Influence Psycho-Sexual Factors on The Quality of Life in Pregnant Women During the COVID-19 pandemic: A Path Analysis

Masoumeh Alijanpour

  Tarbiat Modares University Faculty of Medical Sciences

Shahideh Jahanian Sadatmahalleh (✉ shahideh.jahanian@modares.ac.ir)

  Tarbiat Modares University Faculty of Medical Sciences   https://orcid.org/0000-0002-7006-8487

Youseflu Samaneh

  Zanjan University of Medical Sciences

Bahri Khomami Mahnaz

  Monash University Department of Epidemiology and Preventive Medicine

Yousefi Afrashteh Majid

  Zanjan University of Medical Sciences

Ashraf Moini

  University of Tehran

Anoshiravan Kazemnejad

  Tarbiat Modares University Faculty of Medical Sciences

Research article

Abstract

Background: Coronavirus has spread rapidly around the world. This epidemic has created stress and anxiety for pregnant women in different parts of the world. The aim of this study was to investigate the relationship between quality of life (QoL) with anxiety, depression, corona disease anxiety, sexual function (SF), and marital satisfaction (MS) in pregnant women during the Covid-19 pandemic.

Methods: The present study is a cross-sectional study involving 260 pregnant women. The Short-Form Health Survey (SF_12), Marital Satisfaction Scale (MSS), Female Sexual Function Index (FSFI), Hospital Anxiety and Depression Scale (HADS), and coronary disease anxiety questionnaire, Padua Obsession Questionnaire, General Health Questionnaire (GHQ) are used for data collection. Data were analyzed using the Pearson correlation coefficient and path analysis.

Result: The overall goodness-of-fit statistics revealed that the predictors of QOL had perfectly good fitness indices (RMSEA=0.02; AGFI=0.99). The results show that corona related anxiety, marital satisfaction (MS), sexual function (SF), depression, and anxiety have a direct effect on women's QOL. Among variables, GHQ has a more direct effect on women's QOL. General health (GH) considered as a mediator variable; variables such as anxiety, depression, and Corona-related Anxiety with effect on GH can impress QOL. Anxiety as a main predictor of QOL, with direct, and indirect effects through GH, depression, SF, and MS can impress QOL.

Conclusion: Since the QoL in pregnant women is associated with coronavirus epidemics, these results can be used to plan to improve the health and QoL of these people.

Introduction:

In late 2019, a new coronavirus was identified as causing a group of pneumonia in Wuhan, China. The disease is spreading rapidly, resulting in the spread of the disease throughout China, followed by more cases in other countries around the world (1, 2).

Because coronavirus has spread rapidly around the world, it caused fear, anxiety among the general population, especially among certain groups such as pregnant women (3). Nowadays, the effects of stress on the immune system are well known, as a result, humans are prone to all kinds of mental and physical illnesses (4). One of the determinants of mental health is the quality of life (QoL). It is important to assess the QoL to determine physical, mental, and social functioning (5).

It is a broad concept that is influenced by a complex form of physical health, psychological state, level of independence and social communication, and the relationship between these factors and prominent environmental characteristics of individuals (6). One of the important physical and psychological dimensions of women's QoL is the quality of people's sexual life, which is influenced by many factors in a person's life and plays a decisive role in women's life and health (7).

Measuring QoL is essential in planning for the care of mothers and infants, and it is also important for policymakers and health care providers to have this care (8). Meanwhile, pregnant women are vulnerable groups needed to develop evidence-based recommendations for the protection of the health of mothers and children (9). The Coronavirus epidemic has created stress and anxiety for pregnant women in different parts of the world. Concern and stress in pregnancy are associated with side effects such as preeclampsia, depression, increased nausea and vomiting during pregnancy, preterm labor, low birth weight, and low Apgar score (10, 11).

It is unclear whether the suppression of the immune system during pregnancy affects the course of the disease. Available data suggest that pregnancy and childbirth do not increase the risk of developing COVID-19 infection (9). On the other hand, it appears that pregnant women infected with the virus, especially those with pneumonia, have an increased rate of preterm labor, premature amniotic sac rupture, preeclampsia, and cesarean delivery due to abnormal fetal heart rate that, probably relate to the mother's serious illness (12).

Because pregnant mothers are vulnerable, pregnancy is a physiological condition that exposes women to viral infections, and given the pandemic of coronavirus and the effects that it may have on different parts of people's lives, especially in pregnant women (2), there are concerns relating to the potential effect on maternal and neonatal outcome; therefore, pregnant women constitute a group that requires special attention.

This study aimed to test a conceptual model considering the interrelated role of anxiety, depression, marital satisfaction (MS), general health (GH), obsession, sexual function (SF), and corona disease anxiety on the QoL of pregnant women. According to the above aims, this study proposes the following hypotheses (Hypotheses 1–4):

Hypothesis 1

A higher level of corona-related anxiety will be associated with a lower level of QoL, MS, GH, and higher levels of anxiety, depression, and contamination obsessions.

Hypothesis 2

A higher level of anxiety and depression will be associated with a lower level of MS, SF, GH, and QoL.

Hypothesis 3

A higher level of obsession will be associated with a higher level of anxiety, and depression, and also have a worse effect on SF, MS, GH, and QoL.

Hypothesis 4

SF, GH, anxiety, depression will be associated with MS and QoL

Methods:

Design and Data Collection:

The present cross-sectional study on 261 pregnant women was performed by an easy sampling method. In order to observe the physical distance to prevent this virus, an electronic questionnaire was used to collect data. The questionnaires were first designed on the web and sent to pregnant women. On the first page, a brief information questionnaire of study objectives and entry criteria and how to respond was mentioned. The present study is approved by the Research Ethics Committee of Tarbiat Modares University with code (IR.MODARES.REC.1399.022). After explaining the study's purposes, written consent assent were collected from all participants and women were informed that their participation were voluntary, confidential, and anonymous, and were apprised of their right to withdraw from the research at any time.

Participants in the study were 18-45-year-old pregnant women who were not in the high-risk group. High-risk groups include corticosteroid therapy (more than 12.5 mg / dL per week), a history of chemotherapy, malignancies, organ transplants, HIV patients, cardiovascular disease, high blood pressure, diabetes, and respiratory illness. Also, BMI above 40 before pregnancy, suffering from a mental disorder, suffering from a sexual disorder, and using any drugs affecting the sexual response cycle was out of the study.

Measures:

Demographic and midwifery characteristics including women's age, age at marriage, body mass index, province and city of residence, income amount, educational level, duration of the marriage, menstrual status, occupational status, gestational age to week, gravid, para, abortion, intrauterine fetal death, history of infertility, number of children, type of previous delivery, and type pregnancy (willingly or unwillingly).

Mental Health

The General Health Questionnaire (GHQ) was developed in 1978 by Goldberg. The GHQ examines four dimensions: physical symptoms (1-7), anxiety and insomnia (8-14), social function (15-21), and depression (28-22) (13). The validity and reliability of this questionnaire have been confirmed in Iran (14).

Depression and Anxiety

Hospital Anxiety and Depression Scale (HADS) is used to diagnose and classify the severity of depression and anxiety. The tool consists of 14 questions consisting of two subscales of anxiety (HADS-A) and depression (HADS-D). Each question is ranked on a 4-point Likert scale. A total score of less than 8 indicates a normal range. A score of 8-10 indicates slight changes. And scores above 11 indicate high levels of anxiety and depression. The validity and reliability of this questionnaire were confirmed by Montazeri et al (15).

Corona Disease Anxiety

Corona disease anxiety scale (CDAS) has been prepared and validated by Alipour et al to measure anxiety caused by the outbreak of coronavirus in Iran. This tool has 18 items and 2 factors. Items 1 to 9 measure psychological symptoms and items 10 to 18 measure physical symptoms. The tool is rated on a 4-point Likert scale, the highest and lowest scores are given by the respondents in this questionnaire 0 to 54. High scores on this questionnaire indicate a higher level of anxiety in individuals. The reliability of this tool was obtained using Cronbach's alpha method for the first factor of 0.879. The second factor was 0.861 and for the total questionnaire was 0.919 (16).

Sexual Function

The Female Sexual Function Index (FSFI) was designed by Rosen et al. In 2000. This tool includes 19 questions in six areas of sexual desire (2 questions), sexual arousal (4 questions), humidity (4 questions), orgasm (3 questions), satisfaction (3 questions), and pain (3 questions). The scores of each question have a response range from 0 to 5, which if the sex is not established during the last month, the score of 0 is considered and the score of 5 is equivalent to better performance in that area (except for the first and second questions from 1-5 scores is given). The minimum score for the total number of questions is 2 and the maximum score is 36 (17). The Persian version of this tool has been localizing, and the cut-off point for the Persian version of the tool 28 has been reported (18).

Marital Satisfaction:

Marital Satisfaction Scale-shortened version (MSS) consists of 10 questions that measure marital satisfaction. Their scoring is in the form of a Likert scale of 1 to 5. Questions 1, 3, 5, 8, 8 are negative and the score is reversed. The total score of this questionnaire varies from 10 to 50. High scores indicate higher marital satisfaction. This questionnaire was conducted by Arab Ali Dosti et al. (19).

Quality of life

The Short Life Quality Form (SF12) questionnaire consists of 12 items that examine eight factors: physical performance, physical role, social role, emotional role, body pain, general health, vitality, and mental health. The total score varies from 0 to 100, and a higher score indicates the best conditions. The questions are in the form of a Likert with a score of 1 to 6. The negative (reverse) case of the questionnaire includes questions 1, 8, 9, 10, so their scoring is reversed. In Iran, the psychometric of this questionnaire was confirmed (20).

Obsession

The Padua Obsession Questionnaire was used to assess and measure obsessive-compulsive disorder. This survey has 39 questions composed of five subscales that examined (1) obsessional thoughts about harm to oneself or others; (2) obsessional impulses to harm self/others; (3) contamination obsessions and washing compulsions (10 questions); (4) checking compulsions (10 questions); and (5)

dressing/grooming compulsions (3 questions). We used only contamination obsessions and washing compulsions subscale. Each item was rated on a 5-point Likert-type scale ranging from 0 to 4 (0 = never, 1 = to some degree, 3 = often, 4 = extremely) with a score range of 0–40. Higher scores represent greater pollution obsession status. The validity and reliability of this questionnaire were approved among the Iranian population (21).

Data analysis:

SPSS software version 22 and LISREL (8.8) were used to analyze the data. Multiple correlation coefficients were used to evaluate the relationship between QoL variables, marital satisfaction, sexual performance, anxiety and depression, mental health, and coronary anxiety.

In fact, multiple regression only examines the effects of a set of independent variables that are assumed to directly affect the dependent variable. Path analysis has been used to fit the specified pattern of causal relationships between variables. In this study, a conceptual model of path analysis to determine the simultaneous relationship of QoL variables, MS, SF, obsession, anxiety and depression, mental health, and coronary anxiety was fitted to the data. After testing the fit of the data and correcting the best fit, the acceptable model was determined. Path analysis determines how much of each independent variable on the dependent variable the effect of is directly or indirectly. Path analysis was first developed by wright to study the direct and indirect effects of disability variables.

For evaluation of the model fitness, Root means a square error of approximation (RMSEA), Adjusted Goodness of Fit Index (AGFI), Confirmatory Factor Analytic (CFI), and Chi-square/df were used. RMSEA values less than 0.07, Chi-square/df lower than 3, AGFI more than 0.9, and CFI more than 0.95 are indicative of a good fitting model.

Results:

Of a total of 261 women taking part in this study, 121 people (46.4%) had an age between 20–30 years. The mean parity and duration of marriage of women were 0.81 ± 0.06 and 6.6 ± 4.35 years, respectively. The majority of participants (39.8%) were in home quarantine for 2–3 days per week. In terms of educational level, 80.8% of participants had academic level education, and 51.7 percent of them had monthly income between 1 and 3 million Toman. The overall mean score of QoL was 71.98 ± 6.60 (Table 1).

Table 1
Socio-demographic Characteristics of Participants.

Characteristic	
QoL*	71.98(6.60)
Age (years) **	7(2.7)
Less than 20 years	121(46.4)
Between 20−30 years	99(37.9)
Between 30−35 years	34(13)
More than 35 years	
Parity *	0.81 (0.06)
Duration of marriage (years)*	6.60(4.35)
Duration of quarantine **	25 (9. 6)
Less than 1 day/week	104 (39.8)
Between 2−3 day/week	73 (28)
Between 4−5 day/week	58 (22.2)
Between 6−7 day/week	1 (0.4)
At all	
Income (Toman) **	23 (8.8)
Less than 1 million	135 (51.7)
Between 1−3 million	85(32.6)
Between 3−5 million	18 (6.9)
More than 5 million	
Education**	50 (19.2)
High school	211 (80.8)
University	

*Values are given as mean ± SD, **Values are given as number (%)

Table 2 shows the Correlation (bivariate analysis) between all variables included to the path model. Results showed that QOL was associated with SF (r = 0.36, P < 0.001), anxiety (r=-0.52, P < 0.001), depression (r=-0.46, P < 0.001), CDAS (r=-0.30, P < 0.001), contamination obsession (r=-0.18, P < 0.001), GH (r= -0.38, P < 0.001), and MS (r=-0.31, P < 0.001).

Table 2
Correlations between Sexual function, Anxiety, Depression, Corona-related Anxiety, General health, Contamination obsession, marital satisfaction, and Quality of life.

	1	2	3	4	5	6	7
1. Sexual function	-	-	-	-	-	-	-
2. Anxiety	-0.37***	-	-	-	-	-	-
3. Depression	0.48***	0.69***	-	-	-	-	-
4. Corona-related Anxiety	-0.29***	0.57***	0.46***	-	-	-	-
5. General health	-0.36***	0.64***	0.58***	0.95***	-	-	-
6. Contamination obsession	-0.22***	0.37***	0.31***	0.58***	0.58***	-	-
7. Quality of life	0.36***	-0.52***	-0.46***	-0.30***	-0.38***	-0.18**	-
8. Marital satisfaction	0.13*	-0.25***	-0.18**	-0.20***	-0.19**	-0.20***	-0.31***

Values are given as Pearson coefficient (P-value) using Pearson correlation test.

*$P< 0.05$; ** $P< 0.01$; *** $P< 0.001$.

Based on the conceptual model, the predictors of QOL had perfectly good fitness indices (P-value = 0.36; chi2 = 17.35; DF = 16; chi2/df = 1.08; RMSEA = 0.02; CFI = 0.99; AGFI = 0.99) (Table 3).

Table 3
The goodness of Fit Indices for the Models.

	CFI*	AGFI□□	RMSEA□□□	Chi-square	df	Chi-square/df□□□□	P-value
Path	0.99	0.99	0.02	17.35	16	1.08	0.36
N = 261							

*CFI: comparative fit index, □□AGFI: Adjusted goodness fit index, □□□RMSEA: root mean square error of approximation, □□□□Chi-square/df: chi-square to the degree of freedom index.

Table 4
Path coefficients for, Sexual function, Anxiety, Depression, Corona-related anxiety, General health, Contamination obsession, marital satisfaction, and QOL.

Dependent	Predictors	Direct effect	Indirect effect	Total effect	T-value
Quality of Life	Sexual Function	0.16	-	0.16	2.95
	Anxiety	-0.36	-0.16	-0.52	-8.29
	Depression	-	-0.17	-0.17	-4.19
	Corona-related Anxiety	0.44	-0.71	-0.27	-4.63
	General health	-0.47	-	-0.47	-2.80
	Marital Satisfaction	0.20	-	0.20	3.83
General health	Corona-related Anxiety	0.87	0.08	0.95	50.01
	Depression	0.19	-	0.19	10.29
	Anxiety	-	0.13	0.13	15.53
Sexual Function	Depression	-0.48	-	-0.48	-8.79
	Anxiety	-	-0.33	-0.33	-7.65
	Corona-related Anxiety	-	-0.19	-0.19	-6.34
Anxiety	Corona-related Anxiety	0.57	-	0.57	11.30
Depression	Anxiety	0.69	-	0.69	15.53
	Corona-related Anxiety	-	0.40	0.40	9.14
Contamination Obsessions	Corona-related Anxiety	0.58	-	0.58	11.54
Marital Satisfaction	Anxiety	-0.25	-	-0.25	-4.12
	Corona-related Anxiety	-	-0.14	-0.14	-3.87

We found that SF (β = 0.16), anxiety (β= -0.53), depression (β= -0.17), CDAS (β= -0.27), GH (β= -0.47), and MS (β = 0.20) are main predictors of women's QoL. Among variables GH has a more direct effect on women's QoL. Moreover, GH considered as a mediator variable; variables such as anxiety (β = 13), depression (β = 0.19), and CDAS (β = 0.95) with effect on GH can impress QoL. Anxiety as a main predictor of QoL, with direct, and indirect effect through GH (β = 0.13), depression (β = 0.69), SF (β= -0.33), and MS (β= -0.25) can impress QoL.

CADS with both direct and indirect effect changes QoL. Women with higher level of CADS score have lower level of general health (β = 0.95), SF (β= -0.19), MS (β= -0.14); and higher level of anxiety (β = 0.57), depression (β = 0.40), and contamination obsession (β = 0.58).

Discussion:

Coronavirus (COVID- 19) has challenged the health care system around the world. One of the main concerns about the disease is the impact of coronavirus on pregnancy and its risk for pregnant women and their children (22). The pregnancy period alone is stressful and full of worry, and recently, the anxiety and worry were added by Coronavirus's epidemic (10). What seems important these days are the formation of relationships and the emergence of behaviors that indicate the critical nature of society, which can affect all aspects of people's lives. It should be noted that no research has been found to examine the relationship between these variables in pregnant women during the epidemic.

In the present study, path analysis showed that during the corona epidemic, the QoL of pregnant women was associated with SF, anxiety, depression, coronary anxiety, GH, and MS.

Ferreira et al., 2012, concluded that there is a significant relationship between sexual performance and quality of life in pregnant women (23). Also, in the study of Nik Azin et al., 2013, a direct relationship was found between QoL and sexual performance. In this way, people with high sexual function had a higher QoL, both of which correspond to the results of the present study (24).

Sex and marital relationship change due to multiple physical and psychological changes during pregnancy (7), these days, stress and anxiety caused by bad news, fear of infecting oneself and one's family with coronavirus, changes in lifestyle, and normal relationships. Concerns about the future are stressors that can reduce libido and impair sexual function (25). On the other hand, many people tend to have sex because of emotional motivation and insecurity. Numerous studies have shown that more sex equals less stress (26), and since one of the important physical and psychological dimensions of women's QoL is the quality of people's sexual life, it can be concluded that people with the proper SF will have a better QoL.

Another result of the study was the inverse relationship between QoL and depression and anxiety, which is in line with some study (27–28), so that with increasing depression, QoL decreases.

Anxiety and depression during pregnancy are serious health problems (29), due to the sudden outbreak of corona, people do not have access to enough information about the disease. Anticipated concerns among pregnant women, such as fear of infection, and vertical transmission from mother to fetus, are common, as a result, the coronavirus can be expected to increase the risk of depression in pregnant women (30). Depression also causes adverse consequences of pregnancy and, by influencing the social and environmental psychology of QoL, reduces the QoL (28–29).

The results of study also showed that among the variables, GH was more directly related to the QoL, and for the rest of the variables, they acted as intermediaries by relating to the impact GH on QoL. There is a negative and significant relationship between quality of life and mental health in pregnant women. In fact, due to the negative and inverse correlation, it can be concluded that with increasing quality of life, the mental health of pregnant women decreases. Given that high scores in the GHQ indicate more mental

disorder, the negative relationship between the two the variable shows that with increasing quality of life scores, the scores of GHQ (mental disorder) decreased and this indicates that mental health is higher in women with higher quality of life.

The results of Nik Azin et al.'s 2013 study showed that there is a direct relationship between QoL, SF, and GH (24), and Fathi et al., 2013, also stated that there is a negative and significant relationship between GH and QoL in pregnant women. (31), which are consistent with the results of the present study.

It should be noted that pregnancy is associated with significant changes in women's mental health and physical health, and social performance in pregnant women is lower than other members of society, which can have negative effects on physical health, well-being, and QoL (31, 32).

Many people, especially those at risk, such as pregnant mothers, are forced to stay at home to prevent the transmission of the coronavirus. As a result, staying at home will increase stress, anxiety, and mental health problems. On the other hand, these conditions and staying at home reduce a person's physical activity (33, 34). Stay home and quarantine decrease social functioning and vitality, in this way, they affect the QoL (32).

The results of the present study showed anxiety, directly and indirectly, affect GH, depression, SF, MS, and QoL. This means that pregnant women with higher levels of anxiety had a lower level of quality of life.

Pregnancy is a special time full of excitement and expectations, but for pregnant mothers, the outbreak of the coronavirus has caused fear, anxiety, and insecurity. Anxiety is a common symptom in patients with chronic respiratory distress that significantly reduces patients' QoL (35). Stress and anxiety can increase the risk of side effects during pregnancy, such as preterm birth, low birth weight, nausea and vomiting, low birth weight, and depression (10, 29).

In the present study, the analysis of the results showed that corona disease anxiety has both direct and indirect effects on QoL. So that pregnant women with higher levels of anxiety had better GH, lower SF; and higher levels of anxiety, depression, and obsession.

The results of Alipour et al., 2020, showed that there was a correlation between corona disease anxiety and GH. Thus, increasing the score on the physical and psychological symptoms of corona disease anxiety was significantly associated with physical symptoms, depression anxiety, and social dysfunction, which is consistent with the results of the present study (16). Also, the results of studies conducted by Durankuş et al. 2020, and Wu et al 2020, showed that the corona disease epidemic affected the anxiety and depression of pregnant women so that the level of anxiety and depression in pregnant women was higher during the epidemic (29–30).

Pregnancy is a stressful time for pregnant women. The prevalence of coronary heart disease has increased stress and anxiety around the world (29), Anxiety about the corona is common, and it seems to grow more because people are unfamiliar with it and create cognitive ambiguity about the virus. Fear of the unknown reduces the perception of immunity in humans has always been a concern for humans (36).

Anxiety has always been endorsed by committed professionals as a health-threatening variable. (37). different types of anxiety disorders can have different effects on SF (38). The findings of a 2013 study by Nick Azin et al. Showed that sexual desire and satisfaction were associated with aspects of QoL and mental health (anxiety, stress, and depression) in pregnant women (24).

Anxiety has a limit, and if it goes too far, it can certainly have devastating effects, including exacerbating obsessive-compulsive behaviors. Obsessive behavior has increased during the coronavirus outbreak. Obsessive-compulsive disorder leads to decreased social, family functioning, and quality of life (39). The results of a 1988 study by Karno et al. Showed that people with obsessive-compulsive disorder liked to rate themselves on a lower level of QoL (40).

Facing a crisis prevents a person from working and performing well on the components of problem-solving communication, emotional roles and reactions, emotional involvement (conflict), and behavioral control, Which will lead to a decrease in public health and, consequently, the QoL in the individual (41).

Conclusion:

The result of our study illustrated SF, depression, anxiety, coronary anxiety, GH, and MS were the main predictors of the QoL of pregnant women during this crisis. According to the research findings, health managers can improve the QoL of these people by planning and holding virtual training to improve depression, anxiety, the mental health of pregnant women in this critical period.

Abbreviations

FSFI
Female Sexual Function Index
QoL
Quality of Life
SF12
Short Form Health Survey
SARS
Severe Acute Respiratory Syndrome
MERS
Middle East Respiratory Syndrome
COVID19
Coronavirus Disease 2019
SF
Sexual Function
MS
Marital Satisfaction
WHO

World Health Organization
BIS
Behavioral Immune System
BMI
Body Mass Index
HADS
Hospital Anxiety and Depression Scale
GHQ
General Health Questionnaire
MSS
Marital Satisfaction Scale-shortened version
RMSEA
Root mean square error of approximation
AGFI
Adjusted Goodness of Fit Index
CFI
Confirmatory Factor Analytic
DF
Degree of Freedom

Declarations

Ethics approval and consent to participate

The study was approved by the Ethics Committee of Tarbiat Modares University of Medical Sciences (IR.MODARES.REC.1399.022). All procedures were in accordance with the ethical standards of the Regional research committee and with the Declaration of Helsinki 1964 and its later amendments. After explaining the study's purposes, written consent assent were collected from all participants and women were informed that their participation were voluntary, confidential, and anonymous, and were apprised of their right to withdraw from the research at any time.

Consent for publication

Not applicable.

Availability of data and materials

The data sets used and analyzed during the current study are available from the corresponding author on reasonable request

Competing interests

The authors declare no conflict of interest.

References

1. Ranganathan P, Maroof KA, Chhabra P. Antenatal care, care at birth, and breastfeeding during the Coronavirus (COVID-19) pandemic. INDIAN JOURNAL OF COMMUNITY HEALTH. 2020;32:17–20.
2. YANG H, WANG C. POON L. C. Novel coronavirus infection and pregnancy. Ultrasound Obstet Gynecol. 2020;55:435–7.
3. Newman T. What is mental health?. 2020/03/13. https://www.medicalnewstoday.com /articles/ 154543.
4. Sadeghi-Yarandi M, Khodabakhshi-Koolaee A, Falsafinejad MR, Khaletbari N. The Interrelationship between Job Stress with the Immune System and Functional Memory of Women Working in Diagnostic Laboratories. 2019; 7(2): 23–32.
5. Allart P, Soubeyran P, Cousson-Gélie F Are Psychosocial Factors Associated with Quality of Life in Patients with Haematological Cancer? A Critical Review of the Literature. Journal of PsychoOncology. 2012; 10: 1002/pon.3026.
6. Soleimani I. Investigating the relationship between early health and quality of life with the mediating role of spiritual health in students. Culture at the University of Islam. 2016;6(4):565–82.
7. Ajh S, Rad F, Kalhor M, Hassanpour K, Alipour M, Montazeri A. Assessing the quality of sexual life of pregnant women: A cross-sectional study. Monitor. 1397; 17 (4): 421–429.
8. Zeighami Mohammadi S, Ghaffari F. Sexual dysfunction and its relationship to the quality of life of a woman with cancer. Iranian Journal of Obstetrics Gynecology. 2008;2(12):39–46.
9. UpToDate. Coronavirus disease 2019 (COVID-19): Pregnancy issues. Last updated: 16.04.2020.
10. Rashidi Fakari F. Simbar m. Coronavirus Pandemic and Worries during Pregnancy; aLetter to Editor. Archives of Academic Emergency Medicine. 2020;8(1):e21.

11. Harmon Courage K. Pregnant and Worried About Coronavirus? How To Stay Safe And Make A Game Plan. March 22, 2020. https://www.kpbs.org/news/2020/mar/22/pregnant-and-worried-about-coronavirus-how-to.

12. Di Mascio D, Khalil A, Saccone G, et al. Outcome of Coronavirus spectrum infections (SARS, MERS, COVID 1–19) during pregnancy: a systematic review and meta-analysis. Am J Obstet Gynecol MFM 2020; 100107.

13. Sterling M. General Health Questionnaire-28. Journal of physiotherapy. 2011;57(4):259.

14. Taghavi SMR. Validity and Reliability of General Health Questionnaire (GHQ). J Psychol. 2002;5(4):381–98.

15. Montazeri A, Vahdanina M, Ebrahimi M, Javandi S. The Hospital Anxiety and Depression Scale (HADS): translation and validation study of the Iranian version. Health Qual Life Outcomes. 2003;1(1):1–5.

16. Alipour A, Ghadami A, Alipour Z, Abdullah Zadeh H. Preliminary validation of Corona Anxiety Scale (CDAS) in the Iranian sample. Journal of Health Psychology. 2020;8(4):163–75.

17. Rosen R, Brown C, Heiman J, Leiblum S, Meston C, Shabsigh R, et al. The Female Sexual Function Index (FSFI): a multidimensional self-report instrument for the assessment of female sexual function. Journal Sexual Marital Therapy. 2000;26(2):191–208.

18. 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.

19. Arab Alidousti A, Nakhaee N. and K. N, Reliability and Validity of the Persian versions of the ENRICH Marital Satisfaction (Brief version) and Kansas Marital Satisfaction Scales. Journal of Health Development. 2015;4(2):158–67.

20. Montazeri A, Vahdadidia M, Mousavi SJ, Omidvar S. The Iranian version of 12-item Short Form Health Survey (SF-12): factor structure, internal consistency and construct validity. BMC Public Health. 2009;9(1):1–10.

21. Shams G, Kaviani H, Esmaili Y, Ebrahimkhani N, Manesh AA. Psychometric properties of the persian version of the padua inventory: Washington State University Revision (PI-WSUR). Iranian journal of psychiatry. 2011;6(1):12–8.

22. Li R, Yin T, Fang F, Li O, Chen J, Wang Y. Potential risks of SARS-CoV-2 infection on reproductive health. Reproductive BioMedicine Online. 2020. In press, uncorrected proof.

23. Ferreira DQ, Nakamura MU, Souza Ed M, Neto C, Ribeiro MC, Santana Td. Sexual function and quality of life of low-risk pregnant women. de Ginecologia e Obstetricia. 2012;34(9):409–13.

24. Nik-Azin A, Nainian MR, Zamani M, Bavojdan MR, Bavojdan MR, Motlagh MJ. Evaluation of sexual function, quality of life, and mental and physical health in pregnant women. J Family Reprod Health. 2013;7(4):171–6.

25. The effect of
coronavirus on men.24/05/2020
The effect of. coronavirus on men.24/05/2020https://www.eghtesadonline.com/n/2FEJ.

26. Kellie Scott. Here's what coronavirus anxiety might be doing to your sex drive. ABC Life. https://www.abc.net.au/life/what-the-coronavirus-crisis-could-be-doing-to-your-sex-drive/12093286.

27. Couto ER, Cout E, Vian B, Gregório Z, Luis Nomura M, Zaccaria R. Quality of life, depression and anxiety among pregnantwomen with previous adverse pregnancy outcomes. Sao Paulo Med J. 2009;127(4):185–9.

28. Zoche E, Lúcia Bosa A, Martin Chaves E, Capp E, von Eye Corleta H. Effect of depressive symptoms and HIV exposure on the quality of life of HIV-seropositive and seronegative pregnant women. Clin Biomed Res. 2019;39(2):116–21.

29. Durankuş F, Aksu E. Effects of the COVID-19 pandemic on anxietyand depressive symptoms in pregnant women: apreliminary study. Full Terms & Conditions of access and use can be found athttps://www.tandfonline.com/action/journalInformation?journalCode=ijmf20The Journal of Maternal-Fetal & Neonatal Medicine.2020;.

30. Wu Y, Zhang CH, Liu H, Duan CH, Li CH, Fan J, et al. Perinatal depression of women along with 2019 novel coronavirus breakout in China. 2020.

31. Fathi A, Golakeh Khibari S. THE RELATIONSHIP BETWEEN PRENATAL CONCERNS DEPRESSION, QUALITY OF LIFE AND GENERAL HEALTH OF PREGNANT WOMEN. The J Urmia Nurs Midwifery Fac. 2018;15(12):939–49.

32. Basharpoor S, Nabi Salehi M, kazemi N, Soleymani E. The Effectiveness of mind fulness-Based Stress Reduction Training on Improving the Quality of Life and Well-Being of Pregnant Women. The J Urmia Nurs Midwifery Fac. 2018;16(6):445–54.

33. Hammami A, Harrabi B, Mohr M, Krustrup P. Physical activity and coronavirus disease 2019 (COVID-19): specificrecommendations for home-based physical training Managing Sport and Leisure. 2020.

34. Shahyad S, Mohammadi MT. Psychological Impacts of Covid-19 Outbreak on Mental Health Status of Society Individuals: A Narrative Review. Journal of Military Medicine. 2020;22(2):184–92.

35. Folch Ayora A, Macia Soler L, Cervera Gasch A. Analysis of two questionnaires on quality of life of Chronic Obstructive Pulmonary Disease patients. Rev Latino-Am Enfermagem. 2019;27:e3148.

36. Bajema KL, Oster AM, McGovern OL, Lindstrom S, Stenger MR. Anderson TC, AND, ET AL.Persons Evaluated for 2019 Novel Coronavirus United States. MMWR Morb Mortal Wkly Rep 2020 ePub February 7, 2020. dx.doi.org/10.15585/mmwr.mm6906e1.

37. Dong X, Wang L, Tao Y, Suo X, Li Y, Liu F, Zhao Y, Zhang Q. Psychometric properties of the Anxiety Inventory for Respiratory Disease in patients with COPD in China. Int J Chron Obstruct Pulmon Dis. 2017;12:49–58.

38. Hajnasiri H, Aslanbeygi N, Moafi F, Mafi M, Bajalan Z. Investigating the Relationship between Sexual Function and Mental Health in Pregnant Females. Iranian Journal of Psychiatric Nursing (IJPN) Original. 2018;6(2):32–9.

39. Ghaffari M, Rezaei A. Investigating the relationship between marital satisfaction and quality of life with tendency to obsession and skill The life of married students of Payame Noor University. Journal of Medical Sciences Islamic Azad University. 2013;23(2):140–7.

40. Karno M, Golding JM, Sorenson SB, Burnam MA. The epidemiology of obsessive-compulsive disorder in five US communities. Arch Gen Psychiatry. 1988;45:1094–99.

41. Nazoktabar H, Nabipur Afrouzi F. The Effect of Family Function on the Quality of Life and Mental Health of Pregnant Women referred to Health Centers of Babol City in the Year 2016–2017. Journal of North Khorasan Medical Sciences. 2018;10(3):60–6.
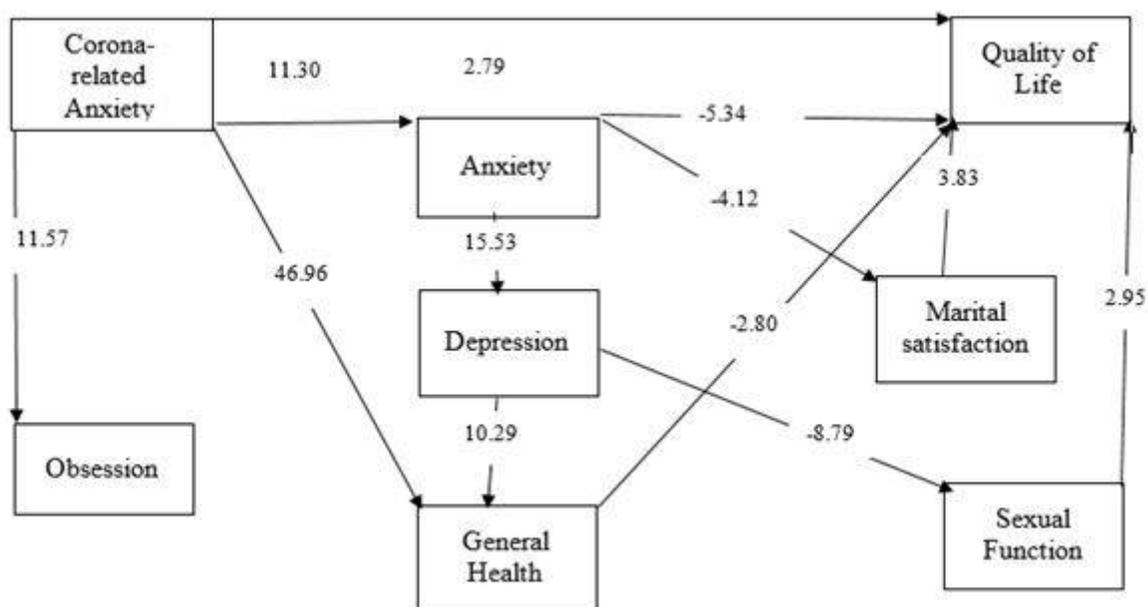
Figures

Figure 1

Path diagram (T-value) for the predictors of QoL