**Impact of COVID-19 on Antenatal Care in Jeddah, Saudi Arabia**


## Abstract

**Background:** The severe acute respiratory syndrome coronavirus 2, which is what causes the Covid-19 pandemic's high morbidity and fatality rates, is ubiquitous in the population. Additionally, pregnancy increases the risk of unfavourable obstetric and neonatal outcomes from many respiratory virus infections due to the systemic effects of the physiological and immunologic changes that are common throughout pregnancy. So, the objective of our research was to evaluate how a coronavirus-19 pandemic will affect antenatal care in Jeddah, Saudi Arabia, in 2022.

**Methods:** This is a cross-sectional study was conducted between 2021-2022 in Jeddah, Saudi Arabia among 202 pregnant women during the Coronavirus pandemic. Data was collected by an online survey, the data were obtained, and different statistical tests were used for analysis by using SPSS, version 23.

Results: The results revealed that most patients had filmed sonar or television more than twice (78.2%). and the extent of patients visiting the obstetrician and gynaecologist to follow up the pregnancy for more than 8 times of 47%. Moreover, the bulk of participants 89.6% did not have complications during pregnancy. Majority of the participants 76.2% their mental state was not better than usual and only 4% had suicide thoughts. (45.5%) decreased their exercise activity. There are significant relationships between mother concerns during the pandemic and mental health. Also, women with high educations were significantly correlated with the concerns of Covid-19 and more commitment of the quarantine instructions, while who didn't work were significant related to have concerns of Covid-19 than who work and less commitment to quarantine instructions.

**Conclusion:** Although the good antenatal care during the covid19 pandemic in Jeddah, Saudi Arabia, the majority of pregnant women had impact on their mental health and had concerns of Covid-19. Thus, the research suggests providing pandemic related information to pregnant women and enhancing the trust between the caregiver and the patients.



Keywords:

Covid-19, Antenatal care, respiratory changes in pregnancy, SARS-CoV–2

**Introduction:**

Many changes happen during pregnancy, either physical or physiological. One of these changes, and it is an important part of the physiologically changes, is pulmonary changes. A mechanical factor and biochemical factors can affect respiratory changes in pregnancy. For the mechanical, the enlarged uterus seems to affect the diaphragm level and increasing the subcostal angle. In contrast to earlier findings, however no evidence of diagrammatic motion impairment [1].

Progesterone, the biological factor. Pregnancy-related alterations in the ventilator seem to be influenced by progesterone. Evidence suggests that a progesterone-induced increase in the brain's respiratory center's sensitivity to carbon dioxide causes an increase in minute ventilation. Both the production of carbon dioxide and the consumption of oxygen are increasing simultaneously. The increase in minute ventilation overcomes the increase in carbon dioxide generation, and the subsequent fall in end-tidal carbon dioxide tension reflects a decrease in systemic arterial blood carbon dioxide tension. The increased respiratory exchange ratio in late pregnancy compared to postpartum also reflects this pregnancy-related hyperventilation [2].

The recent Covid-I9 pandemic's high rates of morbidity and mortality brought on by the coronavirus that causes severe acute respiratory syndrome [2] led to the pandemic's emergence as a significant public health issue. The SARS-CoV-2 is a member of the same family as the SARS and MERS (severe acute respiratory disease and middle east respiratory syndrome) viruses, which are coronaviruses [3].

The risk of adverse obstetric and neonatal outcomes from a lot of respiratory viral infection is elevated by pregnancy as a result of the systemic effect of the immunologic and physiologic changes which is normal changes in pregnancy, including decreased lung capacity, increased Oxygen consumption (respiratory system), increased stroke volume and heart rate (cardiovascular system), in addition to the immunological adaptation to the existence of antigenically distinctive fetus which makes the mother in higher risk to develop severe respiratory disease. Multiple studies of influenza approved the increased risk of pregnant women mortality and morbidity in comparison to non- pregnant women. This comparison is also applied to two important pathogenic coronavirus infections, one is severe acute respiratory syndrome (SARS) and the other is Middle East respiratory syndrome (MERS). SARS-CoV is the causative agent of the SARS epidemic at the end of 2002 and continued to 9 months affect 8000 people and result in 774 fatalities.

There were 12 cases of pregnant women who were impacted by the SARS outbreak; 3 of them passed away during pregnancy, 4 of 7 women miscarried in the first trimester, and 2 of 5 pregnancies resulted in neonates with intrauterine development restriction in the second or third trimester. In addition, 4 out of 5 ladies had preterm births because of their own problems (3 induced deliveries and 1 spontaneous). The prognosis of non-pregnant women was better than that of pregnant women since there

was no transmission from mother to fetus. The MERS-CoV zoonotic agent, which spreads through intimate contact and causes a severe respiratory disease, is the cause of MERS. 11 pregnant women have reported having this infection, and 10 of them have 10 different negative clinical outcomes. The adverse clinical outcomes include maternal deaths, premature delivery, neonatal intensive care treatment, and perinatal death, vertical transmission not confirmed with this pathogenic agent [4].

A study about the adverse effects of SARS-CoV-2 mentioned that they are uncommon in the 1st trimester, and they may lead to early pregnancy loss, while in the 3rd trimester there is an increased risk of preterm deliveries otherwise the risk of adverse effects is similar to non-pregnant women [3].

The growth and development of the fetus inside the uterus heavily influences the health of future generations. In addition to affecting the health of the newborn, the success of fetal life has a significant bearing on adult health and disease risk. Therefore, it is crucial for people, society, and future generations to have good perinatal health. [5].

Prematurity, fetal growth limitation, congenital abnormalities, and hypoxia are the main causes of birth complications. Many of these can be avoided and anticipated with access to antenatal care, especially in the early stages of pregnancy. Modifiable lifestyle hazards like smoking, drinking, using drugs, being obese, malnourished, not getting enough folic acid, and occupational exposures are particularly important in this regard. [6].

To include non-medical components and the whole community, the existing antenatal care approach, which largely targets medical risks, needs to be changed. The social evils and domestic violence that pregnant women encounter in their homes and communities need to be better understood by healthcare professionals. Services must be multi-professional in order to address both social and medical issues. In addition to complex obstetrical challenges, clinics should have the resources necessary to address chronic illnesses like obesity, hypertension, diabetes, and infections as well as social, mental, and addiction problems. Women who would not otherwise use the services given must receive care particularly [7].

The COVID-19 pandemic makes a huge impact on health care generally. Moreover, there it affects most of the health care but, here we will highlight maternity and fetal care especially antenatal care. In some regions, the consultation has been switched to online consultation to reduce gatherings, especially for pregnant women and that showed its efficacy. However, some challenges arose with high-risk pregnant women with or at risk of vaginal bleeding, abdominal pain, or other serious discomforts as they cannot dispense with coming to the hospital. And there are specific tests like the Nuchal Translucency test, Down syndrome screening, and the Oral Glucose Tolerance test that have to be completed in the hospital [8].

Also, there is a search made in Europe showed some limitations of an online consultation as there are fewer opportunities to hear the fetal heartbeat which make some anxiety particularly for those who have a complicated pregnancy, it is possible to miss cases of pre-eclampsia and other antenatal complications and for women with language difficulties or who lack IT resources and abilities or other women with learning disabilities, it can create problems with access [9].

December 2019 was the first report of the novel coronavirus (COVID-19) in the Hubei Province of Wuhan [10], It has spread worldwide and caused a pandemic which has led to a high rate of mortality on June 28, 2020. With more than 4 million diagnosed cases and almost 280,000 deaths over the world, in the context of the pandemic, it considered a challenge to the medical community [11].

The additional dilemma faced the pregnancy, regarding the physiological and psychological changes among the pregnant women, such as decreased functional residual volume, elevated of the diaphragm, and altered immunity, lead to placing them at high risk of complications and increased susceptibility to infectious diseases [12,13].

That makes them more requirement for professional antenatal care, on other hand, there is a risk for cross-infection if they visit a hospital to follow up [14].

However, there is limited literature confirming these findings and the influence of the disease in the obstetric population toward antenatal care.

To our knowledge, it significant to ensure the quality of the service and establish confidence and safety between the pregnant and the obstetric care providers. Here, we aimed to assess the impact of a coronavirus-19 pandemic on antenatal care in Saudi Arabia in 2020.

**Methodology:**

This study is a quantitative, descriptive, and cross-sectional design, and it is done among hospitals in Jeddah, Saudi Arabia especially in King Abdul-Aziz University Hospital (KAUH) from 22 Jan 2021 to 22 Jan 2022.

The study contained women living in Jeddah and pregnant during the Coronavirus pandemic and the exception to these pregnant women with mental illness and severely ill patients and who didn't give consent was excluded as well.

The calculated sample size for this study is 385 participants and it calculated by Rao soft sample size calculator with a 95% confidence level and 5% margin of error.

The data was collected through an online survey and the responses of the participants were reported anonymously in an electronic Google Forms questionnaire filled out by the conductors of this report.

The questionnaire which used in this study is taken from another research Pregnancy During COVID-19 Outbreak: The Effects of Lockdown on Antenatal Healthcare and Wellbeing in a Middle-Income Country and have five sections. The first section contains demographic data, which includes the hospital's name, age, educational level, employment history prior to quarantine, and job title.

The second section is a background of the obstetrics and contain gestational month or get birth, how she got birth in the previous pregnancy by caesarean section or vaginal and if they used forceps or vacuum if she suffered from health problems like diabetes mellitus, hypertension, heart disease, and respiratory distress and if she suffered from pregnancy complications for example high pressure during pregnancy, gestational diabetes, bleeding, placenta previa, preterm birth, multiple gestations.

The third section assesses the quarantine conditions if she was committed to quarantine instructions, how the quarantine affected her health care during pregnancy, how many times she visited the hospital to follow up the pregnancy, how many times the ultrasound is done, if the quarantine affected her nutrition, if affected her way to get medicine and supplements during pregnancy and if it obstructed her sports activity. The last two questions in this section were about if the income and the conditions of her family were impacted.

The fourth section is about the impact of the quarantine on the pregnant mental status.

The fifth and last section evaluated the pregnant concern.

SPSS 21 was used for data entry and data analysis and regrouping of variables done according to the study aim. The new variables were created to denote participants' responses to questions about medical conditions; [1] for Yes, [zero] for No.

For the frequencies and percentages, they were generated for categorical variables, while mean and standard deviation were calculated for quantitative variables.

Any test with a P-value $< 0.05$ was considered significant.

Ethical approval was obtained from the KAUH Institutional Review Board (IRB) and it was ensured that the research goals were explained and that the participants' informed consent was obtained. Anonymity and confidentiality were adopted from the questionnaire.

**Data Analysis:**

The Software Statistical Package for the Social Science (SPSS) version 23 was used to code and process the data once it was obtained via the Google Forms service. The variables in the study were described using descriptive statistics, which included frequencies and percentages. To examine the association between the variables, the chi square was used. Statistics were judged to be significant for p values at 0.05.

**Demographic information:**

A total of 202 mother participated in the study around 70% aged (25-34), and 67.3% held bachelor's degree, and 18.85% were post graded. 42.6% worked before the quarantine, and 35.6% currently have worked.

**Table 1 demographic information**

| Factor | | N | % |
|---|---|---|---|
| Age | 20-24 | 34 | 16.8% |
| | 25-29 | 58 | 28.7% |
| | 30-34 | 75 | 37.1% |
| | 35-39 | 31 | 15.3% |
| | 40 or more | 4 | 2.0% |
| Education level | Diploma | 7 | 3.5% |
| | High school | 21 | 10.4% |
| | Bachelor | 136 | 67.3% |
| | Postgraduate | 38 | 18.8% |
| Working before the quarantine statue | Yes | 86 | 42.6% |
| | No | 116 | 57.4% |
| Work statue | Yes | 72 | 35.6% |
| | No | 130 | 64.4% |

**The background of Obstetrics**

As shown in Table (2) the background of the Obstetrics was described. 68.8% got a birth, 13.4% were in7th-9th of pregnancy, 10.4% were in 4th-6th, while only 7.4% in the 1st-3rd. 76.8% reported that they gave the birth by vaginal, while 23.2% by Caesarean section, only 11.4% gave it with the help of a forceps or vacuum.

For giving the birth during previous pregnancies, 41.1% reported that they give a birth by vaginal, followed by Caesarean section (17.8%) and then only 0.5% by help of a forceps or vacuum, 40.6% was it the first pregnancy.

In general, the majority of the mother (89.6%) did not have health problem, and 66.3% reported no complications, only 11.4% had Gestational diabetes, and 8.45 had premature birth or early dilatation of the cervix.

**Table 2 The background of the Obstetrics**

| Factor | | | N | % |
|---|---|---|---|---|
| **In which month of pregnancy are you currently?** | | 1st-3rd | 15 | 7.4% |
| | | 4th-6th | 21 | 10.4% |
| | | 7th-9th | 27 | 13.4% |
| | | Got birth | 139 | 68.8% |
| **How did you give birth during previous pregnancies ?** | **Vaginal** | Yes | 86 | 76.8% |
| | | No | 26 | 23.2% |
| | **Cesarean section** | Yes | 62 | 62.0% |
| | | No | 38 | 38.0% |
| | **Was it with the help of a forceps or vacuum** | Yes | 8 | 11.4% |
| | | No | 62 | 88.6% |
| **How did you give birth during previous pregnancies?** | | Was it with the help of a forceps or vacuum | 1 | 0.5% |
| | | Vaginal | 83 | 41.1% |
| | | Cesarean section | 36 | 17.8% |
| | | First pregnancy | 82 | 40.6% |
| **Do you suffer from any of the following health problems?** | | Heart disease | 1 | 0.5% |
| | | Respiratory diseases | 6 | 3.0% |
| | | Diabetes mellitus | 3 | 1.5% |
| | | Hypertension | 3 | 1.5% |
| | | No health problems | 181 | 89.6% |
| | | Other | 8 | 4.0% |
| **Do you suffer from any of the following pregnancy complications?** | | High pressure during pregnancy | 5 | 2.5% |
| | | Gestational diabetes | 23 | 11.4% |
| | | Bleeding | 7 | 3.5% |
| | | Placenta previa | 3 | 1.5% |
| | | Premature birth or early dilatation of the cervix | 17 | 8.4% |
| | | Multiple gestations | 11 | 5.4% |
| | | There are no complications | 134 | 66.3% |
| | | Other | 2 | 1.0% |

**Quarantine conditions:**

As shown in Table (3) the Quarantine conditions were presented. 73.8% reported fully committed. 38.6% argued that the quarantine conditions due to the Coronavirus affected did not change health care during pregnancy, while 12.9% contacted their

doctor through the available means of communication, but without appointments. 11.4% did not receive any health care; only 4% used the emergency services and civil defence to go to the appointments.

47% visited the obstetrician and gynaecologist to follow up the pregnancy during pregnancy for more than 8 times, and 78.2% had filmed sonar or television more than twice.

56.95% reported that quarantine conditions did not affect their nutrition, while 27.2% reported improvement of their nutrition and became more careful with my diet; only 15.85 get worsened as reduced healthy food choices

89.1% had no problem of access to necessary medicines and nutritional supplements during pregnancy

45.5% did not do any exercise during pregnancy, and 39.6% had decreased my sports activity since the start of the quarantine, only 10.45% still doing sports as I was before the quarantine, and 4.5% reported that their sports activity has increased since the start of the quarantine

53.5% reported not change in the income, while 37.6% had their income decreased; only 8.9% reported improvement of the income.

55% reported that quarantine conditions did not change family conditions, while 30.75% said that family conditions and relationships with my family improved, only 14.4% reported increasing of problem with the family and their self.



**Table 3 quarantine conditions**

| Factor | | N | % |
|---|---|---|---|
| **Do you consider yourself abiding by the curfew instructions?** | I'm not obligated | 2 | 1.0% |
| | Fully committed | 149 | 73.8% |
| | Committed to a certain extent | 51 | 25.2% |
| **How have the quarantine conditions due to the Coronavirus affected your health care during pregnancy?** | I use the emergency services and civil defense to go to the appointments | 8 | 4.0% |
| | I contact my doctor through the available means of communication, but without appointments | 26 | 12.9% |
| | No changes | 78 | 38.6% |
| | I am not receiving any health care at the moment | 23 | 11.4% |
| | I have a permit that allows me to move around and go to see a doctor | 67 | 33.2% |

| | | | |
|---|---|---|---|
| **How many times have you visited the obstetrician and gynecologist to follow up the pregnancy during pregnancy?** | less than 3 times | 21 | 10.4% |
| | 3 to 5 times | 26 | 12.9% |
| | 5 to 8 times | 60 | 29.7% |
| | more than 8 times | 95 | 47.0% |
| **How many times was the sonar or television filming done?** | Not done | 5 | 2.5% |
| | once | 12 | 5.9% |
| | twice | 27 | 13.4% |
| | more than twice | 158 | 78.2% |
| **How have quarantine conditions affected your nutrition?** | My nutrition improved and I became more careful with my diet | 55 | 27.2% |
| | My nutrition worsened as reduced healthy food choices | 32 | 15.8% |
| | Not change | 115 | 56.9% |
| **How did the quarantine conditions affect your access to necessary medicines and nutritional supplements during pregnancy?** | No problem of getting it | 180 | 89.1% |
| | It's hard to get but I get it in the end | 22 | 10.9% |
| **How did the quarantine conditions affect your sports activity?** | I do not do any exercise during pregnancy | 92 | 45.5% |
| | My sports activity has increased since the start of the quarantine | 9 | 4.5% |
| | I have decreased my sports activity since the start of the quarantine | 80 | 39.6% |
| | I am still doing sports as I was before the quarantine | 21 | 10.4% |
| **How did quarantine conditions affect your family's income?** | The income improvement | 18 | 8.9% |
| | The income decrease | 76 | 37.6% |
| | No change | 108 | 53.5% |
| **How did the quarantine conditions affect your family conditions?** | My family conditions and my relationships with my family improved | 62 | 30.7% |
| | The problems increased between me and my family | 29 | 14.4% |
| | No change | 111 | 55.0% |

**The impact of quarantine conditions one mental state:**

As shown in Table (4) and Figure (1) 76.2% their mental state was not better than usual, 64.40% were too bored, 42.60% felt as excessively angry and 40.60% felt of sadness and depression, only 5.90% thinking of hurting their self and 4% though of suicide.

Table 4 the impact of quarantine conditions one mental state

| Factor | | N | % |
|---|---|---|---|
| My mood is as usual | Yes | 100 | 49.5% |
| | No | 102 | 50.5% |
| My mental state is better than usual | Yes | 48 | 23.8% |
| | No | 154 | 76.2% |
| I'm too bored | Yes | 130 | 64.4% |
| | No | 72 | 35.6% |
| I feel sad and depressed | Yes | 82 | 40.6% |
| | No | 120 | 59.4% |
| I feel excessively angry | Yes | 86 | 42.6% |
| | No | 116 | 57.4% |
| I have thoughts of hurting myself | Yes | 12 | 5.9% |
| | No | 190 | 94.1% |
| I have thoughts of suicide | Yes | 8 | 4.0% |
| | No | 194 | 96.0% |

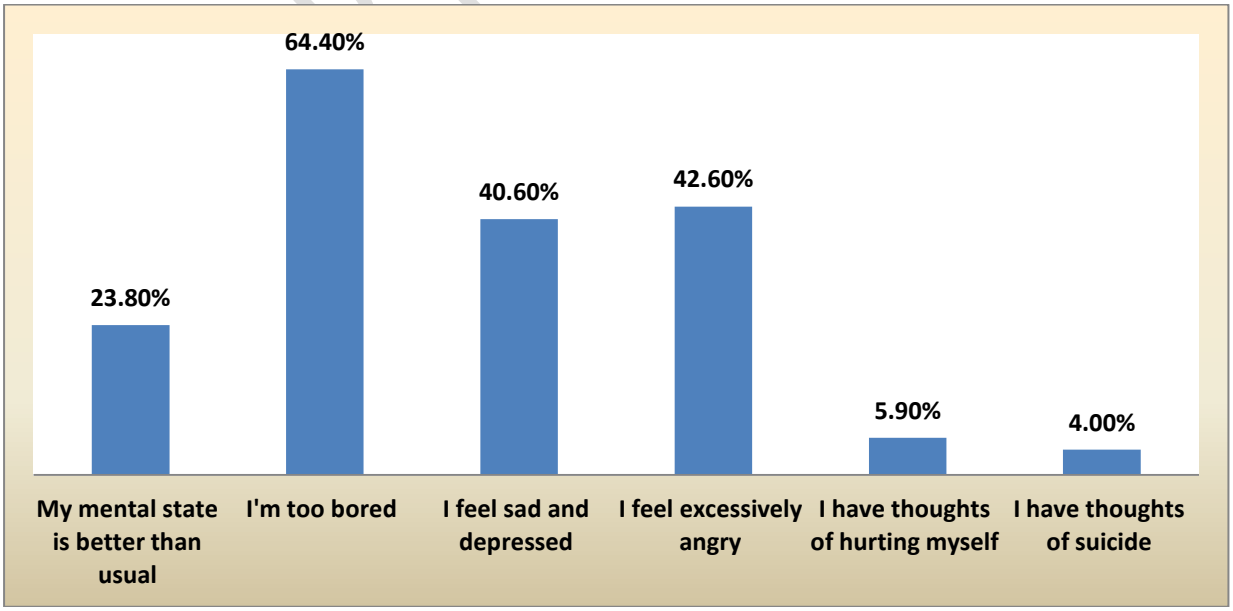


Figure 1 the impact of quarantine conditions one mental state

**Mother concern:**

As shown in Table (5) and Figure (2) 81.2% were apprehensive about catching the corona virus when pregnant, then 76.7% were worried about contracting the Corona virus while visiting the doctor or during childbirth, however, only 31.2% thinking of changing the place where intend to give birth because of the concern about infection.

Table 5 Mother concern

| Factor | | N | % |
|---|---|---|---|
| Were you worried about contracting the Corona virus during pregnancy? | Yes | 164 | 81.2% |
| | No | 38 | 18.8% |
| Were you worried about contracting the Corona virus while visiting the doctor or during childbirth? | Yes | 155 | 76.7% |
| | No | 47 | 23.3% |
| Have you been thinking of changing the place where you intend to give birth because of your concern about infection? | Yes | 63 | 31.2% |
| | No | 139 | 68.8% |

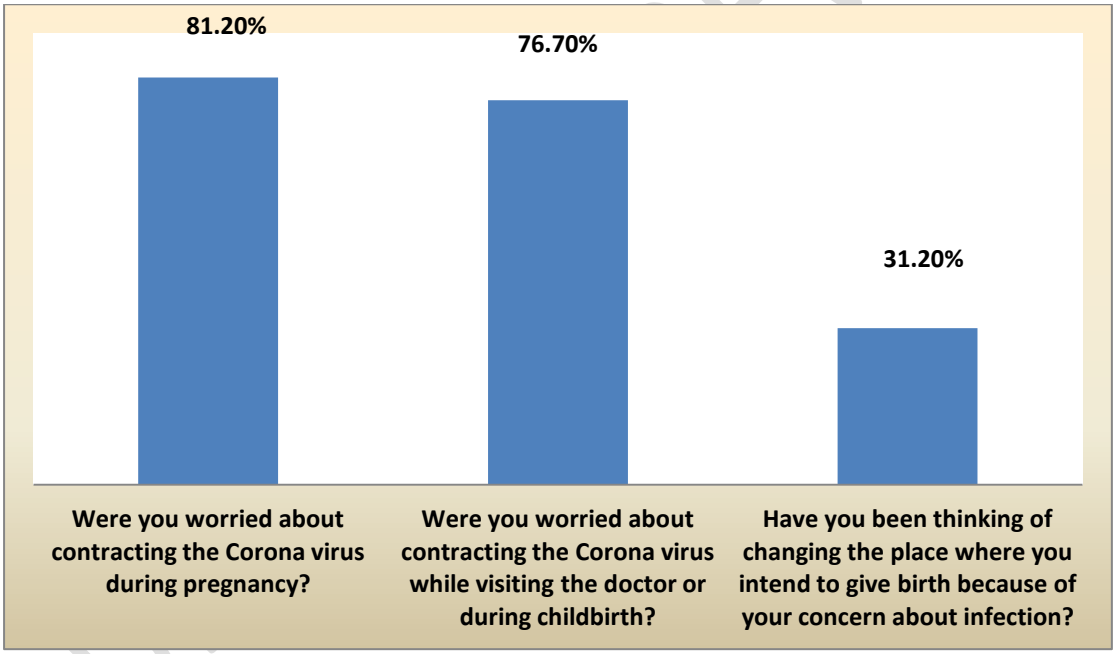


Figure 2 Mother concern

**The relationships between mother concerns and mental statue:**

As shown in Table (6) there was a relationship between thinking of hurting the self and worrying about contracting during pregnancy ($X2=4.34$, $p<0.05=0.034$), mother did not think of hunting their self, even the are worry.

There was a relationship between the mood and thinking of changing the place where you intend to give birth (X2=3.51, p<0.05=0.042), the results indicated that mother with a usual mood did not think of changing the place where you intend to give birth.

**Table 6 The relationships between mother concerns and mental statue**

| | worried about contracting during pregnancy | worried about contracting the Corona virus while visiting the doctor or during childbirth | thinking of changing the place where you intend to give birth |
|---|---|---|---|
| **My mood is as usual** | ns | ns | 3.51*/0.042 |
| **My mental state is better than usual** | ns | ns | ns |
| **I'm too bored** | ns | ns | ns |
| **I feel sad and depressed** | ns | ns | ns |
| **I feel excessively angry** | ns | ns | ns |
| **I have thoughts of hurting myself** | 4.34*/0.037 | ns | ns |
| **I have thoughts of suicide** | ns | ns | ns |
| ***p≤0.05, **p≤0.01, ***p≤0.001, ns=not significant** | | | |

## The relationships between mother concerns and demographic factors:

As shown in Table (7) there was a relationship between education level and worrying about contracting during pregnancy with advantage for bachelor, they were the highest in worry, followed by postgraduate then diploma (X2=8.11, p<0.05=0.017).

There was a relationship between work status and worrying about contracting during pregnancy with advantage for those who did not work, they were higher in worry than those who work (X2=4.21, p<0.05=0.04).

**Table 7 The relationships between mother concerns and demographic factors**

| | worried about contracting during pregnancy | worried about contracting the Corona virus while visiting the doctor or during childbirth | thinking of changing the place where you intend to give birth |
|---|---|---|---|
| **Age** | ns | ns | ns |
| **Education level** | 8.11*/0.017 | ns | ns |
| **Working before the quarantine state** | ns | ns | ns |
| **Work statue** | 4.21*/0.04 | ns | ns |
| ***p≤0.05, **p≤0.01, ***p≤0.001, ns=not significant** | | | |

**Table 8 the relationship between the effects of quarantine on pregnant women life and demographic data**

| Factor | | Age | Education | Working before the quarantine state | Work statue | Hospital |
|---|---|---|---|---|---|---|
| **Do you consider yourself abiding by the curfew instructions?** | I'm not obligated | ns | 15.59**/0.004 | ns | 9.14*/0.01 | ns |
| | Fully committed | | | | | |
| | Committed to a certain extent | | | | | |
| **How have the quarantine conditions due to the Coronavirus affected your health care during pregnancy?** | I use the emergency services and civil defense to go to the appointments | 27.74*/0.03 | ns | ns | ns | ns |
| | I contact my doctor through the available means of communication, but without appointments | | | | | |
| | No changes | | | | | |
| | I am not receiving any health care at the moment | | | | | |
| | I have a permit that allows me to move around and go to see a doctor | | | | | |
| **How many times have you visited the obstetrician and gynecologist to follow up the pregnancy during pregnancy?** | less than 3 times | ns | ns | ns | ns | ns |
| | 3 to 5 times | | | | | |
| | 5 to 8 times | | | | | |
| | more than 8 times | | | | | |
| **How many times was the sonar or television filming done?** | Not done | ns | ns | ns | 10.05*/0.02 | ns |
| | Once | | | | | |
| | Twice | | | | | |
| | more than twice | | | | | |
| **How have quarantine conditions affected your nutrition?** | My nutrition improved and I became more careful with my diet | ns | ns | ns | ns | 6.90*/0.03 |
| | My nutrition worsened as reduced healthy food choices | | | | | |
| | Not change | | | | | |
| **How did the quarantine conditions affect your access to** | No problem of getting it | ns | ns | ns | ns | ns |
| | It's hard to get but I get it in the end | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **necessary medicines and nutritional supplements during pregnancy?** | | | | | | |
| **How did the quarantine conditions affect your sports activity?** | I do not do any exercise during pregnancy<br>My sports activity has increased since the start of the quarantine<br>I have decreased my sports activity since the start of the quarantine<br>I am still doing sports as I was before the quarantine | ns | 14.21*/0.03 | 8.34*/0.04 | ns | ns |
| **How did quarantine conditions affect your family's income?** | The income improvement<br>The income decrease<br>No change | ns | ns | 9.45**/0.009 | 12.15**/0.002 | ns |
| **How did the quarantine conditions affect your family conditions?** | My family conditions and my relationships with my family improved<br>The problems increased between me and my family<br>No change | ns | ns | ns | ns | ns |
| **** p≤0.05,**p≤0.01, ***p≤0.001, ns=not significant*** | | | | | | |

The results indicated no changes affected health care during pregnancy with advantage for middle age (30-39) (X2=27.73, p<0.05=0.03). Bachelor holders had been effected by sports more than other (X2=14.21, p<0.05=0.03), and the results indicated a positive relationship between education and fully committed (X2=15.59, p<0.01=0.004), so the higher educated the more commitment of the curfew instructions. Also, the employees reported a commitment more than un employees (X2=15.59, p<0.01=0.004).

Unemployed had sonar or television filming done more than employees (X2=10.02, p<0.05=0.02). The results indicated that unemployed people reported a decrease of income more than employees (p<0.01).

**Discussion:**

This study shows that pregnant women in Jeddah, Saudi Arabia who were subjected to a year-long quarantine to stem the spread of COVID-19 had a dramatic decline in the number of women receiving any kind of antenatal care, regardless of their age, education level, work status, place of residence, or stage of pregnancy.

Any prejudice in antenatal care delivery and insurance coverage could lead to pregnancy-related health concerns. Riley et al. 2020 found that during the COVID-19 outbreak, even a 10% reduction in the availability of prenatal and new-born health services in low- and middle-income countries could result in catastrophic increases in the number of maternal and neonatal deaths, as well as serious obstetric complications for women and insufficient care for new-borns [16].

When previous infectious outbreaks, like the Ebola outbreak in Sierra Leone, are taken into account, antenatal care coverage decreased, which led to an increase in maternal and neonatal mortality as well as stillbirth rates, but not because of infection but rather pregnancy complications made worse by a lack of adequate prenatal care [17]. During the COVID-19 pandemic, Nepal observed a significant drop in the number of hospital deliveries while seeing an increase in stillbirths and infant death. [18].

The fact that Covid-19 quarantine did not exempt pregnant women with pre-existing medical conditions that could endanger their or their unborn children's health or those who experienced pregnancy complications that put them at risk of experiencing pregnancy complications is more worrying than the noticeable reduction in antenatal care availability.

Despite the fact that most of these women require increased surveillance and more frequent monitoring, most of the pregnant mothers (89.6%) did not have health problem, and a lot of them 66.3% had no complications, only 11.4% had Gestational diabetes, and 8.45 had premature birth or early dilatation of the cervix (Table 2). According to Muhaidat et al., 2020, only a small fraction (0% to 50%) of the pregnant women with medical problems received antenatal care [15].

In this study, we determined the extent of patients visited the obstetrician and gynaecologist to follow up the pregnancy for more than 8 times of 47% And 78.2% had filmed sonar or television more than twice. Moreover, 56.95% reported that quarantine conditions did not affect their nutrition, while 27.2% stated improvement of their nutrition; only 15.85 get worsened as reduced healthy food choices. As well as the majority (89.1%) had no problem of access to necessary medicines and nutritional supplements during pregnancy (table 3). This indicate that there was an acceptable antenatal care in Saudi Arabia during the COVID-19 outbreak.

The transition from traditional clinic appointments to telephone consultations or emergency department visits for those who could reach their providers for antenatal

care suggests that a sizable portion of the population was excluded as a result of the restructuring of healthcare provision and travel restrictions imposed during lockdown. The patient's prenatal treatment, including direct contact with an obstetrician or midwife, appropriate physical and ultrasound examinations, and the consistency of the follow-up program, had been noticeably interrupted. Our research revealed that just 11.4% of pregnant women received healthcare services throughout the prenatal period (table3). The drop-in prenatal care, according to Muhaidat et al., 2020 [15], raises additional concerns about the negative effects of missed opportunities for preventive or early intervention [15].

During the lockdown, several areas of general health and wellbeing relating to prenatal health were impacted. A little under half of respondents claimed that they were more conscious of their dietary choices and that this had improved the quality of their diet, while more than a sixth claimed that their diet quality had declined as a result of a shortage of healthy food options. Only 10% of research participants reported having problems accessing their normal prescriptions and dietary supplements, and approximately 25% reported exercising less than they had been doing before the lockdown. These findings raise new questions about how to maintain a healthy lifestyle during pregnancy in the face of stringent restrictions on access to a variety of healthy food options, prescription and over-the-counter medications, and physical activity.

The financial consequences of the pandemic's lockdown had an impact on pregnant women in Saudi Arab, with less than two fifth of the participants losing their jobs and their families losing money. This may result in financial issues, which will make it much more difficult for the woman to prioritize her health and maintain a healthy lifestyle throughout their pregnancy. These findings were consistent with those reported by Muhaidat et al., 2020 [15].

Although only a few concerning cases had suicidal or self-harming thoughts, many participants subjectively reported a decline in their mental health, ranging from boredom and melancholy to rage and depression, emphasizing the potentially negative psychological impact of lockdown conditions on the pregnant woman who is already going through a difficult time in her life (table 4). Our findings, which are in conflict with the large number of terrifying patients exhibiting suicide and self-harm ideation, were confirmed by Muhaidat et alinvestigation. .'s [15].

Finally, a significant portion of participants did not receive antenatal care, which reduces the opportunity to intervene in order to prevent or correct negative physical or mental outcomes. This complicates all of these physical, social, and mental challenges of quarantine situations on antenatal health.

**Conclusion:**

This study assessed how antenatal care in Saudi Arabia is affected by coronavirus-19. There was good antenatal care in Saudi Arabia since most pregnant ladies were able

to get good antenatal care, even those who were not able to attend the clinics due to the Lockdown got virtual appointments. Additionally, the majority of them had no impact on supplement use or dietary status, although there was a notable decline in sports participation. Nevertheless, there was a noticeable impact on the emotional state and consideration of switching caregivers. Since pregnancy is stressful and difficult for women, it is crucial to determine the quality of antenatal treatment with a reliable obstetrician. Community health workers may be able to advise expectant and postpartum mothers about COVID in addition to providing maternal and child health care. By pointing women and their families in the direction of the appropriate services, community health practitioners can also serve as a conduit between them and the healthcare system.

**Ethical approval:**

In December 2020, King Abdul-Aziz University's medical ethics committee gave the project their seal of approval (Ethical approval reference No 626-20).

**Data and material availability:**

The document includes all the data related to this study.



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