

## Knowledge and Compliance of Pregnant Women about the Covid-19 and its Effects on Pregnancy Outcome

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### Abstract

**Introduction and Aim:** Covid-19 is a pandemic disease that affects the respiratory tract within high mortality and morbidity. The aim is evaluation of the awareness and attitude of the pregnant women about Covid-19 and their practice about the disease and prevention of its spreads and their knowledge about the effects of disease on their fetus and outcome of pregnancy.

**Materials and Methods:** A prospective descriptive online survey was conducted from February 2020 - August 2020 for women who were referred to prenatal clinic of a university based hospital of Tehran. They asked about symptoms of covid-19 and the effects of disease in outcome of pregnancy and their knowledge and practice regarding the pandemic.

**Results:** The data of 647 Iranian pregnant women were included in the analysis. The mean age of them was 33.18 years old. The mean of gestational age was 27.91 weeks. At the time of study 122 of pregnant women get birth and until the end of study 352 neonates were female and the rest of them (294) were male. The average score of knowledge was 10.47 (SD  $\pm$  1.02 9 range: 6 - 12). Out of them, the knowledge of 1.13% (6) were low 42.86% (228) were moderate and 96.2% (413) were high.

The correlation between the knowledge score of pregnant mothers regarding the Covid-19 and their characteristics were evaluated, significant correlation was observed regarding the age under 30 years old. The correlation coefficient between the knowledge score of pregnant mothers and their age of was 0.05 ( $p = 0.404$ ) but for gestational age no significant correlation was observed ( $P = 0.746$ ). 77.22% of women believed that Covid-19 lead to preterm labor and 50% had concerned about congenital anomaly.

**Conclusion:** Mothers awareness towards preventing Covid-19 and compliance to lockdown restrictions needs more education for mothers especially the older ones to prevent the spread of pandemic. Most of them believed that Covid-19 causes preterm labor.

**Keywords:** Pregnancy; Covid-19; Knowledge; Preterm Labor; Congenital Anomaly

**Introduction**

Covid-19 is a pandemic disease that affects the respiratory tract within high mortality and morbidity [1]. Today about 30 million people have been infected by covid-19 and about five million people have died all around the world from it [2,3]. Symptoms of the disease vary from asymptomatic and mild upper respiratory tract infection to sever and lethal respiratory involvement [4]. Couch, fever, and myalgia are the most common symptoms of the disease in symptomatic patients sever dyspnea and ARDS are the end stage manifestations of it [5].

History of close contact with an infected person is reported in many cases close contact with respiratory droplets is one of the most common ways of transmission [6].

**Aim of the Study**

The aim of the present study which was conducted on the first days of the pandemic was evaluate the awareness and attitude of pregnant women towards Covid-19 and taken measure to prevent its spread in addition to their knowledge about the effects of the disease on the fetus and the outcome of pregnancy.

**Materials and Methods**

An online questionnaire was designed for conducting this cross sectional study from February 2020 - August 2020 for women who were referred to prenatal clinic of the university based hospitals of Tehran.

The study was approved by ethical Committee of deputy research of Tehran medical university.

This hospital had about three thousand deliveries per year. All pregnant women who referred in the prenatal clinic were provided with an internet link on their mobile (Table 1 and 2).

Items		Number (%)
Is the use of masks and gloves effective in preventing the disease?	Yes	632 (97.5%)
	No	15 (2.50%)
At present, to what extent do you observe restrictions?	Completely	646 (99.70%)
	Partially or not at all	1 (0.30%)
Do you think that Covid-19 can be transmitted from mother to fetus?	Yes	420 (63.80%)
	No	227 (36.19%)
Are you afraid of getting Covid-19?	Yes	561 (86.65%)
	No	86 (13.35%)
Are you afraid that your baby will get infected?	Yes	616 (95.65%)
	No	31 (4.35%)
Do you think Covid-19 causes premature birth?	Yes	498 (77.2%)
	No	149 (22.8%)
Do you think that Covid-19 causes congenital anomalies?	Yes	288 (49.66%)
	No	359 (50.34%)

**Table 1:** The frequency of women responses to the Covid-19 questions regarding of awareness.

Item		Number (%)
To what extent have you observed restrictions since the beginning of the epidemic?	Completely	592 (91.4%)
	Partially or not at all	55 (8.6%)
Does non-compliance with the restrictions play an important role in the spread of the disease?	Yes	617 (95.25%)
	No	30 (4.75%)
Is the rate of person-to-person transmission of the disease high?	Yes	639 (98.75%)
	No	8 (1.25%)
What do you think is your role in preventing the transmission of the virus?	High	564 (87.2%)
	Low	83 (12.8%)
Do you think Covid-19 causes premature birth?	Yes	498 (77.2%)
	No	149 (22.8%)
Do you think that Covid-19 causes congenital anomalies?	Yes	288 (49.66%)
	No	359 (50.34%)

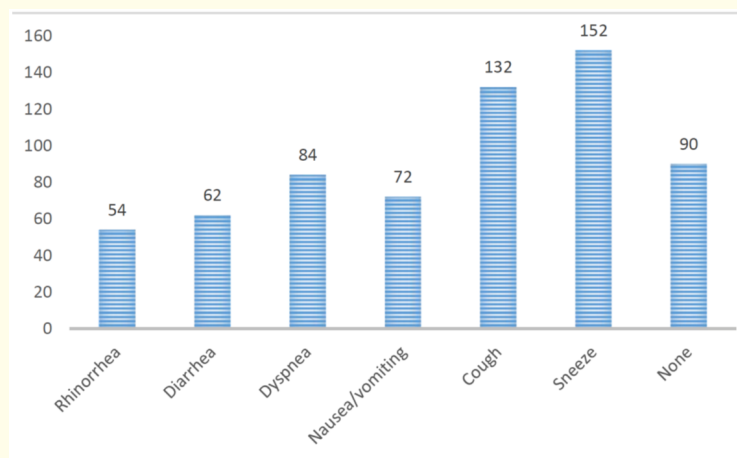
**Table 2:** The frequency of question about practice regarding the covid-19.

To take the survey while they were waiting for their appointment with the physician. All their responses were gathered by google platform with internet access. The online questionnaire had 30 questions for evaluating demographic data and history of underlying disease, like diabetes, hypertension etc. during pregnancy (Figure 1 and 2). Additionally, some questions about their knowledge and attitude towards Covid-19 pandemic and six questions about their taken measures to prevent Covid-19 also two questions about the effects of Covid-19 on preterm labor and association with congenital anomaly (Figure 3). Then all pregnant women were evaluated until delivery and the outcome of pregnancy was recorded.

Data were presented by beta coefficients and 95% confidence interval. Statistical analysis was performed by SPSS 19. The scoring for correct answer was 1 and for wrong answer was 0. The range was 0 - 12.

**Results**

The data from 647 Iranian pregnant during April to August 2020 were included in the analysis. Their mean age was 33.18 years old (SD: 8.78, range: 17 - 47 years). The mean gestational age of included women was 27.91 weeks (SD: 9.63g range 5 - 40 weeks). At the time of study 122 of pregnant women gave birth and by the end of the study 352 female neonates and (294) male was born. Regarding the symptoms of Covid-19 women reported sneeze as the most common symptom and then cough, and dyspnea diarrhea, and rhinorrhea in order of prevalence (Figure 1).



**Figure 1:** Symptoms of covid-19 reported by mothers.

The most common complication of pregnancy among mothers was high blood pressure, then preeclampsia, diabetes and bleeding (Figure 2) when we asked them about how their family helped them with the lockdown, 452 women answered very much, 174 moderate and only 20 women answered very low.

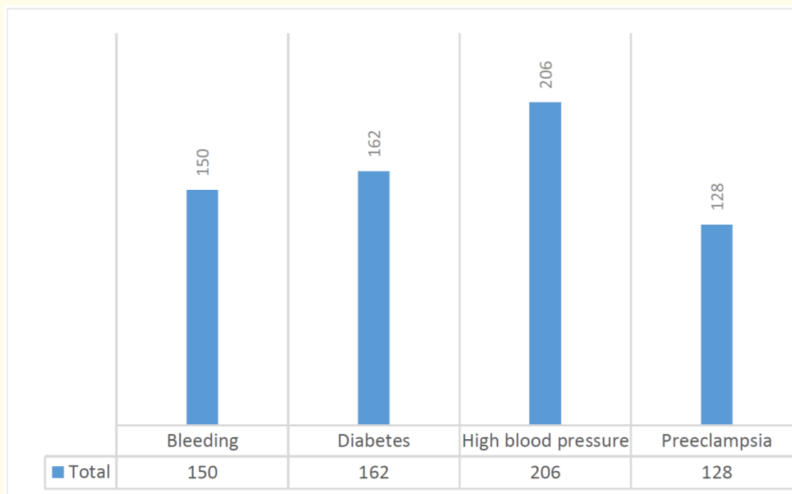


Figure 2: Pregnancy complication during pregnancy.

Among 647 women of study group, 62 of them had the diagnosis of Covid-19.

274 mothers completely had compliance with lockdown and 10 had little compliance (Figure 3).

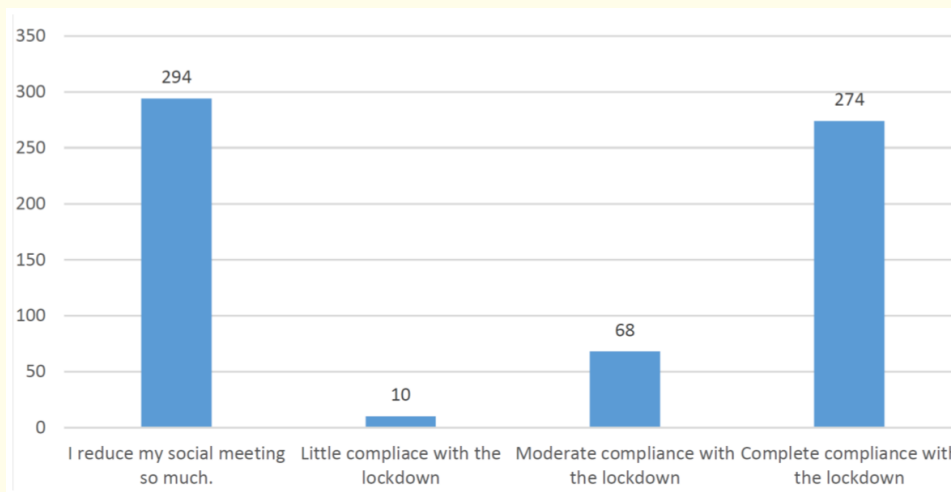


Figure 3: Compliance of mothers by lockdown rules.

As it was showed in table 1, 97.5% of women regarding the awareness believed that use of face mask and gloves are effective in preventing the disease. 99.7% of women followed Covid-19 restrictions. More than 63% (420) of mothers believed that the disease could be transmitted from mother to fetus. Besides, most women (86%) were afraid of getting infected and more than 95% of mothers were worried that their baby would get the disease (Table 1).

About the questions regarding compliance 392 (91,1%) women followed restrictions since the beginning of the pandemic and 602 (95.25%) women believed that non-compliance with restrictions plays important role in the spread of the disease, 630 women believed that person-to-person transmission of the disease is high. 564 women (87.2%) believed that they have an important role in the transmission of the virus but 12.8% of them were non-compliant with restrictions.

8.6% of women partially or not at all followed restrictions since the beginning of the pandemic. Of women in the study 77.22% believed that the Covid-19 led to preterm delivery and nearly 50% of the participants believed in its role in congenital anomalies.

Based on the asked questions, we measured the level of pregnant women knowledge regarding Covid-19. Since the number of relevant questions was 12, the range of variability of the score ranged from 0 to 12, and in this study, the average score of knowledge of pregnant women was 10.47 (SD: 1.02 9 range: 6 - 12). Results showed, the knowledge of 1.13% (6) were low 42.86% (228) were moderate and 96.2% (413) were high.

The correlation between the knowledge score of pregnant mothers regarding the Covid-10, their age and gestational age was evaluated, significant correlation was observed regarding the age under 30 years old. The correlation coefficient between the knowledge score of pregnant mothers and their age was 0.05 ( $p = 0.404$ ) but for gestational age no significant correlation was observed ( $P = 0.746$ ).

### Discussion

The results of the present study showed that mother's awareness about Covid-19 prevention and compliance to lockdown restrictions was perfect. Many of them were concerned about their getting infected. The taken measure about lockdown compliance and their role in preventing of disease spread was perfect and compliance to immune distance between two person and their role in preventing the pandemic was significant. Most of them believed that Covid-19 causes preterm labor but only 50% believed its role in congenital anomaly. The younger mother had better knowledge, because they are more familiar with social media as a reference for information regarding the pandemic [7,8].

Hashem Goudah, *et al.* reported data from prenatal clinic showed a good knowledge of pregnant women about symptoms of Covid-19 implying cough, fever and myalgia as the most common symptoms they know [9].

Likewise, the mentioned study the present study showed good knowledge of women about the disease, however the present study reported sneeze and cough as the most common known symptoms [10,11].

Perhaps because the present study was performed in the first days of Covid-19 while the symptoms were not completely known by ordinary people [12].

The vertical transmission of Covid-19 have not been approved yet. Some authors reported concerns of mothers about this route of transmission like the present study, maybe because in the first days, literature about longitudinal transmission were scares [13,14].

Alemu Degu, *et al.* [15] reported that most of women in Ethiopia had scanty knowledge and insufficient compliance to preventing measures about covid-19 and they recommended more educational strategies for increasing awareness of mothers and improving their

measures for prevention. They believed that mass media and all health care workers had an important role in the awareness of patients. They showed that younger age, education levels, planned pregnancy and rural citizenship were associated with adequate compliance and knowledge about covid-19 prevention [16,17].

However, in the present study most participants had good knowledge and compliance regarding the prevention of covid-19, because most participants were urban and their socioeconomic levels were finer compared to the mentioned study, also younger mothers had better knowledge like present study.

Study from Singapore [18] on 167 participants showed that Malay ethnic group had a higher frequency of compliance to lockdown, also health care workers as front line, sanitized with higher frequency, additionally patients who attended the high-risk clinic had more compliance to lockdown at home. In the present study ethnicity was the same among all participants, and both low and high risk patients visited in prenatal clinic.

Kamal, *et al.* [19] showed older participants, higher university educational level and healthcare workers had more knowledge about Covid-19.

This result is in contrast with the result of present study because younger age is associated with obtaining more information through the internet, leading to higher knowledge about the disease [20,21].

Having more knowledge about Covid-19 disease and, its symptoms and the ways of prevention helps limiting spread of the disease in the community and prevent the exposure and infection of fetus or child to covid-19 [22,23].

Compliance to lockdown rules when a woman is covid-19 positive, can restrict the spread of the disease and prevents the attendance of the affected mother to the antenatal clinic and exposure other pregnant women to Covid -19 positive patients [24,25].

### Conclusion

Awareness and knowledge of pregnant women towards Covid-19 and compliance to lockdown restrictions and relieving their concerns about outcome is achieved by more education especially the older ones for preventing the pandemic spread.

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### Conflict of Interest

There is no conflict of interest.

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