of sexual intercourse affects a couple's sexual desire and frequency. Similarly, the present study showed that the COVID-19 crisis reduced the number of sexual intercourses in the couples. The results also showed that although the couples spent longer hours together during the quarantine period, other factors, including mental health, influenced their desire for sexual intimacy. McCabe et al. showed that social and psychological factors had a major impact on the quantity and quality of sexual intercourse between couples. Thus, psychological factors should be considered to maintain marital satisfaction [42]. According to these results, marital satisfaction significantly affects sexual intercourse. Moreover, it is necessary to have physical, mental, and social health in the COVID-19 crisis. Therefore, healthcare providers and policymakers should plan interventions to strengthen the family's foundation in all aspects of health, especially in times of crisis [43]. Various studies have been conducted on factors affecting the mental status of different groups, such as pregnant mothers and nurses, during the COVID-19 pandemic in Iran and other countries, with a design similar to our study. In most of these studies, depression, and stress proved to have major effects on mental health during the COVID-19 pandemic, similar to the present study findings [44, 45]. Given the novelty of COVID-19 globally, any society must evaluate factors affecting vulnerable groups' mental health to adopt strategies needed to manage mental health.

4.1. Conclusions

Sexual satisfaction, physical symptoms, anxiety, insomnia, social dysfunction, and depression can signifi-

Table 4. Associated Factors of Marital Satisfaction in Iranian Women According to Multiple Linear Regression Analysis

Variables	B	SE	Beta	T	P-Value	95% CI
(Constant)	22.542	4.409	-	5.113	< 0.001	(13.865, 31.218)
Employment status						
Employee	-	-	-	-	-	-
Housewives	-0.290	0.726	-0.018	-0.399	0.690	(-1.718, 1.138)
Spousal employment status						
Government employee	-	-	-	-	-	
Manual worker	-0.386	1.372	-0.015	-0.282	0.779	(-3.087, 2.314)
Self-employed	0.279	0.785	0.018	0.356	0.722	(-1.266, 1.825)
Unemployed	-3.731	2.101	-0.083	-1.776	0.077	(-7.865, 0.404)
Education	0.261	0.212	0.062	1.229	0.220	(-0.157, 0.678)
Spousal education	0.218	0.158	0.073	1.376	0.170	(-0.094, 0.529)
Parity	-0.263	0.408	-0.031	-0.645	0.519	(-1.065, 0.539)
Sex frequency before the COVID-19 pandemic	0.129	0.101	0.094	1.281	0.201	(-0.069, 0.328)
Sex frequency during the COVID-19 pandemic	-0.143	0.090	-0.117	-1.582	0.115	(-0.321, 0.035)
Sexual function						
Desire	-0.144	0.396	-0.021	-0.364	00.716	(-0.923, 0.635)
Excitement	-0.031	0.459	-0.006	-0.068	0.946	(-0.934, 0.872)
Lubrication	0.161	0.405	0.033	0.397	0.692	(-0.637, 0.958)
Orgasm	-0.612	0.550	-0.100	-1.112	0.267	(-1.694, 0.471)
Satisfaction	2.414	0.389	0.511	6.199	<0.001	(1.648, 3.180)
Pain	-0.454	0.298	-0.096	-1.524	0.128	(-1.040, 0.132)
General health						
Physical symptoms	0.245	0.122	0.113	2.012	0.045	(0.005, 0.484)
Anxiety and insomnia	-0.319	0.102	-0.197	-3.125	0.002	(-0.520, -0.118)
Social dysfunction	0.265	0.087	0.138	3.047	0.003	(0.094, 0.436)
Depression	-0.441	0.098	-0.245	-4.484	< 0.001	(-0.635, -0.248)
	R = 0.704, R2 = 0.495, adjusted R square = 0.463, d = 1.909					

Abbreviations: B, a baseline unstandardized regression coefficient; SE, standard error; CI, confidence interval.

cantly affect marital satisfaction during the COVID-19 pandemic. Therefore, planning to identify these factors and provide the appropriate strategy can increase marital satisfaction in times of crisis.

Footnotes

tained from all the participants.

References

1. Roozbeh N, Amirian A, Abdi F. [Coronavirus and male infertility: Letter to the editor]. *Tehran Univ Med J.* 2020;**78**(9):630–1. Persian.

2. Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet.* 2020;**395**(10223):497–506. doi: 10.1016/S0140-6736(20)30183-5. [PubMed: 31986264]. [PubMed Central: PMC7159299].

3. Chan JF, Yuan S, Kok K, To KK, Chu H, Yang J, et al. A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person-to-person transmission: a study of a family cluster. *Lancet.* 2020;**395**(10223):514–23. doi: 10.1016/s0140-6736(20)30154-9.

4. Albarello F, Pianura E, Di Stefano F, Cristofaro M, Petrone A, Marchioni L, et al. 2019-novel Coronavirus severe adult respiratory distress syndrome in two cases in Italy: An uncommon radiological presentation. *Int J Infect Dis.* 2020;**93**:192–7. doi: 10.1016/j.ijid.2020.02.043. [PubMed: 32112966]. [PubMed Central: PMC7110436].

5. Schwartz DA, Graham AL. Potential maternal and infant outcomes from (Wuhan) Coronavirus 2019-nCoV infecting pregnant women: Lessons from SARS, MERS, and other human Coronavirus infections. *Viruses.* 2020;**12**(2). doi: 10.3390/v12020194. [PubMed: 32050635]. [PubMed Central: PMC7077337].

6. Kanne JP. Chest CT findings in 2019 novel coronavirus (2019-nCoV) infections from Wuhan, China: Key points for the radiologist. *Radiology.* 2020;**295**(1):16–7. doi: 10.1148/radiol.2020200241. [PubMed: 32017662]. [PubMed Central: PMC7233362].

7. Doshmangir L, Mahbub Ahari A, Qolipour K, Azami S, Kalankesh L, Doshmangir P, et al. [East Asia's strategies for effective response to COVID-19: Lessons learned for Iran]. *Manage Strat Health Syst.* 2020. Persian. doi: 10.18502/mshsj.v4i4.2542.

8. Sun L, Sun Z, Wu L, Zhu Z, Zhang F, Shang Z, et al. Sun L, Sun Z, Wu L, Zhu Z, Zhang F, Shang Z, et al. Prevalence and risk factors of acute post-traumatic stress symptoms during the COVID-19 outbreak in Wuhan, China. *MedRxiv.* 2020;**283**. doi: 10.1101/2020.03.06.20032425.

9. Xiang YT, Yang Y, Li W, Zhang L, Zhang Q, Cheung T, et al. Timely mental health care for the 2019 novel coronavirus outbreak is urgently needed. *Lancet Psychiatry.* 2020;**7**(3):228–9. doi: 10.1016/S2215-0366(20)30046-8. [PubMed: 32032543]. [PubMed Central: PMC7128153].

10. Kang L, Li Y, Hu S, Chen M, Yang C, Yang BX, et al. The mental health of medical workers in Wuhan, China dealing with the 2019 novel coronavirus. *Lancet Psychiatry.* 2020;**7**(3). e14. doi: 10.1016/S2215-0366(20)30047-X. [PubMed: 32035030]. [PubMed Central: PMC7129673].

11. Duan L, Zhu G. Psychological interventions for people affected by the COVID-19 epidemic. *Lancet Psychiatry.* 2020;**7**(4):300–2. doi: 10.1016/S2215-0366(20)30073-0. [PubMed: 32085840]. [PubMed Central: PMC7128328].

12. Talaizadeh F, Bakhtiyarpour S. The relationship between marital satisfaction and sexual satisfaction with couple mental health. *J Thoughts and Behav Clinl Psychol.* 2016;**10**(40).

13. Ghaffari E, Shahi AS, Ozouni Davaji RB, Rostami R. [Psychological disorders among inhabint residing in poor social district of Gorgan, Iran]. *J Gorgan Univ Med Sci.* 2011;**13**(3):87–93. Persian.

14. Alipour A, Rahimi A, Zareh H. [The relationship between mental health and marital satisfaction of married students, Payame Noor University of Tehran]. *The Journal of Urmia University of Medical Sciences.* 2013;**24**(7):557–65. Persian.

15. Banaei M, Tork Zahrani S, Pormehr-Yabandeh A, Ozgoli G, Azad M. Investigating the impact of counseling based on PLISSIT model on sexual intimacy and satisfaction of breastfeeding women. *Int J Pharm Res Allied Sci.* 2016;**5**(3):489–99.

16. Nahidi M, Nahidi Y, Kardan G, Jarahi L, Aminzadeh B, Shojaei P, et al. Evaluation of sexual life and marital satisfaction in patients with anogenital wart. *Actas Dermo-Sifiliográficas (English Edition).* 2019;**110**(7):521–5. doi: 10.1016/j.adengl.2018.08.001.

17. Banaian S, Parvin N, Kazemian A. [The investigation of the relationship between mental health condition and martital satisfaction]. *Avicenna J Nurs Midwifery Care.* 2006;**14**(2):52–62. Persian.

18. Sepehrmanesh Z. [Mental health and its related factors in young women in Kashan City]. *Iran J Obstet Gynecol Infertil.* 2009;**12**(1):31–41. Persian.

19. Tavakoli A, Vahdat K, Keshavarz M. [Novel Coronavirus disease 2019 (COVID-19): An emerging infectious disease in the 21st century]. *Iran South Med J.* 2020;**22**(6):432–50. Persian. doi: 10.29252/ismj.22.6.432.

20. Adler-Baeder F, Higginbotham B, Lamke L. Putting empirical knowledge to work: Linking research and programming on marital quality. *Family Relations.* 2004;**53**(5):537–46. doi: 10.1111/j.0197-6664.2004.00063.x.

21. Rosen C, Brown J, Heiman S, Leib R. The Female Sexual Function Index (FSFI): A multidimensional self-report instrument for the assessment of female sexual function. *J Sex Marital Ther.* 2011;**26**(2):191–208. doi: 10.1080/009262300278597.

22. Fakhri A, Pakpour AH, Burri A, Morshedi H, Zeidi IM. The Female Sexual Function Index: Translation and validation of an Iranian version. *J Sex Med.* 2012;**9**(2):514–23. doi: 10.1111/j.1743-6109.2011.02553.x. [PubMed: 22146084].

23. Meston CM. Validation of the Female Sexual Function Index (FSFI) in women with female orgasmic disorder and in women with hypoactive sexual desire disorder. *J Sex Marital Ther.* 2003;**29**(1):39–46. doi: 10.1080/713847100. [PubMed: 12519665]. [PubMed Central: PMC2872178].

24. Wiegel M, Meston C, Rosen R. The female sexual function index (FSFI): cross-validation and development of clinical cutoff scores. *J Sex Marital Ther.* 2005;**31**(1):1–20. doi: 10.1080/00926230590475206. [PubMed: 15841702].

25. Fowers BJ, Olson DH. ENRICH Marital Satisfaction Scale: A brief research and clinical tool. *J Fam Psychol.* 1993;**7**(2):176–85. doi: 10.1037/0893-3200.7.2.176.

26. Arab Alidousti A, Nakhaee N, Khanjani N. [Reliability and validity of the Persian versions of the ENRICH marital satisfaction (brief version) and Kansas Marital Satisfaction Scales]. *Health Dev J.* 2015;**4**(2):158–67. Persian.

27. Goldberg DP. *The detection of psychiatric illness by questionnaire.* Maudsley Monograph No. 21. London:: Oxford University Press; 1972.

28. Sterling M. General Health Questionnaire - 28 (GHQ-28). *J Physiother.* 2011;**57**(4):259. doi: 10.1016/S1836-9553(11)70060-1. [PubMed: 22093128].

29. Robinson RG, Price TR. Post-stroke depressive disorders: a follow-up study of 103 patients. *Stroke.* 1982;**13**(5):635–41. doi: 10.1161/01.str.13.5.635. [PubMed: 7123596].

30. Failde I, Ramos I. Validity and reliability of the SF-36 Health Survey Questionnaire in patients with coronary artery disease. *J Clin Epidemiol.* 2000;**53**(4):359–65. doi: 10.1016/s0895-4356(99)00175-4. [PubMed: 10785566].

31. Zarei H, Abolfathi Momtaz Y, Sahaf R, Mehdi M. [Marital satisfaction among older adults who married in old age in Sanandaj in 2016]. *Iran J Ageing.* 2019;**14**(1):14–25. Persian.

32. Abbasi R. [Marital satisfaction and indivitual differences: The role of personality factors]. *Int J Behav Sci.* 2009;**3**(3):237–42. Persian.

33. Halford WK. *Brief therapy for couples: Helping partners help themselves.* Guilford press; 2003.

34. Shackelford R, Besser M, Goetz DF. For better or for worse: Marital well-being of newlyweds. *J Counsel Psychol.* 2007;**14**:223–42.

35. Maltby J, Day L, McCutcheon LE, Gillett R, Houran J, Ashe DD. Personality and coping: a context for examining celebrity worship and mental health. *Br J Psychol.* 2004;**95**(Pt 4):411–28. doi: 10.1348/0007126042369794. [PubMed: 15527530].

36. Shahi A, Ghaffari I, Ghasemi K. [Relationship between mental health and marital satisfaction]. *J Kermanshah Univ Med Sci.* 2011;**15**(2). Persian.

37. Shigemura J, Ursano RJ, Morganstein JC, Kurosawa M, Benedek DM. Public responses to the novel 2019 coronavirus (2019-nCoV) in Japan: Mental health consequences and target populations. *Psychiatry Clin Neurosci.* 2020;**74**(4):281–2. doi: 10.1111/pcn.12988. [PubMed: 32034840]. [PubMed Central: PMC7168047].

38. Assari S, Moghani Lankarani M, Ahmadi K, Kazemi Saleh D. Association between sexual function and marital relationship in patients with ischemic heart disease. *J Tehran Heart Cent.* 2014;**9**(3):124–31. [PubMed: 25870630]. [PubMed Central: PMC4393835].

39. Kaya C, Yilmaz G, Nurkalem Z, Ilktac A, Karaman MI. Sexual function in women with coronary artery disease: a preliminary study. *Int J Impot Res.* 2007;**19**(3):326–9. doi: 10.1038/sj.ijir.3901530. [PubMed: 17170712].

40. Mollaioli D, Ciocca G, Limoncin E, Di Sante S, Gravina GL, Carosa E, et al. Lifestyles and sexuality in men and women: the gender perspective in sexual medicine. *Reprod Biol Endocrinol.* 2020;**18**(1):10. doi: 10.1186/s12958-019-0557-9. [PubMed: 32066450]. [PubMed Central: PMC7025405].

41. Murthy RS, Nimhans B. Oral papers final. *Indian J Psychiatry.* 2019;**61**(3). S453.

42. McCabe MP, Sharlip ID, Lewis R, Atalla E, Balon R, Fisher AD, et al. Risk factors for sexual dysfunction among women and men: A consensus statement from the fourth international consultation on sexual medicine 2015. *J Sex Med.* 2016;**13**(2):153–67. doi: 10.1016/j.jsxm.2015.12.015. [PubMed: 26953830].

43. Banaei M, Ghasemi V, Saei Ghare Naz M, Kiani Z, Rashidi-Fakari F, Banaei S, et al. Obstetrics and neonatal outcomes in pregnant women with COVID-19: A systematic review. *Iran J Public Health.* 2020. doi: 10.18502/ijph.v49iS1.3668.

44. Hamzehgardeshi Z, Omidvar S, Amoli AA, Firouzbakht M. Pregnancy-related anxiety and its associated factors during COVID-19 pandemic in Iranian pregnant women: a web-based cross-sectional study. *BMC Pregnancy Childbirth.* 2021;**21**(1). doi: 10.1186/s12884-021-03694-9.

45. Zheng R, Zhou Y, Fu Y, Xiang Q, Cheng F, Chen H, et al. Prevalence and associated factors of depression and anxiety among nurses during the outbreak of COVID-19 in China: A cross-sectional study. *Int J Nurs Stud.* 2021;**114**:103809. doi: 10.1016/j.ijnurstu.2020.103809. [PubMed: 33207297]. [PubMed Central: PMC7583612].