

DOI: <http://dx.doi.org/10.18203/2320-1770.ijrcog20203830>

Original Research Article

## Pregnant women's knowledge and practice of preventive measures against COVID-19: a study from Mysore city, Karnataka, India

Mamatha Shivanagappa<sup>1\*</sup>, Yerva Sai Bhavana<sup>1</sup>, Smitha Malenahalli Chandrashekarappa<sup>2</sup>

<sup>1</sup>Department of Obstetrics and Gynecology, JSS Medical College, JSS Academy of Higher Education and Research, Deemed to be University, Mysuru, Karnataka, India

<sup>2</sup>Department of Community Medicine, JSS Medical College, JSS Academy of Higher Education and Research, Deemed to be University, Mysuru, Karnataka, India

**Received:** 04 August 2020

**Accepted:** 20 August 2020

**\*Correspondence:**

Dr. Mamatha Shivanagappa,

E-mail: mamathamahesh106@gmail.com

**Copyright:** © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

### ABSTRACT

**Background:** The presently ongoing COVID-19 pandemic has not spared any segment of society including pregnant women. It is absolutely essential that pregnant mothers and their caregivers be fully aware of accurate facts about COVID-19. Objective of this study was to assess the knowledge and practice of preventive measures against COVID-19 infection among pregnant women of Mysore City.

**Methods:** This was a cross sectional study, conducted among pregnant women attending prenatal care at a tertiary care centre. Data was collected using a validated questionnaire administered via google form to consenting pregnant women. The variables assessed were knowledge about aetiology, mode of spread and preventive measures to protect against COVID-19. Data was also collected on socio-demographic characteristics, which included age, parity, marital status, residence, occupation, participant's education, husband's education.

**Results:** Out of the 93 responders, majority 71 (76.3%) were in the age group 20-30 years. 17 (18.3%) were in the 30-40 years age group. Regarding number of children 41 (44.1%) had one child 16 (17.2%) had 2 children and 32 (34.3%) were primigravida. With respect to educational status 70 (75.26%) were having graduate degree. 19 (20.4%) were non graduates, but had completed high school. Educational level of the husbands of the respondents was along similar lines with 62 (66.66%) having completed graduation, and 28 (30.1%) had completed high school. 91(97.8%) respondents were correct in identifying virus as the cause of COVID-19. 88 (94.6%) rightly chose mode of spread by sneezing or cough. 1 (0.1%) respondent wrongly indicated that injections were the mode of spread. Main symptoms cough and fever were correctly identified by 80 (86%) respondents. The practice of preventive medicine was low with respect to all aspects of COVID prevention. Only 27 (29.7%) were following frequent handwashing recommendation. Only 26 (28.6%) were following staying indoors advise. 28 (30.8%) of the respondents were wearing masks. However, 82 (90.1%) were following at least one of the preventive measures.

**Conclusions:** The knowledge levels of pregnant women were satisfactory However this was not translated into practice by majority of the respondents.

**Keywords:** COVID-19, Infection, Knowledge, Pandemic, Practice, Pregnant mothers

### INTRODUCTION

The presently ongoing COVID-19 pandemic has not spared any segment of society including pregnant

women. The immune-suppressive pregnancy state can lead to varied fetomaternal effects.<sup>1</sup> Health care professionals should themselves be aware of the many aspects of this new disease and they should disseminate

proper information to all sections of society.<sup>2</sup> It is essential that pregnant mothers and their caregivers be fully aware of accurate facts about COVID-19.

The World Health Organization (WHO) has recommended several preventive measures to arrest the disease and to prevent complications.<sup>3</sup> All over the nation these measures have been actively implemented by governmental agencies. Health education about COVID measures are also going on continuously since the outbreak began.

Pregnancy being a state of special vulnerability to various infections including COVID, needs extra attention both by caregivers and medical professionals. COVID related basic knowledge and preventive measures should be adequately known to the pregnant mother. There are very few studies in this aspect from India. Hence, this study was undertaken to assess the knowledge of the pregnant mothers in relation to the causation, mode of transmission and preventive measures of COVID-19 infection and practice with respect to preventive measures adopted.

Objective of this study was to assess the knowledge and practice of preventive measures against COVID-19 among pregnant women of Mysore.

## METHODS

This was a cross sectional study done for a period of three months. Pregnant women attending JSS Hospital, a tertiary care teaching hospital at Mysuru, South India were included. All mothers consenting for the study were included and there was no specific exclusion criteria. A validated questionnaire was administered using google forms. The questions evaluated knowledge and practice based on WHO recommendations on preventive measures against COVID-19.<sup>4</sup> Socio-demographic variables assessed age, parity, marital status, area of residence, occupation, participant's level of education, husband's level of education.

Question of frequent hand washing with soap and water or using alcohol-based hand sanitizers; maintaining at least 1 meter distance from others; avoiding touching eyes, nose, and mouth with hands; covering mouth and nose while coughing or sneezing; wearing a face mask in public; and Staying indoors were used to assess the preventive measures practiced.

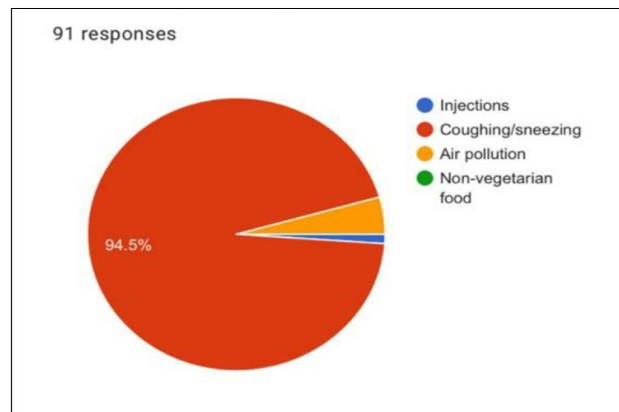
### Statistical analysis

Statistical analysis was performed using SPSS version 23 (Licensed to the institution). Descriptive statistics like frequency, percentages, mean, standard deviation were calculated. Inferential statistics like Chi-square analysis was used to find the statistical association between the socio-demographic variables and Knowledge. P-value <0.05 was considered statistically significant.

## RESULTS

There were 93 responders. Majority 71 (76.3%) were in the age group 20-30 years.

A total 17 (18.3%) were in the 30-40 years age group.



**Figure 1: Responses to the question COVID is spread by ?**

Mean age of the study participants was 28.6 ( $\pm 6.9$ ). With respect to number of children, 41 (44.1%) had one child, 16 (17.2%) had 2 children. 32 (34.3%) were primigravida. 75.3% belonged to urban area and 24.7% belonged to rural area. 46.2% were employed and 53.8% of participants were employed skilled or unskilled work.

3.2% were illiterates and 26.8% had either completed under graduation/post-graduation, w.r.t education of their husbands, 34.4% hadn't completed graduation, 37.6% completed graduation and 28% had completed post-graduation. 88 (94.6%) rightly chose mode of spread of COVID-19 to be by sneezing/ cough. 1 (1%) respondent wrongly indicated that injections were the mode of spread (Figure 1).

Main symptoms of COVID infection as cough and fever were correctly identified by 80 (86%) of the respondents. Related to practice, only 27 (29.7%) followed frequent washing recommendations. 26 (28.6%) were following stayed indoors during pandemic and 28 (30.8%) of the respondents wore mask as required according to the guidelines. However, 82 (90.1%) followed at least one of the preventive measures.

There was an association between level of education and practice of preventive measures with respect to COVID. However, there was no association between age, occupation and any other socio-demographic variables with practice of COVID-19 and practice of preventive measures with respect to COVID (Table 1).

**Table 1: Association of education with practice of adopting preventive measures.**

Variables	Practice of preventive measures			Total	Chi-square value	P value
	Practiced only some of the preventive measures according to guidelines	Practiced almost all the preventive measures according to guidelines	Practiced all the preventive measures according to guidelines			
<b>Level of education</b>						
Illiterate	1	2	0	3	21.8	0.016
Primary education	5	0	7	12		
Secondary education	9	0	4	13		
Pre-university	8	1	31	40		
Under graduation	0	0	5	5		
Post graduation	2	2	16	20		

## DISCUSSION

Knowledge is power in all areas of human enterprise. In the task of corona virus infection prevention and care, the public need to know fully and accurately about this new viral disease. On the other hand, misleading and incorrect information can be spread over social media which can cause wrong actions to be taken.

Pregnancy is a physiological state that predisposes women to viral respiratory infections. Due to the physiological changes in the immune and cardiopulmonary systems, pregnant women are more likely to develop severe illness after infection with respiratory viruses. In 2009, pregnant women accounted for 1% of patients infected with influenza A subtype H1N1 virus, but they accounted for 5% of all H1N1-related deaths.<sup>5</sup>

Present evidence suggests that pregnant women are at not at greater risk of becoming seriously ill than other non-pregnant adults if they contact corona virus. Majority of pregnant women experience only mild or moderate flu-like symptoms. Cough, fever, shortness of breath, headache and loss or change to your sense of smell or taste are other relevant symptoms.<sup>6</sup>

Over and above the impact of COVID-19 infection on a pregnant woman, there are concerns relating to the potential effect on fetal and neonatal outcome; poor practices of preventive measures among pregnant women would put these women at high risk of infection, which could worsen the country's maternal morbidity and mortality profile.<sup>2</sup>

Therefore, pregnant women require special attention in relation to education about prevention, mode of diagnosis, and methods in management.<sup>7</sup> Several precautions needed be taken to minimize the risk of contracting and transmitting COVID-19 should be known to this category of the population.

In the study by John Bosco from Nigeria high parity, rural residence, low educational attainment, were the factors associated with poor practice of preventive measures.<sup>7</sup>

However, in this study most of the study participants had adequate knowledge of the preventive measures, the level of practice of these measures were grossly adequate. This is surprising since population in Mysore with higher literacy and economic status. Also, study hospital being a private sector general hospital, the class of patients were expected to be following the various advisories scrupulously.

This higher knowledge levels could be because the Karnataka government had embarked on an aggressive media campaign to educate the populace on preventive measures to curtail person-to-person transmission of the virus for the last two months. The poor practice could be because this study was done in the early months of COVID onset in Mysore. People were yet to really grasp the seriousness of the situation. Also, availability of masks was a problem at that time.

The measures by govt and media and medical colleges are to be continued. Electronic media has a great role. Identifying leaders who can deliver the knowledge is important.

The strengths of this study are that this was a simple google based survey. It was easy for the investigators since the questionnaire could be accessed by the respondents on their smart phones. All the respondents need to do was to choose their option and click to select, Due to this method of collecting data adequate number of respondent's recruitment was possible. Some of the respondents voluntarily forwarded the links to other pregnant women.

The weaknesses of this study are the small number of respondents. Studies involving larger sample size would

have been better. Also, authors did not collect information from respondents about their knowledge about breast feeding in COVID positive mothers, their awareness about the type of diet to be followed by COVID positive pregnant women. Questions about vertical transmission were also not included.

There is a need to institute more measures to improve practice of these preventive measures among pregnant women. The review by Nolan et al made it clear that pregnant women like to receive emotionally demanding or intellectually complex information from a health-care professional in person.<sup>8</sup>

Media both private and public, medical colleges, have a role more aggressive methods would likely encourage women to practice these preventive measures to halt the spread of the virus.

## CONCLUSION

The knowledge levels of pregnant women in Mysore city was found to be adequate. However, this was not translated into practice by majority of the respondents and the practice of preventive methods against COVID-19 virus was highly inadequate. Further large studies are required to get a fuller picture

Meanwhile education of pregnant women regarding all aspects of COVID virus infection is all the more imperative in view of the epidemic presently showing no signs of abating.

## ACKNOWLEDGMENTS

Authors would like to thank Dr Suma KB, the head of department of obstetrics and gynecology JSS Hospital, for her support. Authors would like to grateful to Mrs. Vidya Raju, statistician for help in statistical analysis.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: The study was approved by the Institutional Ethics Committee*

## REFERENCES

1. Rasmussen SA, Smulian JC, Lednický JA, Wen TS, Jamieson DJ. Coronavirus disease 2019 (COVID-2019) and pregnancy: What obstetricians need to know. *AJOG*. 2020;222(5):415-26.
2. Poon LC, Yang H, Kapur A, Melamed N, Dao B, Divakar H, et al. Global interim guidance on coronavirus disease 2019 (COVID-19) during pregnancy and puerperium from FIGO and allied partners: information for healthcare professionals. *Int J Gynecol Obstet*. 2020;149(3):273-86.
3. World Health Organization. Coronavirus (COVID-19). 2020. Available at: <https://who.sprinklr.com>. Accessed on 22<sup>nd</sup> July 2020.
4. World Health Organization. Coronavirus disease (COVID-19) advice for the public. 2020. Available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public>. Accessed on 22<sup>nd</sup> July 2020.
5. Siston AM, Rasmussen SA, Honein MA, Fry AM, Seib K, Callaghan WM, et al. Pandemic H1N1 influenza in pregnancy working group. Pandemic 2009 influenza A(H1N1) virus illness among pregnant women in the United States. *JAMA*. 2010;303:1517-25.
6. Ryea GA, Purandare NC, McAuliffe FM, Hod M, Purandare CN. Clinical update on COVID-19 in pregnancy: A review article. *J Obstet Gynaecol Res*. 2020:1-11.
7. Nwafor JI, Aniuoku JK, Anozie BO, Ikeotuonye AC, Okedo-Alex IN. Pregnant women's knowledge and practice of preventive measures against COVID-19 in a low-resource African setting. *Int J Gynecol Obstet*. 2020;150(1):121-3.
8. Nolan ML. Information giving and education in pregnancy: a review of qualitative studies. *J Perinatal Edu*. 2009;18(4):21-30.

**Cite this article as:** Shivanagappa M, Bhavana YS, Chandrashekarappa SM. Pregnant women's knowledge and practice of preventive measures against COVID-19: a study from Mysore city, Karnataka, India. *Int J Reprod Contracept Obstet Gynecol* 2020;9:3622-5.