

Original Article

Frequency of COVID-19 Symptoms and their Effects on Fetal Movement, Heart Beat and Stress Level during Pregnancy

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Abstract

Background: Studies have showed that pregnant ladies are more vulnerable to COVID-19 as they are more susceptible to respiratory diseases. But little is known about coronavirus disease particularly about its effects on pregnant females and infants, and there is no definitive evidence-based guidance specific to these females regarding the assessment or treatment of this disease.

Objective: The objective is to evaluate the effects of COVID-19 on fetal movement, heart beat and stress level in pregnancy and also to calculate the frequency of COVID-19 symptoms.

Methods: This observational study was performed at Jinnah Hospital, from 7th October 2020 to 20th February 2021. It involved 61 covid-19 pregnant females selected by using non-probability convenient sampling. All assessments received ethical approval with informed consent taken from all participants and approval obtained from ethical committee of the hospital. Patients were excluded if they have gestational diabetes, hypertension, complicated pregnancy or history of other diseases. A pre-tested structured questionnaire was formulated for the assessment of effects of COVID-19 that contain questions related to acute respiratory syndrome in COVID-19 respondents during pregnancy. **Results:** The mean age of these participants was 29.51± 4.44 years and patients suffering COVID-19 frequently from fever (100%), cough 54 (88.4%), 53 (86.9%) shortness of breath, 45(73.8%) sore throat, 33(54.1%) headache, 40 (65.6%) muscle or body aches, 31 (50.8%) runny nose, 31(50.8%) fatigue or excessive sleepiness, 19 (31.1%) diarrhea, nausea or vomiting, 49(80.3%) loss of sense of taste and smell, 24 (39.3%) itchy red eyes. Almost 29 (47.5%) females had undergone caesarean section, 46(75.4%) females' health care providers cancelled some of their prenatal visits, 9 (14.8%) females' family members were not permitted to attend delivery or visit after delivery, 17 (27.9) females separated from baby after delivery and 22 (36.1%) changed planning from breastfeed to formula milk. Consequence of stress about birth and new born experience was mild to moderate in COVID-19 affected women (2.77±0.864). Stress about changes in prenatal care was moderate (2.90±0.83). **Conclusion:** The results show that COVID-19 did not had any effect on fetal movement and heart beat as well, but pregnant women had significant stress about their prenatal care.

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Introduction

A pandemic is a widespread disease caused by a factor (bacteria/virus) that can spread to an extensive series of areas instantaneously in various countries or continents all over the ecosphere.¹ The coronavirus, firstly reported in 2019, in China, has affected all countries of the world over time.² It was acknowledged as an infection by the World Health Organization (WHO) approximately a month after the first case occurred.³ Patients with coronavirus disease (COVID-19) are mostly affected with shortness of breath, fever, cough, and few individuals have experienced of loss of taste and smell, fatigue, and stress.⁴

Pregnant females are more susceptible to viral infections as pregnancy is a state of partial immune suppression.⁵ Limited knowledge is there about the effects of this pandemic on pregnancy and neonates and neonates, and there is no specific evidence-based guidance regarding the assessment or treatment of this pandemic.⁶ Based on current evidence, the Disease Control and Prevention center stated that pregnant females seem to have the same chance of having COVID-19 like non-pregnant individuals.⁷

Information about the corona virus is still unlimited. Medical experts unanimously recommend living at a reasonable distance in residential areas and also says that pregnant women should stay at home to prevent the spread of coronavirus.⁸ Symptoms of COVID-19 include high fever, body aches, cough, sore throat and runny nose.⁹ Although, literature has showed that females may have high risk of COVID-19 during pregnancy, they may be more susceptible to pulmonary infections. The literature suggests that general population can be affected with this particular pathogen.¹⁰

Mostly the pregnant women are afraid due to virus and depressed about fetal health and development and its survival rate.¹¹ In a brief duration, obstetricians pursued to regulate the

impact this disease would have on pregnant females,¹² if parturient were at a higher risk of mortality and its effect on the fetus.¹³ The phase of pregnancy of the participants was built on the last menstrual period or first-trimester crown-rump length.¹⁴ The questionnaire contained 41 questions about sociodemographic characteristics, perception of risk related to the COVID-19 pandemic, its impact, vaccination history, and getting off and boldness toward future vaccination.¹⁵

It is still not clear whether severe acute respiratory syndrome (SARS) CoV-2 can be transmitted from a pregnant woman to her fetus, a process called vertical transmission, and the mechanism behind this.¹⁶ Not only is this a noteworthy public health issue, but it also represents an obstetric management issue in decisive the care acknowledged by pregnant female.¹⁷ As a result of this situation, academicians try to gather as much information about SARS CoV-2 as possible.¹⁸ The lack of conclusive information regarding the prevention and management of these infections prevents the development of a single plan for the treatment of the infected population,¹⁹ whether pregnant or not.²⁰ Sufficient literature is not available to provide evidence about the effects of COVID-19 on pregnant females. This study was designed to determine these effects on fetal development heart beat and level of stress in these females during pregnancy.

Methods

This observational cross-sectional study was conducted at Jinnah Hospital from 7th October 2020 to 20th February 2021. Non-probability convenient sampling was used. All assessments received ethical approval with informed consent taken from all participants and approval obtained from ethical committee of hospital. About 61 COVID-19 affected pregnant women were included in study, aged 25-42 years.

Patients were excluded if they have gestational

diabetes, hypertension, complicated pregnancy or history of other diseases. A pre-tested structured questionnaire was formulated for the assessment of effects of COVID-19 that contain questions related to SARS in COV-19 respondents during pregnancy. Data was analyzed by SPSS version 23.0. Frequency and percentage was estimated for qualitative data. Mean and standard deviation was calculated for quantitative variables.

Results

In this cross-sectional study 61 individuals were selected with their mean age 29.51 ± 4.44 years shown in Figure-I. There was no change found in fetal movement, development and heart beat in fetus. All patients were suffering from COVID-19 had these symptoms; fever 61(100%), cough 54 (88.4%), 53 (86.9%) shortness of breath, 45(73.8%) sore throat, 33(54.1%) headache, 40(65.6%) muscle or body aches, 31(50.8%) runny nose, 31(50.8%) fatigue or excessive sleepiness, 19(31.1%) diarrhea, nausea or vomiting, 49(80.3%) loss of sense of taste and smell, 24(39.3%) itchy red eyes (Table-I).

Almost 29 (47.5%) females had undergone caesarean section, 46 (75.4%) females' health care providers cancelled some of their prenatal visits, 9(14.8%) females' family members were not permitted to attend delivery or visit after delivery, 17(27.9) were separated from baby after delivery and 22 (36.1%) changed planning from breastfeed to formula milk. Consequence of stress about birth and baby experience was mild to moderate in COVID-19 affected women (2.77 ± 0.864) as show in figure-II. Stress about changes in prenatal care was moderate (2.90 ± 0.83). Prenatal care provider changes were improved (3.80 ± 0.98). The result shows that's there is no significant effect found on fetal movement and heart beat in pregnant ladies.

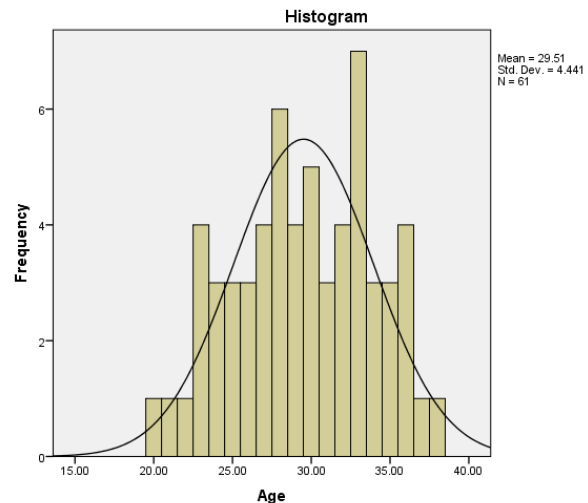


Figure-1: The mean age of the participants was 29.51 ± 4.44 years the minimum age was 20 years and maximum were 38 years.

Table-1: Frequency and percentage of symptoms of COVID-19

Symptoms	Frequency (percent)
Fever	61(100%)
Cough	54(88.4%)
Shortness of breath	53(86.9%)
Sore throat	45(73.8%)
Headache	33(54.1%)
Muscle/body aches	40(65.6%)
Runny nose	31(50.8%)
Fatigue/excessive sleepiness	31(50.8%)
Diarrhea/nausea/vomiting	19(31.1%)
Loss of sense of taste and smell	49(80.3%)
Itchy red eyes	24(39.3%)

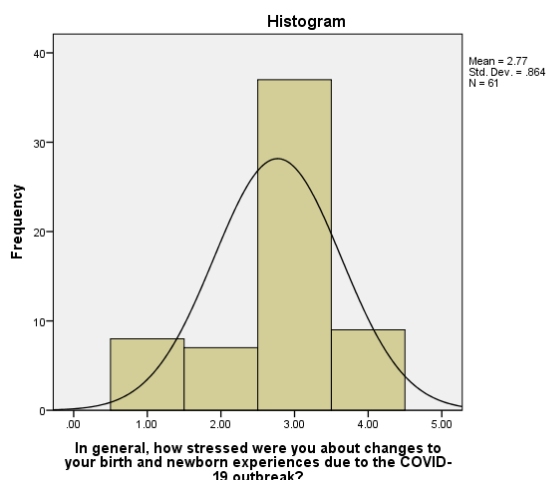


Figure-II: Level of stress related to changes of birth and new born is mild to moderate (2.77 ± 0.864) among pregnant women affected with COVID-19

Discussion

The current study was designed to find out the effects of fetal development by using structured questionnaire and found that no significant effect was seen on fetal movement and fetal heart beat in COVID-19 women during pregnancy. While the current study evaluated the effects of covid-19 on pregnant women and checked the stress level for prenatal care, family support and stress about changes of birth and new born experience. Its results point to an urgent need to provide psychosocial support to this population during the pandemic. Otherwise, adverse events may occur during pregnancy and thus affect both mother and fetus.

There are numerous non-entities for pregnant females during this pandemic.²¹ Pregnancies complicated with coronavirus infections like Middle Eastern Respiratory Syndrome and SARS has led to pregnant females being considered more vulnerable to severe infections.²² Its symptoms include chills, cough, difficulty breathing, myalgia, nausea, sore throat, vomiting, and diarrhea, but no pathognomonic sign accompanies the illness.²³ The current study calculated the frequency of

these symptoms in pregnant females. Physiological changes have a potential impact on the cardiovascular, respiratory function and immune system during pregnancy.²⁴ These may have positive or negative effects on disease progression. The impact of SARS CoV-2 in pregnancy remains to be determined, and a global effort is required to estimate the effects on implantation, fetal development, labor, and neonatal health.²⁵ Apart from direct impact of this pandemic, a surplus of indirect consequences can adversely affect mother health.²⁶ The present study showed no significant effects of this disease on fetus, however it found that disease affects pregnant females in the same way.

This study evaluated the effects of fetal development on COVID-19 pregnant women and found that that the unborn child did not suffer from any abnormal fetal movement and heart beat regulation. The limitation of the study was that it involved small sample size, lack of cooperation and limited time duration. Studies should be done on a large sample to check the effects of COVID-19.

Conclusion

The study concluded that COVID-19 did not have any effects on fetal movement and heart beat but pregnant women were moderately stressed about their prenatal care and applied precautions regarding the care of infants.

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