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HEALTH PROMOTION

# The relationship between demographic factors and levels of self-care against coronavirus in pregnant women referred to maternity wards

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Keywords

Coronavirus • Pregnant women • Self-care

Summary

**Background**. *The adverse effects of coronavirus infection on pregnant women and their infants are not apparent. The best strategies to deal with this disease is avoiding the infection and preventing its transmission.*
**Purpose**. *the present study aimed to investigate the relationship between demographic factors and levels of self-care against coronavirus in pregnant women referred to maternity wards of Kerman, southeast Iran.*
**Method**. *The present descriptive study was conducted on 200 pregnant women who referred to maternity wards in Kerman in 2020 and met the inclusion criteria. The required information was collected using demographic and obstetric questionnaires and a self-care checklist.*
**Findings**. *The mean age of the participants was 28.89 ± 7.07. Iranian and Afghan citizens comprised 82 and 18% of the participants, respectively. The highest level of self-care measures against coronavirus in pregnant women was attributed to the use of face masks (74%), and the lowest was warning the personnel to wear masks (28%). There was a statistically significant relationship between the nationality of the participants and warning the personnel to wear facemasks (r = 0.183; p = 0.02), having a sick spouse (r=0.149;P = 0.039), and having a sick child (r = 0.191; p = 0.043), and between the husbands' job and the patients' demand for a private room (r = 0.173; p = 0.013). There was an inverse relationship between mothers' age and warning the personnel about paying attention to their hygiene (r = -0.145; p = 0.04).*
**Conclusions**. *The results indicated that most pregnant women in the present study were active in self-care against coronavirus. Using face masks was more widely followed than other self-care measures; moreover, there was a relationship between personal characteristics and self-care levels.*

## Introduction

Due to the high prevalence of coronavirus infection, substantial measures should be taken to prevent its transmission and reduce mortality and associated complications. Since one of the best strategies to deal with this disease is to avoid infection and prevent its transmission, most countries recommend guidelines such as home quarantine, social distancing, frequent hand washing, and the use of hand sanitizer gels [1].
Preventing coronavirus transmission must be considered, specifically in high-risk groups, including the elderly, people with underlying diseases such as diabetes, renal diseases, immunodeficiency, and pregnancy [2]. With the prevalence of coronavirus, the number of pregnant women infected with the virus is on the increase. Therefore, preventing and controlling the disease in pregnant women have become major concerns [3].
There is very little information about the effects of this newly emerging virus on pregnancy and delivery and its impact on the fetus. Currently, there is no evidence of COVID-19 transmission from mothers to their fetuses. Although the overall effect of MERS-CoV, a member of the coronavirus family, on mothers and delivery consequences needs further evaluation, research indicated that MERS-CoV may pose serious health risks to both mother and baby [4] and can cause sudden bleeding with rupture of membranes (ROM), mild to moderate fluctuation of fetal heart rate, and placental abruption leading to an emergency C-section [5]. Studies conducted during the outbreak of severe acute respiratory syndrome coronavirus (SARS-CoV) on pregnancy have shown spontaneous abortion, preterm birth (PTB), intrauterine growth restriction (IUGR), intensive care unit admission, renal failure, and maternal coagulation disorder [6, 7].
Prevalent manifestations of COVID-19 in pregnant women included fever, cough, and muscle aches. Lab results most commonly show decreased lymphocytes and increased CRP. Recent studies indicated an increased C-section rate and preterm birth in pregnant women with COVID-19 [8, 9]. Therefore, using self-care programs to prevent coronavirus infection reduces the prevalence of the disease, decreases C-section rates, and increases natural childbirth.
Self-care is an essential aspect of a health-oriented lifestyle, improving the quality of life and reducing costs. With self-care, acute or chronic complications of diseases can be prevented or delayed [10].


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Self-care in the coronavirus pandemic is the most crucial factor in controlling the disease. Principles of self-care behaviors such as using face masks, social distancing, and regular hand washing are observed by some people but not followed by others, and adherence to recommended guidelines for controlling the disease varies among individuals. Self-care measures that the pregnant woman consciously takes during pregnancy can also lead to her and the fetus's health during pregnancy, childbirth, and afterwards. The adverse effects of coronavirus infection in pregnant women and their infants are unclear [11]. Due to limited information, the fact that pregnant women are among high-risk groups during the COVID-19 pandemic, and the limited number of studies on various aspects of pregnancy and the emerging coronavirus infection, the present study was conducted aiming to investigate the relationship between demographic factors and levels of self-care against coronavirus in pregnant women referred to maternity hospitals.

## Methods

### Type of study

The present research was a descriptive-analytical study aiming to assess the relationship between demographic factors and self-care among pregnant women.

### Sample and statistical population

Participates were eligible pregnant women hospitalized in maternity hospitals in Kerman, south of Iran, during the coronavirus pandemic in 2020. Sampling carried out from April to June.

### Inclusion criteria

Inclusion criteria involved being hospitalized to terminate a pregnancy, and willingness to participate in the study.

### Sample size and sampling

The sample size was calculated 195 people, by considering the ratio of pregnant women with appropriate self-care 15% (in the pilot study), 95 confidence level, 80% test power and 5% accuracy.

After receiving ethical code (IR KMU REC. 1399.131), eligible pregnant women who referred to maternity ward to terminate their pregnancy because of abortion, Ep, IUFD, preterm, term, and post-term labor, were invited to participate in study. Informed consents was obtained and participants were selected through convenience sampling. Demographic and obstetric part of questionnaire was completed with interview and the third part of questionnaire was fulfilled with observation by researcher. Data collection was continued until reaching specified sample size.

### Measuring tools

Data collection tools included three parts: first part demographic questions, second part obstetrics information and third part a researcher-made checklist for pregnant women's self-care measures. The checklist was designed based on books, articles, and experts' opinions in this field and consisted of ten questions. It should be responded by yes, no and sometimes. In order to obtain scientific validity for the checklist, content validity was used. To this end, the checklist was given to ten faculty members of the obstetrics and health schools and was assessed in terms of content. Afterwards, the opinions were applied to the checklist. To check the reliability of the checklist, the concurrent reliability test was used. To this end, the researcher and a colleague with the same academic level completed the checklists of 10 samples simultaneously.

### Data analysis

After completing the questionnaires and collecting the data, the collected information was analyzed using SPSS V21. In this study, descriptive statistical tests such as simple frequency distribution, central tendency and dispersion measures, standard deviation, Pearson correlation test, and multiple regression were used. The significance level was set at 0.05.

## Results

Two hundred pregnant women with the mean age of 28.89 ± 7.07 participated in this study. One hundred and sixty-two of these women (82%) were Iranian, and 36 (18%) were Afghan. In terms of education level, 33.5% did not have a high-school diploma, 47.5% had a high-school diploma, and 19% had a university education (Tab. I).

Tab. I. Study population's demographic information.

| Variable | | | Frequency (percentage) |
|---|---|---|---|
| Women's education level | No diploma | | 53 (26.30%) |
| | Diploma | | 83 (41.5%) |
| | University | | 64 (32%) |
| Husbands' education level | No diploma | | 67 (33.5%) |
| | Diploma | | 95 (47.5%) |
| | University | | 38 (19%) |
| Women's occupation | Housewife | | 111 (55.5%) |
| | Working | Self-employed | 32 (16%) |
| | | Governmental | 57 (28.5%) |
| Husbands' occupation | Unemployed | | 20 (10%) |
| | Working | Self-employed | 73 (36.5%) |
| | | Governmental | 107 (53.5%) |
| Socioeconomic status | Low | | 108 (54%) |
| | Average | | 72 (36%) |
| | High | | 20 (10%) |
| Women's addiction | No addiction | | 170 (85%) |
| | Cigarette | | 10 (5%) |
| | Narcotics | | 20 (10%) |
| Husbands' addiction | No addiction | | 147 (73.5%) |
| | Cigarette | | 23 (11.5%) |
| | Narcotics | | 30(15%) |

Tab. II. Frequency and percentage of self-care in pregnant women against coronavirus.

| Questions | Yes | No | Sometimes |
|---|---|---|---|
| Does the patient wash their hand with water and soap or use hand sanitizers regularly after touching different surfaces or eating and drinking? | 128 (64%) | 72 (36%) | |
| Does the patient wear a face mask? | 148 (74%) | 51 (25.5%) | 1 (0.5%) |
| Does the patient use a cap or scarf in labor? | 147 (73.5%) | 53 (26.5%) | |
| Does the patient keep a proper distance from the personnel when giving history? | 104 (52%) | 53 (26.5%) | |
| Does the patient keep a proper distance from other patients? | 90 (45%) | 110 (55%) | |
| Does the patient warn the personnel to wear masks talking to them? | 56 (28%) | 144 (72%) | |
| Does the patient warn the personnel to wash their hands before doing anything? | 71 (35%) | 129 (64.5%) | |
| Does the patient ask for a private room or the minimum number of patients in the room? | 87 (43.5%) | 112 (56%) | |
| Does the patient ask for proper ventilation in the room? | 87 (43.5%) | 113 (56.5%) | |
| Does the patient take care not to touch their eyes, nose, and mouth? | 87 (43.5%) | 113 (56.5%) | |

26 (13%) of the participants had a history of physical diseases, and 15 (7.5%) a history of mental disease. In terms of prenatal care, 10 (5%) of the participants had not done any prenatal care, 150 (75%) had done it regularly, and 30 (15%) irregularly. The results of the present study showed that among the sources of coronavirus information, TV (95%) had the highest frequency, followed by friends and relatives (89.5%), social media (86%), radio (19.5%), and newspapers and magazines (10.5%). The assessment of self-care measures taken by pregnant women in the study showed that the most significant self-care measure was using face masks (74%), followed by using a cap or scarf in labor (73.5%), using hand sanitizers after touching different surfaces or eating and drinking, and handwashing with water and soap (64%). The least significant self-care measure was warning the personnel to wear a mask (28%) (Tab. II).

The results of the present study regarding the relationship between self-care against coronavirus among pregnant women showed a statistically significant relationship between participants' nationality and warning the personnel to wear a mask ($r = 0.183$; $p = 0.02$). In fact, Iranian women warned the personnel more than non-Iranians.

The mother's body mass index had a significant relationship with keeping a proper distance from personnel ($r = 0.192$; $p = 0.016$). There was a significant relationship between having a sick husband ($r = 0.149$; $p = 0.039$) or child ($r = 0.191$; $p = 0.043$) and wearing a scarf or cap in labor. Moreover, there was a significant relationship between having a sick child and washing hands after touching different surfaces or before eating and drinking or using hand sanitizers ($r = 0.152$; $p = 0.020$).

Husbands' occupation had a significant relationship with asking for a private room or a room with the minimum number of patients ($r = 0.137$; $p = 0.013$). This relationship is even more significant in women whose husbands had nongovernmental jobs.

Patients' socioeconomic status showed a significant relationship with warning the personnel to wash their hands before doing anything ($r = 0.147$; $p = 0.011$).

There was also a significant relationship between women's occupation and warning the personnel to wear a face mask ($r = 0.176$; $p = 0.016$) and warning them to wash their hands before doing anything ($r = 0.147$; $p = 0.001$), with working mothers paying more attention to this issue.

Moreover, mothers' attention to wearing a scarf or cap in labor had a significant relationship with their occupation ($r = 0.192$; $p = 0.006$), and working mothers paid more attention to wearing a scarf or cap during labor.

There was an inverse relationship between mothers' age and warning the personnel about paying attention to their hygiene ($r = -0.145$; $p = 0.04$). However, there was a significant positive relationship between the mother's parity and keeping a proper distance from other patients ($r = -0.147$; $p = 0.03$) and touching the eyes, nose, and mouth ($r = 0.152$; $p = 0.03$).

## Discussion

In the present study, the relationship between demographic factors and the levels of self-care against coronavirus in pregnant women was investigated. The pandemic has spread worldwide, and due to its high transmission, most countries recommend protocols such as using face masks, frequent hand washing and sanitizing, and social distancing in order to control the disease and reduce its transmission.

Self-care can be defined as leading a healthy lifestyle to help prevent diseases and injuries; it plays a vital role in reducing the use of health services [12].

The findings of the present study indicated that the most frequent self-care measure taken by the participants was attributed to the use of facemasks, and the least frequent was warning the personnel to wear masks. Using facemasks is one of the strategies to prevent the spread of coronavirus. In the study conducted by MacIntyre et al., using face masks was recommended as a valuable strategy to prevent the transmission of the diseases transmitted through respiratory droplets and to reduce infection transmission rates [13].

Moreover, the results of the study conducted by Brandt et al. on the role of wearing face masks in controlling coronavirus indicated the role of face masks in reducing the spread of respiratory droplets from asymptomatic individuals and those with mild COVID-19 [14].

The results of the present study showed a statistically

significant relationship between the nationality of the participants and warning the personnel to wear masks ($p = 0.02$). In fact, non-Iranians who consisted of Afghan women did not warn the personnel about personal hygiene, which could be due to feelings of lack of belonging to the environment and the country, resulting in decreased self-confidence. According to Bustani, immigrants suffer from relative deprivation and social phobia, which includes decreased power, respect, affection, and increased anxiety [15].

There was a significant relationship between the degrees of the pregnant mothers' attention to wearing a scarf or cap in labor and the variables of the mother's occupation ($p = 0.006$), having a sick husband ($p = 0.039$), and a sick child ($p = 0.043$). Having sick relatives can cause worry and anxiety in a pregnant woman. If she feels that her condition might worsen theirs and sometimes even lead to their loss, worry and anxiety will especially increase in her, motivating her to pay more attention to her personal hygiene and even to warn others about it. The study results conducted by Jafari Manesh indicated that the parents of sick children suffer from different degrees of anxiety and depression [16].

There was a significant relationship between the occupation of the patient's husband and the patient's demand for a private room or a room with the minimum number of hospitalized patients ($p = 0.013$). The husband's occupation can represent the family's economic status, and people with higher economic status are more likely to ask for a private room both during an outbreak of a disease and in normal circumstances. According to Ameri, economic factors and individuals' income are influential factors in choosing private hospitals for treatment [17].

The patients' socioeconomic status had a significant relationship with warning the personnel to wash their hands before doing anything ($p = 0.011$). This could be due to greater attention to hygiene in individuals with higher socioeconomic status. Studies have shown that individuals with a better socioeconomic status have higher self-confidence compared to those from lower-income classes. Having high self-confidence is one factor required for communicating with others, especially for having a decisive and critical attitude [18].

There was a statistically significant relationship between the participants' occupation and warning the personnel to wear facemasks ($p = 0.016$) and to wash their hands before doing anything ($p = 0.001$). Due to their presence in society and communication with various people other than their family members, workingwomen possess higher communication skills. Therefore, they can criticize and warn others because people are likely to be criticized, blamed, reprimanded, and sometimes punished due to work-related issues in the workplace. As a result, employed people are more capable than the un-employed in this matter. According to the study conducted by Nayebpour, workingwomen have higher communication skills than unemployed women [19].

There was a significant inverse relationship between mothers' age and warning about personal hygiene ($r = -0.145$; $p = 0.04$). According to previous studies, age is a factor influencing the level of self-care ability, and younger study units had higher self-care ability. Orem argues that self-care abilities and requirements in a healthy individual vary according to the level of growth determined by age [20].

There was a significant positive relationship between the patient's parity and keeping a proper distance from other patients and touching the eyes, nose, and mouth. In other words, the more pregnancies a woman had experienced, the more sensitive she had become about personal hygiene [21]. According to the study conducted by Hakan, there was a significant relationship between parity and communication skills and health responsibility [22].

## Conclusions

The findings of the present study indicated that the majority of pregnant women studied were active in self-care, and the use of facial masks received more attention than other self-care measures. According to the present study, it is recommended that individuals' awareness be increased in order to improve self-care performance. Moreover, according to the results of the present study, it is recommended that pregnant women's attitude toward self-care behaviors during pregnancy be improved by removing barriers to self-care behaviors during pregnancy and increasing perceived sensitivity to consequences of ignoring self-care during this period. Moreover, we should raise their knowledge about the benefits of such behaviors and improve their health belief model constructs.

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## Conflict of interest statement

The authors declare no conflict of interest.

## Authors' contributions

FM and KA designed the work and drafted the manuscript. AH and KA prepared questionnaire. FM and AH had full access to all of the data and take responsibility for the integrity of the data. MG takes responsibility for accuracy of the data analysis. All authors read and approved the final manuscript.

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