

# Maternal Awareness about Covid -19 among Pregnant Women and their Children with Counseling during the Pandemic to Reduce Women and Child Infection

## Abstract

**Background:** Corona virus disease 2019 (covid 19) is a virus that affect the respiratory tract with a recently identified coronavirus emerged as a zoonotic virus that infect human.

**Objective:** The aim of the study was to assess the level of awareness between pregnant women about the corona virus and how to deal with the coming new born, their children and relatives and their level of knowledge about symptoms and methods of prevention and to counsel them how to prevent the spread of the disease to their children and when to seek a medical advice for better maternal, neonatal and child health.

**Patients and methods:** A prospective descriptive study was made in the period from 25 march to 25 May 2020, 324 multigravida pregnant women who have previous living children were included into this study, every pregnant woman was asked questions in a questionnaire form to assess the women awareness regarding symptoms of covid 19 and how to prevent themselves and their children and relatives from infection with corona virus.

**Results:** The questionnaire that was made to women attending antenatal care clinic revealed a high degree of knowledge about symptoms of covid-19, with the highest level for dyspnea (98.5%) in between tem, wile for cough 97.5% of the women knows that cough is one of its symptoms, Also 95.4% of these ladies are aware that fever is one of the alarming criteria of the disease.

**Conclusion:** Pregnant women included in the present study have a high level of awareness regarding covid-19 symptoms and how to avoid virus transmission .

We tried to increase the level of awareness between Pregnant women and their children, so we made a counseling to them about important points to follow to prevent the exposure to infection, to know early symptoms of neonatal or child affection and to decrease the number of covid-19 positive patients and when to seek medical help to themselves or their children and how to follow their pregnancy during the pandemic.

**Keywords:** corona, virus, covid 19, awareness, pregnant, women

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## Introduction

Coronavirus disease 2019 (covid 19) is a virus that infect the respiratory tract with a recently identified coronavirus emerged as a zoonotic virus that infect human.

Outbreak started in China but now extended to most of the countries; it was announced by WHO as a pandemic in 11 of March, 2020.

The disease varies from asymptomatic or mild to severe respiratory illness.<sup>1</sup> The most common manifestations are cough, fever, myalgia and fatigability are common. Patients who have moderate to severe manifestations complain of dyspnea. Hemoptysis also documented in a small number of patients, Pleuritic chest pain has been registered, rhinorrhea, sneezing, sore throat) are also noted.<sup>2-4</sup>

Whereas nausea, vomiting, headache and diarrhea are also documented. Patients may have a close contact with an infected individual. Person to person transmission is reported and is thought to happen by close contact, through respiratory droplets.<sup>4-6</sup>

## Aim of the work

The aim of the study was to assess the level of awareness between pregnant women about the corona virus and how to deal with the coming new born, their children and relatives and their level of knowledge about symptoms and methods of prevention and to counsel them how to prevent the spread of the disease and when to seek a medical advice for better maternal, neonatal and child health.

## Patients and methods

A prospective descriptive study was made in the period from 25 march to 25 April Clinicaltrials.gov ID: NCT04317365, every pregnant woman was asked questions in a questionnaire form to assess the pregnant women awareness regarding symptoms of covid 19 and how to prevent themselves and their relatives from infection with corona virus. We included 324 pregnant women at any trimester of pregnancy coming for antenatal visit at algezeera hospital, Egypt and did not complain from any of the symptoms of covid 19, while women that experienced any of the symptoms suspecting covid 19

were transferred to the healthcare system responsible for managing suspected cases and were excluded from the study.

**Consent:** Any woman included in this research signed a written informed consent before participating into the study.

### Statistical analysis

Collected data were analyzed and processed using SPSS version 19. Quantitative data was expressed as mean±SD while Qualitative data were expressed as numbers and percentages. Chi Square, Student t test and Mann Whitney U tests were used to test Significance of difference for qualitative variables. A probability value (*p*-value) <0.05 was considered statistically significant. Data were analyzed and appropriately presented in tables and graphs.

### Results

The present study was conducted at Algezeera hospital, Egypt. The present study showed that the mean age of women included in the study was 27.61 years, while mean BMI was 25.02.

A questionnaire was made to woman attending for antenatal care visits shows a high degree of knowledge about symptoms of covid -19, with the highest level for dyspnea (98.5%) in between tem, wile for cough 97.5% of the women knows that cough is one of its symptoms, Also 95.4% of these women are aware that fever is one of the alarming criteria of the disease as shown in Table 1.

**Table 1** Shows the degree of awareness between pregnant women regarding symptoms of Covid-19 infection

Symptom		Count	%
Cough	Yes	316	97.5%
	No	8	2.5%
Fever	Yes	309	95.4%
	No	15	4.6%
Dyspnea	Yes	319	98.5%
	No	5	1.5%
Sore throat	Yes	307	94.8%
	No	17	5.2%
Sneezing	Yes	307	94.8%
	No	17	5.2%
Runny nose	Yes	301	92.9%
	No	23	7.1%
Myalgia	Yes	283	87.3%
	No	41	12.6%

Moreover, regarding sore throat, sneezing and runny nose, the pregnant women have a knowledge that these symptoms could be related to the corona virus with percentage of 94.8%, 94.8% and 92.9% respectively as demonstrated in Table 2.

**Table 2** Shows the level of awareness between pregnant women regarding mode of transmission of Covid-19

Mode of transmission		Count	%
Touching mouth	Yes	306	94.4%
	No	18	5.6%
Touching eye	Yes	290	89.5%
	No	34	10.5%
Touching nose	Yes	318	98.1%
	No	6	1.9%
Near talk	Yes	224	69.1%
	No	100	30.9%
Droplet from cough	Yes	322	99.5%
	No	2	0.5%
Droplet from sneezing	Yes	321	99.2%
	No	3	0.8%

In the current study 95.1 % of mothers have a knowledge of delivery precautions. Also 96 percent of women have a suspicious regarding a possibility of amniotic fluid Transmission

Moreover the questionnaire revealed that there was a high degree of knowledge about symptoms of covid-19, with the highest level for dyspnea (98.5%) in between tem, wile for cough 97.5% of the women knows that cough is one of its symptoms, Also 95.4% of these ladies are aware that fever is one of the alarming criteria of the disease as shown in Table 1.

Moreover, regarding sore throat, sneezing and runny nose, the pregnant women have a knowledge that these symptoms could be related to the corona virus with percentage of 94.8%, 94.8% and 92.9% respectively as demonstrated in Table 1.

Also, for anosmia and loss of taste as symptoms for covid, 88% and 91% of women knows that these could be symptoms of covid-19.

Women were also asked about how corona virus could be transferred and we found that the majority of women are aware that when one touches infected person or infected surface then touches his nose, mouth or eye can transfer the infection with a high level of awareness with percentage of 98.1%, 94.4% and less for touching eye (89.5%).

Also women knows that when one exposed to droplet from cough or sneezing from infected person it can transmit the virus with 99.5% and 99.2% respectively.

But there was a lesser degree of awareness regarding mode of transmission from droplet that could be transmitted through near talk (69.1%) of women knows that as shown in Table 2.

When women were asked about if they make the implemented measures to prevent the spread of infection , 99% of women are using water and soap for hand washing regularly, 67% of women use alcohol hand rubbing, 84.9 % use disinfectants to the instruments and 99.5% of women keep a distance more than 1 meter from each others demonstrated in Table 3.

**Table 3** Shows the level of awareness between pregnant women and how they prevent themselves from infection by Covid-19

		Count	%
Who use hand wash by soap	Yes	320	99%
	No	4	1%
Who use hand cleaning by alcohol	Yes	218	67.3%
	No	106	32.7%
Who use cleaning of instruments with disinfectants	Yes	275	84.9%
	No	49	15.1%
Keeping distance more than 1 meter from others	Yes	322	99.5%
	No	2	0.5%

Women were also asked about how corona virus could be transferred and we found that the majority of women are aware that when one touches infected person or infected surface then touches his nose, mouth or eye can transfer the infection with a high level of awareness with percentage of 98.1%, 94.4% and less for touching eye (89.5%).

Also in the present study 90.2 % of mothers have a knowledge that there is a possibility for vertical transmission while 97.6 % of women have a good level of knowledge about how to protect their children.

Also women knows that when one exposed to droplet from cough or sneezing from infected person it can transmit the virus with 99.5% and 99.2% respectively.

But there was a lesser degree of awareness regarding mode of transmission from droplet that could be transmitted through near talk (69.1%) of women knows that as shown in Table 2.

Also in the current study 96.3 percent of ladies knows early signs of neonatal infection.

When women were asked about if they make the implemented measures to prevent the spread of infection, 99% of women are using water and soap for hand washing regularly, 67% of women use alcohol hand rubbing, 84.9 % use disinfectants to the instruments and 99.5% of women keep a distance more than 1 meter from each others.

## Discussion

Nasopharyngeal swab and oropharyngeal swabs are needed for diagnosis. Only synthetic fiber swabs with plastic shafts are suitable.

Chest imaging; plain X ray or CT or ultrasonography shows abnormalities in most documented patients usually bilateral that varies from ground-glass opacities in mild cases to consolidation in severe cases.<sup>1,4,5,7-10</sup>

In the present research, a questionnaire made to woman attending for antenatal care visits shows a high degree of knowledge about symptoms of covid-19, with the highest level for dyspnea (98.5%) in between tem, while for cough 97.5% of the women knows that cough is one of its symptoms, Also 95.4% of these ladies are aware that fever is one of the alarming criteria of the disease.

Till now, there is no particular antiviral drug that is officially considered for management of this infection, some medications as Chloroquine and hydroxychloroquine was used in China and South Korea, documented with promising results.<sup>11</sup>

Azithromycin was used in addition to hydroxychloroquine in some protocols.<sup>12</sup>

WHO recommendations for pregnant women recommended that pregnant patients receive supportive treatment as for non pregnant patients.<sup>13</sup> WHO advised that the way of delivery should be planed according to obstetric indications and patient preference.<sup>13</sup>

There is slight proof to claim vertical transmission; but, a woman that is infected with the virus might transmit the virus by a close contact to the neonate. CDC and WHO differ in their recommendations.<sup>13,14</sup>

In the present study, when women were asked about if they make the implemented measures to prevent the spread of infection, 99% of women are using water and soap for hand washing regularly. While 67% of women use alcohol hand rubbing and this was explained by the unavailability of alcohol at sometimes, 84.9 % use disinfectants to the instruments in a regular daily base.

Other reported cases of corona virus pneumonia in pregnancy are milder and with good outcome.<sup>15</sup>

To our knowledge, till the time of writing the paper, no cases of maternal mortality have not been documented in published literature.

Personal responses to viral infection are different for different pregnant women and for different viruses.

However data from Australia studying critical sickness in pregnancy with influenza due to the infection H1N1, revealed a remarkable increases in critical sickness in late gestation when compared to early pregnancy that could be explained by decreased maternal immunity in the last months of pregnancy.<sup>16</sup>

Moreover, the other types of coronavirus infection (SARS, MERS), the maternal complications tends to increase during the last trimester of gestation. While a single study, there was an elevated possibility of preterm delivery denoted after 28 weeks' gestation.<sup>17</sup>

In the current research, the awareness of pregnant women about myalgia. As a complaint that could be associated with covid-19 infections were less than other symptoms as it is a non specific complaint.

Putting into consideration that pregnancy is a state of hypercoagulability and with noticing that persons admitted to hospital with COVID-19 have a hypercoagulable state, so pregnant women have an increased risk of maternal venous thromboembolism (VTE).<sup>18</sup> decreased mobility due to self-isolation at home, or admission in hospital, leads to increase the risk.<sup>18</sup>

In the present study, women who know the delivery preparations and precautions were (95.1%), while women who have a fear of the possibility of vertical transmission were (90.2%) and the women who have fearing of milk transmission were 90.5%.

There are no available knowledge suggesting an increased risk of miscarriage or early pregnancy loss in relation to COVID-19.<sup>19</sup>

Very recent evidence has proposed that it is probable that the virus can be vertically transmitted but needs a larger number of cases to determine.<sup>20,21</sup>

In a study made in china 6 women breast milk tested negative for COVID-19.<sup>22</sup> A recent meta-analysis made by Ziyi Yang concluded that there were neonatal infection, but there was no direct proof of intrauterine vertical transmission was reported. They also concluded that the clinical features of pregnant women with corona virus are the similar as to those of non-pregnant women.

Fetal and neonatal outcomes are good in most circumstances, but information included pregnant women infected in their late months of pregnancy.<sup>23</sup>

Moreover, in the present study, women know that when one is exposed to droplet from cough or sneezing from an infected person it can transmit the virus with 99.5% and 99.2% respectively. But there was a lesser degree of awareness regarding mode of transmission from droplet that could be transmitted through near talk (69.1%) of women know that as shown in Table 2. Also in the present research, 99.5% of women keep a distance more than 1 meter from each other as demonstrated in Table 3.

## Counseling

Pregnant women included in the present study were counseled about important points to follow to guard themselves against viral infection.

The ladies in this study were unaware about the new unusual symptoms for covid-19 infection (loss of taste and loss of smell) and they were counseled to consider these symptoms as alarming symptoms for covid-19 infection.

If a lady has a routine visit in the next days, she has to contact her maternity hospital for advice and timing to attend and to be informed if the visit time will be changed due to staff circumstances.

If it is important to attend for a visit to your physician, you must have a reason that outweighs your possibility of exposure to COVID-19 and do not bring your children. Pregnant ladies were counseled that when they feel mild symptoms like cough to stay home and to receive their regular multivitamin supplementations and to increase Vitamin C and Vitamin D and zinc supplementation, drink plenty of fluids per day and to call the governmental emergency number special to management of corona virus and to avoid presence in gatherings and needless gatherings and to stay home except for critical requirements.

When it is necessary to go in public you have to protect the nose and mouth with a cover. Welcome people without touching with a wave instead of shaking hands or hugging. A physical distance: at least 1-2 m must be kept even with your family and your children.<sup>24</sup>

Wash your hands and hands of your children often and meticulously using water and Soap for at least 20 seconds, but if unavailable high alcohol hand sanitizers should be used until water and soap is available. When cough, cover the mouth with tissue and throw it away but if not available the second option is sleeve, not hand. Avoid touching face, Dispose of these items in a container lined with a trash bag that could be detached and sealed before disposal in household trash.<sup>24</sup>

With expecting increased lockdown weeks, the economic drawbacks of school closures are high. A UK study from 2008 proposed that approximately sixteen percent of the workforce are the chief caregivers for dependent children and are at very high hazard of absenteeism if schools are closed, a proportion that increases to 30% in the health and social care divisions. In the USA, unpublished estimates suggest that 29% of health-care workers have childcare obligations.<sup>25,26</sup>

In a previous research made in India to evaluate the awareness among Indian people it showed that about ninety percent of participants were aware that washing hands in a frequent manner with water and soap for at least 20 seconds, especially before eating, after using the bathroom, and after blowing your nose, coughing, or sneezing, and using hand sanitizer with at least 60% alcohol if soap and water are not present and wearing mask could prevent spread of COVID-19.<sup>27</sup>

COVID-19 occurs in all age categories but infection with coronavirus is mild in children. Old-age persons and persons with chronic diseases have greater risks.<sup>28</sup>

In the present study, women were counseled also about how to deal with their neonates and how to protect them from getting infection with covid-19, and what are the early signs for detection of the infection and the newly discovered symptoms (like loss of taste and loss of smell) with monitoring of dry cough, rapid breathing or neonatal dehydration and to stay home and keep their children at home with social distancing and to keep them away from mixing with their friends.

In another research that was made to assess the level of awareness in some Arab countries showed that in general, there was a good level of awareness of the participants regarding COVID-19. Higher awareness scores were significantly correlated with older participants those who attended awareness campaigns, secondary school education holders, higher education diploma holders, university degree holders, those who have post-graduate education, and healthcare employees. The average awareness score was 78.5% In general, the overall level of awareness of COVID-19 causes and prevention was good.<sup>29</sup>

A previous study made to assess the level of knowledge in Jordan revealed that the participants had a satisfactory level of knowledge about the mode of transmission and the main symptoms with half of the participants know that one of the ways of spread is through droplet infection and 77 percent know that the elderly group is at greater risk.<sup>30</sup>

## Conclusion

Pregnant women included in the present study have a high level of awareness regarding covid-19 symptoms and how to avoid virus transmission to their new born, their children or other people.

We tried to increase the level of awareness between pregnant women included in the present study, so we made a counseling to them about important points to follow to prevent the exposure to infection, to know early symptoms of neonatal or child affection and to decrease the number of covid-19 positive patients and when to seek medical help to themselves or their children and how to follow their pregnancy during the pandemic.

## Acknowledgments

None.

## Ethical approval

The local ethical committee approval for the further evaluation and use of data was made before starting the study.

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None.

## Conflicts of interest

All authors declare that there are no any financial and personal relationships with other people or organizations that could inappropriately influence (bias) their work.

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