

Precautionary practices towards COVID-19 among pregnant women attending antenatal care in Nepal: A cross-sectional study

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ABSTRACT

INTRODUCTION COVID-19 has placed excess stress on the antenatal health care system and added additional complexity to expecting mothers. This study aimed to study the attitude and precautionary practices of non-infected pregnant women during the COVID-19 pandemic in Nepal.

METHODS A cross-sectional study was carried out interviewing all 195 pregnant women attending an antenatal care outpatient department in Nepal, between 15 March and 16 April 2021, using a pretested questionnaire. Precautionary practices were defined as the practice of social distancing, wearing masks, and sanitizing or washing hands, by the mothers during the antenatal period with a 5-point Likert scale for each item. Precautionary practices were categorized into good (\geq median score) and poor ($<$ median score).

RESULTS The majority of the women who participated in this study were from aged 20–29 years (71.7%), were Brahmin

(48.2%) and 84.6% Hindu. Since 46.2% of women assumed the close contact of mother to child as safe practice with specific precautions, only 17.9% were willing to isolate themselves if infected by COVID-19. Overall, 35.9% of the respondents were only willing to breastfeed their newborn, even with specific precaution if infected. Nearly half of the respondents (47.2%) had poor precautionary practice during the COVID-19 pandemic and the level of precautionary practices was found significantly associated with age and occupational status.

CONCLUSIONS Most of the respondents were concerned about the threats of mother to child transmission but found to have poor precautionary practices towards COVID-19. Thus, adequate counselling regarding COVID related issues during an antenatal checkup is required to be provided by health workers to break their perceived stigma for better maternal and neonatal outcomes.

INTRODUCTION

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is a novel coronavirus that may impact pregnancy¹⁻³. Since COVID infections in pregnant women require a higher rate of intensive care compared to other women, with possible transmission to a newborn with further complications, they are often considered a high-risk population, similarly to other severe viral infections^{4,5}. In order to prevent pregnant women and their fetuses from COVID-19, a positive attitude towards preventive approaches

of COVID-19 transmission for practicing precautionary measures by themselves is required⁶. Studies in those areas are emerging in the general population and healthcare professionals but are limited in pregnant women⁷⁻¹⁰.

As the pandemic continues to intensify globally, it's important to understand the attitude of pregnant women towards COVID-19 and clarify the precautionary measures they are practicing. Thus, this study aims to assess the attitude and precautionary practices of pregnant women towards COVID-19, in Nepal.

METHODS

Study design

This was a hospital-based cross-sectional study that employed a quantitative approach to investigate pregnant women’s attitudes and precautionary practices towards COVID-19, at the antenatal outpatient department of Chitwan Medical College Teaching Hospital, Bharatpur, Nepal. All pregnant women who visited the antenatal outpatient department during the one-month study period (15 March – 16 April 2021) for an antenatal check-up and were willing to participate in the study were included. Women who were either healthcare professionals or who disagreed to provide written consent were excluded from the study. Thus, the total population for the study was 195 women.

Ethical approval was obtained from the Chitwan Medical College Institutional Review Board followed by administrative approval from the management of Chitwan Medical College Teaching Hospital. A voluntary written informed consent was obtained from each respondent after clear explanation of the objectives of the study. Respondents were prior informed about their right to participate and voluntary withdraw from the study at any time they wanted, without any difficulty. They were also assured of confidentiality during the study by protecting their information and identity. Similarly, they were informed about having no any risks as well as any direct benefits participating in this study. Each respondent was well informed about the face-to-face interview that was done on individual basis and their privacy and safety precaution was maintained throughout the process of data collection.

Measurements

Data collection was done in the separate corner outside the antenatal Out Patient Department of Chitwan Medical College Teaching Hospital. The questionnaire was peer-reviewed by all authors. Also, two academic experts on midwifery and two obstetricians reviewed the questionnaire for content validity and appropriateness of questions. Further validation was done through pretesting which took place in the same setting one month prior to the study. The questionnaire consisted of four parts: Respondent’s demographic characteristics (Q1–Q10), respondent’s attitude on safe distancing measures (Q11–Q17), respondent’s precautionary practices during COVID-19 (Q18–Q22) and respondent’s perception towards COVID-19 (Q23–Q34).

Here, precautionary practices refer to the practice of social distancing, wearing masks and sanitizing or washing hands by the mothers during the antenatal period which includes five items with 5-point Likert scale for each item (maximum 5 and minimum 1). Finally, the precautionary practice was categorized into good (\geq median score) and poor ($<$ median score) according to the score achieved. Here, the median score was found to be 18. The instrument was tested for reliability, which yielded the following scale reliability coefficients (Cronbach’s alpha); attitude on safe

distancing measures (0.71), precautionary practices (0.84), and perception (0.78). The items in the instrument showed

Table 1. Characteristics of participants who visited the antenatal outpatient department of Chitwan Medical College Teaching Hospital, Bharatpur, Nepal, March–April 2021 (N=195)

Characteristics	n (%)
Age (years)	
15–19	13 (6.7)
20–24	74 (37.9)
25–29	66 (33.8)
30–34	33 (16.9)
35–39	9 (4.6)
Ethnicity	
Brahmin	93 (48.2)
Chhetri	19 (9.7)
Janajati	66 (33.8)
Dalit	16 (8.2)
Religion	
Hindu	165 (84.6)
Buddhist	26 (13.3)
Christian	3 (1.5)
Muslim	1 (0.5)
Education level	
Illiterate	8 (4.1)
Primary	20 (10.3)
Secondary	71 (36.4)
Higher secondary and above	96 (49.2)
Occupational status	
Employed	82 (42.1)
Unemployed	113 (57.9)
Trimester (weeks)	
First (<13)	39 (20)
Second (13–26)	61 (31.3)
Third (>26)	95 (48.7)
Number of living children	
0	106 (54.4)
1	74 (37.9)
2	12 (6.2)
3	3 (1.5)
History of miscarriage	
No	152 (77.9)
Yes	43 (22.1)

good internal consistency.

Entry and analysis of the data was performed using Statistical Package for Social Science (SPSS) version 20.0 and presented in tables. All quantitative parameters were described in statistical terms of median and standard deviation, and presented in number and percentage. Chi-squared tests were applied for depicting the association between variables. A p-value of less than 0.05 was considered to be statistically significant.

RESULTS

A total of 195 pregnant women (median age: 26 years, range:17–39) participated in this study. The clinical and demographic characteristics are presented in Table 1. Among them, the majority were from aged 20–24 years (37.9%) and 25–29 years (33.8%). Nearly half (48.2%) were Brahmin and the majority (84.6%) were Hindu. Almost half (46.2%) had completed higher secondary level education and above, but comparatively less (42.1%) women were employed. In

terms of obstetric history, all women conceived naturally, 95 (48.7%) were in their third trimester, 106 (54.4%) had no children, and 43 (22.1%) had a history of miscarriage.

The distribution of participants' attitude on safe distancing measures (Q11–17), precautionary practices (Q18–21), perception (attitude) towards COVID-19 during antepartum (Q23–28), intrapartum (Q29–30) and postpartum (Q31–34), amidst COVID-19 in pregnancy, were measured. More than half of the respondents (54.4%) were found to be checking for COVID-19 related news often and very often (Q1), but only 19% of total respondents mentioned being worried and very worried about being infected with COVID-19 in pregnancy (Q23). More details are given in the Supplementary file.

Out of 195 participants, more than half (52.8%) had good precautionary practices during the COVID-19 pandemic. Those having a practice score more than or equal to the median score were considered as having good practice. Mainly, social distancing, handwashing/hand sanitizing and

Table 2. Association between level of precautionary practices and sociodemographic variables of participants who visited the antenatal outpatient department of Chitwan Medical College Teaching Hospital, Bharatpur, Nepal, March–April 2021 (N=195)

Variables	Level of precautionary practices		χ^2	p
	Good n (%)	Poor n (%)		
Age (years)			12.542	0.014
15–19	7 (53.8)	6 (46.2)		
20–24	48 (64.9)	26 (35.1)		
25–29	24 (36.4)	42 (63.6)		
30–34	20 (60.6)	13 (39.4)		
35–39	4 (44.4)	5 (55.6)		
Religion			2.728	0.099
Hindu	83 (50.3)	82 (49.7)		
Non-Hindu	20 (66.7)	10 (33.3)		
Education level			2.591	0.107
Illiterate	2 (25.0)	6 (75.0)		
Literate	101 (54.0)	86 (46.0)		
Occupational status			22.472	0.000
Employed	27 (32.9)	55 (67.1)		
Unemployed	103 (52.8)	92 (47.2)		
Presence of child			2.065	0.151
Absence	51 (48.1)	55 (51.9)		
Present	47 (58.4)	42 (41.6)		
Trimester (weeks)			0.264	0.877
First (<13)	22 (55.4)	17 (43.6)		
Second (13–26)	32 (52.5)	29 (47.5)		
Third (>26)	49 (51.6)	46 (48.4)		

wearing of mask inside and outside the home were included in precautionary practice measured on a 5-point Likert scale. Table 2 presents the level of precautionary practices found to be significantly associated with age and occupational status.

DISCUSSION

This study was conducted during the first wave of COVID-19 cases being reported in the country. Due to the rapid spread of COVID-19, its strong contagion and mortality in severe cases, it poses a huge threat to human life and health, and also has a huge impact on the attitude and precautionary practices in day-to-day life among pregnant women.

To date, the majority of pregnant women have been infected with COVID-19 and the number is increasing rapidly on a daily basis. Though the impact of COVID-19 on pregnant women and their newborn is not yet clear, evidence from 77 cohort studies indicates that they are a high-risk population in COVID-19, whose requirements for intensive care and invasive ventilation were 62% and 88% higher than for non-pregnant women^{4,11,12}.

Our study evaluated the attitude and precautionary practice among pregnant women during this pandemic in a tertiary center of Chitwan district. Among the respondents, more than half (55.4%) were found to be informed about COVID-19-related news often by social media. According to the government's lockdown and quarantine protocols after the first detected case on 23 January 2020 in Nepal¹³, more than one-third (37.9%) and nearly half (43.6%) of the respondents were aware of an official stay-home notice/home quarantine order for themselves and their family. Similar to other studies¹⁴, the majority (89.2%) of the respondents mentioned that they had not missed their regular antenatal care appointment due to fear of COVID-19, and 67.2% of pregnant women considered the visits to be important.

We found that more than half (52.8%) of pregnant mothers had good precautionary practices during the COVID-19 pandemic. Our survey showed that Nepalese pregnant women mostly practiced wearing masks outside the home and sanitized their hands at a higher frequency to minimize the spread of COVID-19, which is consistent with the study conducted by Lee et al.¹⁴ in Singapore which revealed that Malay pregnant women practiced safe distancing and sanitized their hands at a higher frequency to minimize the spread of COVID-19. Likewise, our precautionary practice score was lower compared to the study conducted by Kamal et al.¹⁵ among Indian women who showed almost all of the respondents practiced safety measures such as social distancing and hand sanitization. In contrast, various studies in Ethiopia pointed out that a larger number of women had poor preventive measures of COVID-19 infection^{16,17}. The difference in the scores across the various countries might be due to public health measures being new, requiring time to adapt to the new norms. This also indicates the need for social media, newspapers,

television channels, and government health agencies, to educate the population to attain good precautionary practices in COVID-19.

On the other hand, the present study showed that precautionary practices were significantly associated with occupation, which is consistent with the study of Defar et al.¹⁸ in Ethiopia, which revealed that occupational status was associated with the practice of precautionary measures among high-risk groups against COVID-19. Similarly, the conclusion drawn from the present study suggests that women who were aged 20–24 years were more likely to engage in good COVID-19 practices, which is consistent with the findings from various studies which showed that young women were more likely to have good precautionary practices for COVID-19^{1,16}. One possible explanation for this might be that the young women might be more involved in practicing the positive measures and likely to adopt a new lifestyle to protect themselves against the disease compared to older women. In contrast, Kumbeni et al.¹⁹ showed that women who were aged ≥ 28 years were more likely to engage in good COVID-19 preventive practices compared to women aged < 20 years.

In this study, most of the respondents (76.9%) had not been given any sample for suspected COVID-19 testing though one-third (39%) of respondents' relatives tested positive. Nearly half (45.1%) of the pregnant women assumed that the risk of getting respiratory illness is higher among pregnant than non-pregnant women. Similar to the findings of a study by Lee et al.¹⁴, almost half of the respondents perceived that being infected with COVID-19 involved a higher chance of transmitting the infection to the baby during antepartum (44.6%), intrapartum (41.5%) and postpartum (45.6%), but the majority of the women (71.3%) disagreed with the statement that infected pregnant women are more likely to miscarry or go into labor early. A similar study in Turkey revealed that the majority (80%) of the uninfected pregnant women were predominantly concerned about COVID-19, whereas half (52%) felt vulnerable²⁰. One-third of these women (35.5%) were constantly stressed about the threat of being infected during and following delivery, and 42% were worried about their baby being infected after birth. Those concerns were addressed well in the study by Di Masico et al.²¹ where nearly half (41%) of pregnant women who tested positive for COVID-19 had experienced preterm delivery. These findings are congruent with the outcomes of large scale studies in US and UK²² as well as with a previous analysis¹ which showed that COVID-19 infected pregnant women had three times the odds of delivering preterm compared to those without infection. During the flu pandemics of 2009–2010, infected pregnant women were at higher risk of preterm delivery and stillbirth²³. The majority of the respondents did not want a caesarean section over a vaginal delivery, both in the case of suspected (60%) or infected (62.6%) with COVID-19 in this study. Several systematic reviews during

2020 reveal a preterm birth rate of 20%²⁴ with low rates of vertical transmission to the baby^{24,25} as well as a higher rate of caesarean delivery²⁴ among infected cases. Nearly half of the women (46.2%) perceived that it would be safe for the baby to have close contact with the infected mother after delivery; thus the majority (67.7%) were unwilling to isolate their baby for 2 weeks post-delivery even if they were found to be infected. Regarding the issue of breastfeeding, more than two-thirds (66.2%) of respondents chose to breastfeed their babies under normal conditions but only one-third (35.9%) were ready to breastfeed their babies if they were found positive post-delivery. Though breastfeeding is not considered completely safe, recent evidence suggests a small risk of transmission through breast feeding^{20,26,27}. Despite the fact that breastfeeding requires close contact and may be of concern in infected mothers, adequate precautionary practices can prevent neonatal transmission. Further, isolating infected mothers from newborns causes loss of physical bonding and emotional attachment, which may have a negative psychological impact on infected women.

Limitations

Since we attempted to conduct a physically-based survey, we were limited to a small sample size due to decreased flow of women visiting antenatal care after the first wave of COVID-19, though our setting was one of the highest referral centers in our district. A larger study would be essential to confirm our findings. This study being cross-sectional as well as hospital-based, only those women who came for antenatal checkup in the designated facility were interviewed, thus limiting generalizability to the obstetric population in the study area. In addition, our findings may be influenced by significant rejection by the antenatal mothers who were unwilling to participate in our study due to safety and exposure concerns amidst the COVID-19 pandemic, which may affect attitudes and precautionary practices of that population. Since this study is conducted in one of the tertiary centers of Nepal selected conveniently with a limited sample and limited time frame, generalization of the findings is limited to this institution, thus similar studies are recommended on a larger scale.

CONCLUSIONS

In our study, most of the respondents were concerned about the possible threat of transmission of infection from mother to baby, and were not ready to breastfeed their newborn if found infected even with strict precautionary measures. They were not willing to undergo caesarean delivery as well as possible isolation. Occupation and age related factors are likely to influence the attitudes and precautionary practices among pregnant women towards COVID-19. Perception and attitude towards COVID-19 as well as the precautionary practices of the pregnant women, as revealed from the study, can guide health workers to communicate better with pregnant women who might have misconceptions on

breastfeeding, precaution and isolation issues. This will help health workers to formulate adequate counselling for antenatal mothers, focusing more on these issues for psychological support and better health outcomes.

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CONFLICTS OF INTEREST

The authors have completed and submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest and none was reported.

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ETHICAL APPROVAL AND INFORMED CONSENT

Ethical approval was obtained from the Chitwan Medical College Institutional Review Board with (Approval: 2075/76042; Date: 24 December 2020) followed by administrative approval from the

management of Chitwan Medical College Teaching Hospital. A voluntary written informed consent was obtained from each respondent after clear explanation of the objectives of the study.

DATA AVAILABILITY

The data supporting this research are available from the authors on reasonable request.

PROVENANCE AND PEER REVIEW

Not commissioned; externally peer reviewed.