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Knowledge attitude and practices towards COVID-19 among Indian women- A cross-sectional study

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ABSTRACT

Background: Corona virus disease (COVID-19) is an infectious disease caused by a newly discovered severe acute respiratory syndrome corona virus. Globally, women make up 70 % of the health workforce. Further infectious diseases can play a significant role in pregnancy, particularly by affecting maternal and fetal outcomes. There are limited studies assessing the COVID-19 related knowledge, attitude and practices among women including pregnant ladies; thus, need of the study.

Objectives: To study the basic knowledge, the baseline attitude of women towards COVID-19 and to correlate socio-demographics with women's practices towards COVID-19

Study Design: A study was conducted from 1st June 2021 -1st September 2021 for 3 months in the private hospital at Nagpur, Maharashtra, India. 1008 responses were obtained. The research adopted an online cross-sectional survey design. Women attending clinic were provided with an internet link to complete an online electronic survey on Google platform using on any mobile device with internet access. The online survey was anonymous and could be completed in about 10 min. A total score on knowledge and practice was obtained for each respondent, depending on the correctness of response. The comparison of total knowledge and practice score across age, education and occupation was performed using Kruskal-Wallis test. Statistical significance was evaluated at 5% level and the computations were performed using SPSS version 20.0 (IBM Corp, USA).

Results: Total mean knowledge score was 3.75 ±1.18. Mean knowledge score among pregnant women was 3.96±1.22 with significant P value of 0.006. Total mean practice score was 5.00±0.91. Mean practice score among pregnant ladies was 5.01±0.82. The scores were higher in women with at least matriculation; the practices were better followed among health care workers, professionals and services categories than home makers.

Conclusion: Women in India had overall good basic knowledge related to COVID-19. With reference to attitude, women were worried about the physical, mental health of their family and risk of contracting infection.

Overall practice score was good among elderly women, educated women and working women.

Keywords: COVID-19, India, pandemic, knowledge, attitude, practice.

Introduction

Corona virus disease (COVID-19) is an infectious disease caused by a newly discovered severe acute respiratory syndrome corona virus (SARS-CoV-2) first identified in Wuhan City, China, in December 2019[1]. On 11th March 2020, the World Health Organization (WHO) declared the COVID-19 outbreak as a global pandemic with exponential spread worldwide[1].

The pandemic is a reminder of the essential contribution that women make at all levels. Globally, women make up 70% of the health workforce, especially as nurses, midwives and community health workers, and account for the majority of service staff in health facilities. Thus it is important to understand the mentality of women towards COVID-19.

Further, infectious diseases can play a significant role in pregnancy, particularly by affecting maternal and fetal outcomes[2]. Prenatal respiratory infections may also result in stillbirth, miscarriage, and preterm delivery[3].

Hence, women deserve a more sensitive approach and mutual understanding during this global pandemic among clinicians and their partners.

There are limited studies assessing the COVID-19 related knowledge, attitude and practices among women. Consequently, this will enable clinicians to provide appropriate counseling to reassure and clarify doubts of women towards COVID-19 during all possible stages of life including the pregnancy.

Aims And Objectives of The Study

To study the basic knowledge, baseline attitude of women towards COVID-19 and to correlate socio-demographics with women's practices towards COVID-19.

Material and methods

Study setting and period: A cross-sectional observational study was conducted from 1st June 2021 - 1st September 2021 for 3 months at the private hospital at Nagpur, Maharashtra, India. 1008 responses were obtained during this 3-month period.

Source and study population: This cross-sectional study took place just after the peak period of COVID-19 pandemic in India. Only adult women of Indian nationality who attended the hospital in outpatient and inpatient department were used as the source population. Women were recruited in the study using convenience and snowball sampling methods. Given the current situation, a thorough community-based survey was not feasible.

Sampling method: The research adopted an online cross-sectional survey design. Women attending clinic were provided with an internet link to complete an online electronic survey on Google platform using any mobile device with internet access. We also opted to use WhatsApp Messenger for enrolling potential participants. A questionnaire was executed using Google forms in three languages and link generated was shared on WhatsApp groups of women. The online survey was anonymous and could be completed in about 10 min. The questions were designed by a group of senior obstetricians. It consisted of 25 questions that were categorized into 4 main sections, namely 1) social demographics 2) knowledge 3) attitude 4) Practices towards covid-19

Inclusion criteria: All Indian women >20 years willing to participate in the study.

Exclusion criteria: Women <20 years, not willing to participate in the study.

Statistical methods: The description of participant characteristics was given in terms of frequencies and percentage. A total score on knowledge and practice was obtained for each respondent, depending on the correctness of response. The comparison of total knowledge score across age, education and occupation was performed using Kruskal-Wallis test. Such analysis was also performed on practice related scores. Statistical significance was evaluated at 5% level and the computations were performed using SPSS version 20.0 (IBM Corp, USA).

Ethics statement: The institutional Ethical Review Board approved the study protocol dated: 10th September 2021. Consent of participants was taken verbally. Respondents did not receive any incentive to complete the survey and standard of care was not affected if they did not participate in the online survey

Results

Demographic Characteristics

There were maximum 355 (35.2%) women in the age range 31-40 years, followed by 296 (29.4%) in the range 20-30 years. Majority of the participating women were Hindu (93.3%); and had at least graduation qualification (58.1%). Regarding occupation, 488 (48.4%) were home maker, 223 (21.1%) in some job and 125 (12.4%) were health care workers. The responses were predominantly from urban area (82.9%), and only 136 (13.4%) responding women were pregnant (Table 1)

Basic Knowledge of Women

In the present study, 79.3% women were aware about the main clinical symptoms of COVID-19 infection (fever, fatigue, body ache, dry cough, cold, loss of taste and smell sensation). 88.5% women knew the route of transmission of Corona virus (respiratory droplets). 67.2% women knew that both symptomatic as well as asymptomatic person can transmit COVID-19 infection. Effective ways of prevention of COVID-19 infection were known by 92.7% women. 47.2% women knew that vaccines are not 100% effective against COVID–19 prevention. 22% women were unaware about vaccination in lactating women. 18.1% women did not know that vaccine can be taken on any day of the menstrual cycle. 12.7% women thought that 'vaccination should be deferred by 3 months after recovery from COVID-19' is a false statement. Total mean knowledge score was 3.75 ±1.18. Mean knowledge score among pregnant women was 3.96±1.22 with significant P value of 0.006 (Mann-Whitney U Test).

Attitudes Related to Covid-19

In the present study, maximum 69% of women were concerned about the physical and mental health of the family. 27.2% had missed a clinic appointment because of the fear of being infected with COVID-19 in hospital. 42% of the overall women thought that COVID-19 is not affecting the type of delivery in pregnant ladies but more than half of the pregnant ladies thought that COVID-19 is affecting the type of delivery. Four out of five (80%) women thought that breastfeeding is safe during COVID-19 pandemic. (Figure 1)

Practice Related to Covid-19

In the present study, 96.7% women wore mask in crowded places. 97.3% women washed their hands more frequently with sanitizer or soap water. 76.8 % women did not travel by public transportation in the last few months. 80.9% women were in contact with their doctor during this pandemic situation. Only 56.3% women overall and 40% pregnant ladies are vaccinated in our study. Reasons for not vaccinating are as shown in figure

2. Percentage of women implementing immunity boosting practices was 91.9%. Total mean practice score was 5.00±0.91. Mean practice score among pregnant ladies was 5.01±0.82 (Mann-Whitney U test).

Correlation of socio-demogrphics with knowledge and practices.

Table 2 gives the comparison of total knowledge as well as total practice scores according to age. The knowledge scores differed significantly across age categories (p = 0.001), with higher scores in <50 years categories as compared to >50 years category. Regarding practices, the mean total score differed significantly across age groups (p< 0.0001). Elderly women followed better COVID-19 related practices as compared to younger women.

Table 3 shows the comparison of knowledge as well as practice scores according to education level. The comparison revealed statistically significant difference of scores across levels (p< 0.0001). The scores were higher in women with at least matriculation as compared to those with school level background. The practices however, differed insignificantly across educational categories.

Table 4 shows the comparison of knowledge as well as practice scores across various occupation categories. The knowledge scores were significantly different across occupation categories (p< 0.0001), with higher awareness among health care workers, professionals and those in services as compared to home makers. Further, the practice scores also showed statistically significant difference across groups (p = 0.013). Again, the practices were better followed among health care workers, professionals and services categories than home makers.

Comment

COVID-19 is an infectious disease that poses a significant threat to public health. Preventive measures play an essential role in reducing infection rates and controlling the spread of the disease. This indicates the necessity of public adherence to preventive and control measures, which is affected by their knowledge, attitudes, and practices (KAP) [1]. Thus, this study aimed to assess the KAP of Indian women for the novel Corona Virus Disease 2019 (COVID-19).

a) Principal Findings: Most of the women in our study was young <40 years, educated with graduation/post-graduation degree, residing in urban area, Hindu by religion and home maker by occupation. Pregnant women were also included in the study.

The result of the study indicates that, the women had overall acceptable knowledge about the main clinical symptoms, route of transmission, prevention methods against COVID-19 infection. But they have little knowledge regarding vaccination policies.

Maximum women in our study were concerned about the physical and mental health of the family followed by financial problem. Study reveals that more than one fourth of the study population had missed their clinic appointment due to fear of contracting infection. In terms of prenatal care, two third of the pregnant women in the present study accepted that their routine prenatal care had been reduced or discontinued because of concerns about becoming infected with COVID-19. Further most of the women thought that COVID is affecting the type of delivery in pregnant ladies.

Participants in our study showed a sort of good personal precaution practices and preparedness in response to COVID-19 like other studies. But number of women vaccinated was less including pregnant ones. Most common reason for not vaccinating was unavailability of vaccine.

Though younger women had more knowledge, elderly women followed better COVID-19 related precaution practices. Results of our study showed that, women educated above the matriculation level had high knowledge and practice scores. Further the women in health services, professionals and working women had high knowledge and practice scores as compared to home makers

b) Results in the Context of What is Known*:* Good knowledge score could be the result of efforts made by Government and non- Government organizations to educate people through various methods including social media, newspapers, television programs and short message services. Similar results were observed in other Indian studies[4, 5]. Government of India had introduced three online applications namely Co-Win, Arogya Setu, UMANG application. These applications include important helpline numbers, common FAQs regarding COVID-19 vaccination program, videos related to COVID-19 awareness, guidelines for effective ways of prevention and control. Thus the need for providing proper source of information, creating advertisements providing knowledge related to COVID-19 is necessary.

The country-wide vaccination drive was rolled out on 16th January 2021 with healthcare workers getting inoculated in the first phase. The vaccination was made available for pregnant and lactating women from the month of July 2021 in India. Less vaccination rate in the study could be the result of ongoing vaccination process and changing vaccination policies. Thus, the need to encourage vaccination and emphasize on flashing advertisement regarding vaccination policies on social media platform.

Studies have revealed that high distress and anxiety due to COVID-19 has resulted in poor psychological well-being [6], increase in suicidal tendencies [7], exaggerated pre-existing mental health conditions [8] to name a few. It has also severely affected the family relationships and social dynamics [9], increase in cases of domestic and sexual violence [10], and alcohol as well as substance abuse [11]. Several initiatives are currently being undertaken by the Government such as providing toll free help lines and tele-counselling services for mental health assistance during the COVID-19 pandemic. Similarly, resource materials and manuals on managing stress during COVID, yoga and meditation, etc. are available to the public on the Ministry of Health and Family Welfare-Government of India website [12]. However, for effective reachability of such interventions, the services and facilities need to be directed to the specific needs of the identified susceptible groups. Further need for conduction of mental health audits and regulation of insurance companies to provide diagnostic and treatment coverage for the disease might help to some extend in such situation [13].

A study in Shanghai had reported that pregnant women, especially in the second trimester, were more willing to cut down the frequency of prenatal care and over 85% of the participants, particularly the primipara ones, had requested online consultations to avoid being present in crowded places [14]. Ministry of Health & Family Welfare's National Telemedicine Service –e Sanjeevani has been widely adopted by patients as well as doctors, and specialists across the country. It has enabled two types of telemedicine services viz. Doctor-to-Doctor at Ayushman Bharat - Health and Wellness Centers and Patient-to-Doctor tele-consultations [15].

Pregnant women infected with corona viruses are at increased risk of adverse obstetrical outcomes, compared with the general population. The infection outcome was

mainly associated with a relatively higher rate of cesarean delivery, preterm birth, intensive care unit admission, preeclampsia, miscarriage, fetal distress, and perinatal death [16].

Younger women used to surf the internet, watch television more than the mid-aged and older women. These channels of knowledge provide an uncomplicated and accessible way to receive information related to COVID-19; these can also provide misinformation, fabricated data, and rumors [17, 18]. Henceforth, caution about the use of these channels must be in place [18, 19].

During first wave of infection the mortality rate from COVID-19 was more among older adults as compared to younger ones. Secondly the prevalence of non-communicable chronic conditions, serious emotional disturbances, insecurity, anxiety and depression in association with fear of social isolation, uncertainty and economic difficulties are more in old aged people [20]. All these conditions might burden them to follow the precaution practices more rigidly.

Education forms the foundation of an individual's life. Having a higher educational status is among the factors contributing to better knowledge because of increased opportunity to be exposed to information and knowledge [21].

NEP (National education policy) 2020 is the first education policy of 21st century and replaces the thirty-four-year-old national policy on education (NPE), 1986 by government of India. This policy aims to transform India into a vibrant knowledge society making both school and college education more holistic, flexible, multidisciplinary, suited to 21st century needs and aimed at bringing out the unique capabilities of each student [22].

With reference to occupation, higher knowledge score could be because of more connections with other people, so there were more concerns about the virus, discussions about it with colleagues, and attempts to get more knowledge to protect themselves and their family [2]. The given results were further supported by other surveys that had shown that occupation, level of education and area of residence were predictors of knowledge score; hence, people with lower levels of education and unemployment had gained lower knowledge score [23, 24, 25].

c) Clinical Implications: Clinicians should be prepared to handle complicated cases as many women had missed clinic appointments during the peak of COVID-19 pandemic. The study suggests need of detailed counselling by clinicians regarding importance of COVID-19 vaccination especially in pregnant and lactating women. Mental health assistance should be provided to vulnerable groups as there is increase in fear, depression, social and domestic violence during pandemic. Emphasis on regular follow up is required for early detection of sequelae of COVID-19 or 'Long Covid Syndrome'. Reliable information source should be provided to them so they can refer it any time.

d) Research Implications: The Government and non-Government organizations can formulate the guidelines, prepare campaign strategies for public awareness and vaccination policies according to the results obtained in the study. Research can be extended to study pregnant, lactating and geriatric women and also to study the sequelae of COVID and its vaccination, if any.

e) Strengths and Limitations: This study was conducted immediately after the peak of second wave of COVID-19 with good number of sample size. It's among the few studies which focuses on women's knowledge, attitude and practices unlike other studies which includes general population.

Our study gives good insight of women from urban area with high education level but more researches are required to study underprivileged women, women from suburban/rural area, orphaned girls. Further sample size of pregnant ladies was small to interpret the result.

f) Conclusions: Women in India had overall good basic knowledge related to COVID-19. With reference to attitude, women were worried about the physical, mental health of their family and risk of contracting infection. Overall practice score was good among elderly women, educated women and working women.

Information regarding vaccination policies need to be updated frequently. Every women coming to hospital should be counselled regarding benefits and minor side-effects of vaccine, importance of diet and exercise for boosting immunity. Mental health assistance should be provided to susceptible women such as elderly, pregnant.

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Legend Tables

Table 1: Description of various characteristics of participating women.

Characteristics	Levels	N	%
Age	20-30 years	296	29.4%
	31-40 years	355	35.2%
	41-50 years	236	23.4%
	> 50 years	121	12.0%
Religion	Hindu	940	93.3%
	Muslim	30	3.0%
	Christian	14	1.4%
	Others	24	2.4%
Education	1-10	192	19.0%
	11-12	230	22.8%
	Graduation and above	586	58.1%
Occupation	Health care worker	125	12.4%
	Professional	73	7.2%
	Job	223	22.1%
	Home maker	488	48.4%
	Others	99	9.8%
Residence	Urban	836	82.9%
	Rural	172	17.1%
Pregnant	Yes	136	13.4%
	No	872	86.5%

Table 2: Comparison of total knowledge as well as total practice scores according to age categories.

Total score	Parameter	Age				P-value*
		20-30 years	31-40 years	41-50 years	> 50 years	
Knowledge	Mean	3.80	3.86	3.67	3.43	0.001
	Standard Deviation	1.15	1.19	1.19	1.20	
	Median	4.00	4.00	4.00	3.00	
Practice	Mean	4.76	5.02	5.14	5.27	< 0.0001
	Standard Deviation	0.93	0.88	0.88	0.92	
	Median	5.00	5.00	5.00	6.00	

*Obtained using Kruskal-Wallis test; bold p-values indicate statistical significance.

Table 3: Comparison of total knowledge as well as total practice scores according to education categories

Total score	Parameter	Education			P-value*
		1-10	11-12	Graduation and above	
Knowledge	Mean	3.07	3.41	4.10	< 0.0001
	Standard Deviation	1.30	1.19	0.99	
	Median	3.00	4.00	4.00	
Practice	Mean	4.91	4.98	5.04	0.307
	Standard Deviation	1.01	0.86	0.90	
	Median	5.00	5.00	5.00	

*Obtained using Kruskal-Wallis test; bold p-values indicate statistical significance

Table 4: Comparison of total knowledge as well as total practice scores according to occupation categories

Total score	Parameter	Occupation					P-value*
		Health care worker	Professional	Job	Home maker	Others	
Knowledge	Mean	3.94	4.12	3.96	3.56	3.71	< 0.0001
	Standard Deviation	1.07	0.96	1.15	1.25	1.04	
	Median	4.00	4.00	4.00	4.00	4.00	
Practice	Mean	5.06	5.00	5.12	4.93	5.00	0.013
	Standard Deviation	0.98	0.96	0.94	0.90	0.78	
	Median	5.00	5.00	5.00	5.00	5.00	

*Obtained using Kruskal-Wallis test; bold p-values indicate statistical significance

Figure 1: Attitude of women towards COVID-19.

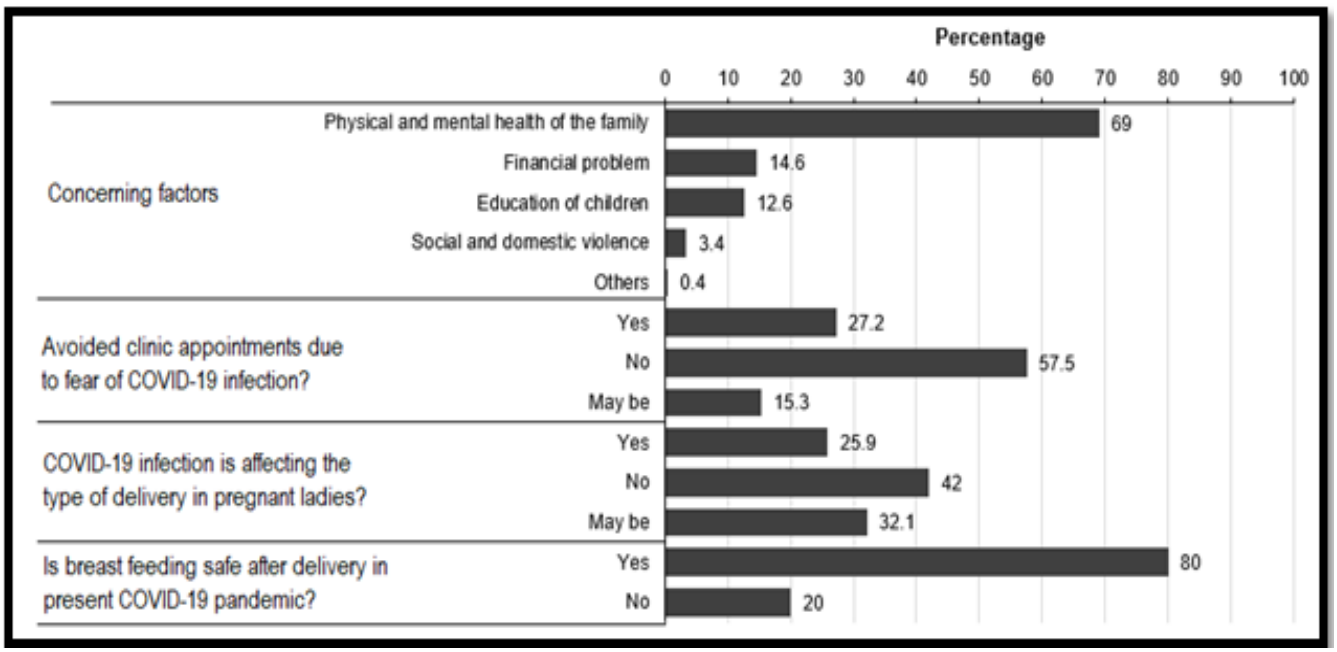

Figure 2- Reasons for not taking vaccines.