International Journal of Research in Medical Sciences
Singh AK et al. Int J Res Med Sci. 2024 Jan;12(1):200-207
www.msjonline.org
pISSN 2320-6071 | eISSN 2320-6012

DOI: https://dx.doi.org/10.18203/2320-6012.ijrms20234000

Original Research Article

Knowledge, attitude and practices of pregnant women for antenatal care during COVID-19 pandemic

Ajay K. Singh[1]*, Promila K. Goel[2], Sukhmanpreet Kaur[3], Vishal K. Goel[1]

[1]Department of Health and Family Welfare, Solan, Himachal Pradesh, India
[2]MSc Nursing, Murari Lal Memorial College of Nursing, Solan, Himachal Pradesh, India
[3]School of Nursing, Desh Bhagat University, Mandi Gobindgarh, Punjab, India

Received: 24 November 2023
Revised: 13 December 2023
Accepted: 18 December 2023

***Correspondence:**
Dr. Ajay K. Singh,
E-mail: ajaysingh7279@gmail.com

ABSTRACT

Background: The antenatal care had suffered across the globe during COVID-19 pandemic. This study was undertaken to elicit knowledge, attitude and practices adopted by pregnant women for antenatal care during the pandemic.
Methods: A cross-sectional survey was undertaken (N=126) at a purposively selected community health center Nalagarh of Solan district in north India. Self-administered pilot tested standardized questionnaire was employed.
Results: 46 percent of women were in age group of 21-25 years and had secondary level of education. 60 percent were primigravida. 47 percent of pregnant women significantly undertook antenatal care from civil hospital and 33 percent availed these services from the public health facility of the level of Primary Health Centre or Community Health Centre, χ^2 (1, N=126) =7.7, p=0.02. All pregnant women had taken complete antenatal care for four times and as per schedule. Only one tested positive for the disease COVID-19. Majority of the pregnant women studied were asymptomatic. The participants had the knowledge about symptoms of disease and COVID-19 appropriate behavior. About 25 percent also had difficulty in approaching the public health sector due to lack of accessible transportation. 18 and 33 percent of pregnant women suffered from stress and anxiety respectively. All undertook iron and folic acid along with tetanus prophylaxis. 21 and 18 percent practiced wearing of face mask and frequent hand washing with soap respectively.
Conclusions: COVID pandemic did not hinder antenatal care adopted by pregnant women. Lockdown and isolation were important perceived worrisome aspects of the disease.

Keywords: Antenatal care, Anxiety, COVID-19, Lockdown, Pandemic, Pregnancy, Stress

INTRODUCTION

Four suspicious cases of pneumonia were reported to World Health Organization (WHO) in Wuhan city of China in December 2019. Later on, an outbreak of the disease occurred which had spread to other countries within a very short span of time. On 11th March 2020, WHO had defined it as a pandemic named corona virus disease 2019 (COVID-19) caused by severe acute respiratory syndrome corona virus 2 (SARS- COV- 2).[1,2] Rapid spread of the disease globally and its devastating impact on mortality led many countries to impose restrictions (lockdowns) on movement of people and allocation of non-emergency health care for this disease management.[3,4]

Pregnant women were declared as vulnerable group as pregnancy was assumed to have greater risk of complications and severe form of infection with some other corona viruses including severe acute respiratory syndrome (SARS) and Middle Eastern respiratory syndrome (MERS).[5-7] Although, the impact of SARS-CoV-2 in pregnancy is still largely unexplored in terms of

effects on implantation, fetal growth and development, labor and neonatal health.

Socio-economic repercussions of the restrictions imposed due to various lockdowns on the society and on movement of people and goods, due to this disease were a plethora of indirect consequences of this pandemic. Reduced access to reproductive health services, increased mental health strain, deprivation of adequate antenatal care and largely the deficit in maternal-child health delivery system surfaced in the times of quarantine and lockdowns, which were a frequent feature in India, a developing lower middle income group country. The International Federation of Gynecology and Obstetrics had recommended having access to antenatal care through alternative methods such as tele-consultations as a measure to prevent the infection to pregnant women and also to the health care providers.[8-10] Many administrative changes were incorporated in the hospitals including social distancing, limited outpatient departments (OPD) functioning, compulsory wearing of face masks and use of personal protection equipment (PPE). All non-essential travel and contact with other individuals outside a person's home environment were banned. Pregnant women suffering from SARS-CoV-2 infection probably would have had different perception of the disease as compared to their counterparts who did not catch the infection, especially related to the pregnancy outcomes. Although the passage of virus from mother to child both during intra-uterine, intra-partum and through breastfeeding is rare, still the apprehensions related to disease may have developed in pregnant women. Adverse outcomes resulting from maternal infection with SARS-CoV-2 during pregnancy are infrequent.

Solan, a district in the mid hills of northern state of Himachal Pradesh, has been witnessing fast industrialization and urbanization. During the various restrictions including the lockdowns imposed herein during the pandemic, the antenatal services had also moved on back foot despite of level best health administrative efforts for their sustenance.[11] This probably might have also affected the knowledge, attitude and practices of the pregnant women with respect to their availing the antenatal services. Henceforth, this exploratory study was conducted for the assessment of the behaviour of pregnant women during the pandemic.

The study was undertaken to assess the knowledge, attitude and practice attributes of pregnant women for COVID-19 disease.

METHODS

Inclusion criteria

Pregnant women registered in Community Health Centre (CHC) of Nalagarh town of the district were enrolled for the study.

Exclusion criteria

The study did not include the pregnant women of this centre who had any of the mental health problems and were on treatment for the same from any of the medical practitioner.

Type of study

A cross-sectional study was undertaken for exploring the behaviour of pregnant women.

Study population

Pregnant women registered in the CHC who attended the CHC for seeking antenatal care.

Study area

The study was conducted in Community Health Centre Nalagarh of Solan district.

Study period

The study was conducted during 1st March-30th May, 2022.

Sample size

A convenient sampling technique was adopted. 130 Pregnant women were enrolled for the study. The sample size was calculated by employing the standard formula of sample size calculation for cross-sectional study as below:[12]

$$\text{Sample size} = \frac{Z_{1-\frac{\alpha}{2}}^2 \, p\,(1-p)}{d^2} = 110$$

Adding 10% non-response, sample size = 130. Here: $Z_{1-\alpha/2}$ = Standard normal variate [at 5% type 1 error ($p<0.05$)] and is 1.96. p is the expected proportion in the population (12.3 %). d is absolute error or precision (5%).

Out of 130, four participants did not complete the study, however they were provided full antenatal care services.

Study tool

A self-administered standardized questionnaire was used for the study for the 126 study participants. This questionnaire was pilot tested amongst 46 pregnant women prior to the start of the study. The evaluation was done in terms of frequencies and proportions by using this questionnaire.

Ethical consideration

Voluntary participation after informed written consent was ensured throughout the study. Human subject

protection was assured by coding all the responses from the participants. The coded and decoded keys remained with the principal investigator of the study. The answer sheets were destroyed after the completion of the study. The permission for the study was sought from the Ethics Committee of University School of Nursing, DBU, Mandi Gobindgarh, Punjab.

Statistical analysis

The data was analysed in Statistical Package for the Social Sciences, IBM Version 21 and Microsoft Excel 2010 software. The *p* values of <0.05 were considered as significant.

RESULTS

The data illustrated in Table 1 inferred that majority of the study participants (46 percent) belonged to the age group of 21-25 years and 60 percent were primigravida. Majority (46 percent) were having the secondary level of education.

The parity status was significantly associated with the socio-demographic variables. 61 percent of the multigravida and 64 percent of primigravida belonged to lower and middle social economic status respectively, χ^2 (1, N 126) =48.1, p<0.05.

Table 1: Socio-demographic profile of study participants (N=126).

Characteristic		Frequency	Percent
Age group (years)	18-20	18	14
	21-25	58	46
	26-30	34	28
	31-35	13	10
	36-40	3	2
	41 and above	0	0
Religion	Hindu	116	92
	Muslim	8	6
	Sikh	2	2
	Others	0	0
Education	No formal education	4	3
	Primary	15	12
	Secondary	58	46
	Senior secondary	36	29
	College and above	13	10
Occupation	Self employed	0	0
	Government job	0	0
	Private job	3	2
	Housewife	123	98
Marital status	Married	126	100
	Divorcee	0	0
	Widowed	0	0
Married for (years)	<1	2	2
	1-5	93	74
	6-10	21	17
	11-15	10	7
Type of family	Nuclear	6	5
	Joint	120	95
Socio-economic status	Low	23	18
	Middle class	103	82
	Uppler class	0	0
Parity status	Primigravida	75	60
	Multigravida	51	40
Gestational age (weeks)	>5-12	39	31
	13-25	49	39
	26-40	38	30
	41 and above	0	0

Table 2: Antenatal characteristics of study participants (N=126).

Antenatal care characteristic		Frequency	Percent
Have all 4 antenatal care services undertaken	Yes	125	99.2
	No	1	0.8
Timing of services taken	Received on time	111	88.1
	Did not receive on due time	10	7.9
	By attending emergency department	3	2.4
	Consulted ASHA worker on phone but no actual visit	2	1.6
Aspect of COVID-19 which hindered to receive services	Lockdown	0	0
	Closure of nearby health facilities	0	0
	No transport facility	2	1.6
	No one to accompany	3	2.4
	No hindrance	113	89.7
Apprehensions behind seeking services during COVID-19	About self-health	84	66.7
	About fetal health	14	11.1
	Non availability or delay in getting services	6	4.8
	Fear of lockdown/isolation	22	17.5
Determining factor for ANC	Decision of husband	44	35
	Finances	31	25
	Transport facility	15	12
	Communication means	36	29

Table 3: Knowledge characteristics about COVID-19 amongst pregnant women (N=126).

Characteristic		Frequency	Percent
Symptoms of COVID-19	Fever	102	81
	Cough	91	72
	Difficulty in breathing	100	79
	Headache	61	48
	Loss of taste	55	44
	Not known	5	4
COVID appropriate behaviour	Known	121	96
	Unknown	5	4
Period in which knowledge about COVID was gained	Before pregnancy	113	90
	During pregnancy	13	10
Primary source of knowledge	Radio and television	106	84
	Newspaper	18	14
	Others	2	2

Table 2 elicited that almost all the study participants had undertaken complete four antenatal checkups and majority of them had received this antenatal care on time and as per schedule. There was no hindrance reported in availing these services in lieu of COVID-19 restrictions including the lockdown. Although about 17.5 percent had the fear of lockdown related isolation. The most important aspect of antenatal care was the perceived apprehension of self-health related problems during the pandemic.

The study participants had the knowledge of the symptoms of COVID-19. Fever was the most important symptoms known to about 81 percent of the participants. Only about 4 percent did not know about any of the symptoms of the disease. Majority of the participants also knew about the COVID appropriate behaviour and 84 percent of this knowledge was received from radio and television (Table 3).

Table 4 reflected the attitude of the pregnant women during the COVID-19 pandemic. About 40 percent of women checked about COVID-19 in news only once a week and another 9 percent did not check at all the news about the pandemic. Lockdown was the most important reason perceived for the worry faced by the participants and isolation surfaced as the topmost worrisome issue during the pregnancy in this pandemic period.

Table 4: Attitude characteristics about COVID-19 amongst pregnant women (N=126)

Characteristic		Frequency	Percent
Checking about COVID news on social media	Regularly on daily basis	40	32
	Intermittently in a gap of two-three days	24	19
	Rarely, once in a week or more	51	40
	Did not check at all	11	9
Disclosing about a known COVID patient	Disclosed	123	98
	Did not disclose	3	2
Relation with disease	Occupied with stress	22	18
	Having anxiety	42	33
	Having palpitation	1	1
	Feeling dizziness, sore throat, feverish	22	18
	No attitude developed	13	10
Effect on diet	Improved as more attention paid	74	59
	Diet deteriorated due to lesser food choices	4	3
	No effect	48	38
Aspect of pregnancy most worried about	Isolation	60	48
	Delivery outcome	23	18
	Well being of new born	39	31
	Access to health care	4	3
Reasons for worry	Lockdown	91	72
	Closure of nearby health facilities	14	11
	Lack of transport facilities	21	17

Table 5: Practice characteristics of pregnant women about COVID-19 (N=126).

Characteristic		Frequency	Percent
Undertook Test for COVID-19	Yes	7	6
	No	116	92
	Not disclosed	3	2
Procurement of daily need commodities	Accessibility	99	79
	Some difficulty but managed	24	19
	Could not access due to lockdown	3	2
Steps undertaken for solutions to health problems	Visited health facility	17	14
	Waited for self cure	11	9
	Consulted family member	3	2
	Online consultation	0	0
	Not applicable	95	75
Health facility visited for ANC	Regional hospital	1	1
	Civil hospital	59	47
	Primary/community health centre	42	33
	Health sub centre	1	1
	Private hospital	23	18
Took Iron Folic acid prophylaxis for 100 days	Yes	125	99
	No	1	1
Health facility visited for COVID-19 apprehensions	Yes	55	44
	No	71	56
COVID-19 appropriate behaviour practiced	Wearing face mask	113	31
	Social distancing	84	23
	Hand washing	73	20
	Avoiding crowded place	93	26

Table 5 evinced the practice attributes of the pregnant women during the COVID-19 pandemic. In the present study only 6 percent of the pregnant women had undertaken the test for diagnosis of COVID-19. Only one study participant tested positive for the disease. 47 percent of the pregnant women significantly undertook antenatal care from civil hospital and 33 percent availed these services from the public health facility of the level of PHC or CHC, χ^2 (1, N=126) =7.7, p=0.02.

The type of health care facility adopted for antenatal care also depended upon the economic status of the patient with 86 percent of them seeking health care from public sector (CH, CHC or PHC). About 25 percent also had difficulty in approaching the public health sector due to lack of accessible transportation. Only 12 percent of these antenatal checkups at private institutes were decided by the the husbands of the pregnant women. These factors were found statistically significant, χ^2 (4, N=126) =27.4, p=0.02.

The present study elicited that only one pregnant woman tested positive for the disease COVID-19 although about 4 percent of all the study participants had the history of shortness of breath and another 6 percent were suffering from sore throat, cough and fever. Majority of the pregnant women studied were asymptomatic.

However, the presence of mental illness was profoundly present in the present study participants. A large proportion of pregnant women suffered from stress and anxiety (18 and 33 percent respectively). Vague symptoms like dizziness (25 percent) and palpitation (1 percent) were also present which did not have any other medical morbidity condition behind it. The present study had revealed the various knowledge related attributes of the pregnant women during the pandemic. Three aspects significantly hindered the adoption of COVID-19 appropriate behavior during the pregnancy, χ^2 (2, N=130) =6.6, p=0.03. These were the lack of awareness about the disease (50 % each amongst primi and multigravida), non-availability of masks and sanitizers during the pregnancy (67 and 33% amongst primi and multigravida respectively) and poor economic conditions (83 and 17% amongst primi and multigravida respectively).

The study also illustrated the various attitude related attributes of the pregnant women during the pandemic. 27, 22 and 52% respondents were those who had watched the news about COVID-19 on social media on regular, intermittent and rare occasions respectively and had then consumed medicines on the advice of doctor for alleviating the apprehensions of the COVID-19, χ^2 (1, N=130) =8.2, p=0.04. Moreover, 48, 9 and 43% respondents were those who had watched the news about COVID-19 on social media on regular, intermittent and rare occasions respectively and had then consumed medicines on their own and without the advice of the doctor, χ^2 (1, N=130) =8.2, p=0.04

Majority of the ante-natal care seekers approached the public health sector for their checkup (about 82 percent). Almost all the pregnant women had undertaken the complete antenatal checkups. Intake of iron and folic acid prophylaxis and immunization with tetanus was also undertaken by almost all of the pregnant women. The present study also inferred that about 21 percent practiced wearing of face mask in public and another about 18 percent adopted frequent hand wash with soap. About 27 percent of the antenatal care seekers consulted health care providers for their minor ailments whereas similar proportion i.e. about 28 percent waited for self-cure of their minor symptoms during the pregnancy. Only about 3 percent of the pregnant women utilized the online consultation services for seeking the ante-natal care for minor ailments suffered during the pandemic.

DISCUSSION

The present study inferred that the pregnant women had undertaken their antenatal care from the public health facilities like primary health centre, community health centre and civil hospitals of the region during the pandemic. Even the investigations ranging from blood to radiological assessment was availed from these facilities without any difficulty during the pandemic period. Similar findings have been reported in studies by Matthew et al and Huijun et al wherein antenatal care including laboratory investigations like lymphopenia, leukopenia, thrombocytopenia, elevated levels of C-reactive protein and transaminases, had been undertaken.[13,14]

The economic status and the decision of husband in antenatal care seeking aspect also played a vital role in determining the adequateness and timing schedule of the antenatal care sought. This study also revealed that majority of the women had undertaken all the scheduled antenatal care from the public health facilities of PHC, CHC or CH. Yang et al also reported in their study about similar sort of ante natal care being sought by the pregnant women during the COVID-19 pandemic.[15]

It was demonstrated in the present study that majority of the pregnant women remained asymptomatic during the pandemic. Very few suffered with influenza like illness symptoms like shortness of breath, sore throat, cough and fever. Barbara also had similarly reported in their study that majority of the pregnant women remained asymptomatic during the pandemic or had very mild symptoms like sore throat and cough.[16]

Apprehension of contacting the COVID-19 disease was observed amongst the study participants. Stress and anxiety features were observed in a large proportion of them. The study had revealed that the knowledge and perception about the disease did influence the antenatal care seeking behaviour of the pregnant women. Muralidar et al also had similarly reported 59-67% of pregnant women reported being worried about contracting

COVID-19 or their unborn baby and other family members and loved ones contracting COVID-19.[17]

The study also revealed that the economic condition of the patient and availability of masks, sanitizers etc. also determined the practices of these pregnant women, adopted for the prevention of the disease COVID-19. Basu et al had also similarly reported about the various factors associated with the pregnancy during the pandemic.[18] Marian et al had also similarly documented the characteristics of pregnant women during the pandemic observed during the ante-natal care.[19]

Majority of the pregnant women had undertaken all the four antenatal care services and these were availed as per the schedule, during the pandemic. Allotey et al in their study had reported the ante natal care services being availed by maximum of the expecting beneficiaries, during the pandemic.[20] Augusto et al had also similarly documented in their study about the timing and appropriateness of the antenatal care services during the pregnancy in COVID-19 pandemic.[21]

The study could not include the antenatal women attendees who had co-morbidities such as diabetes, hypertension, jaundice and thyroid related disorders due to time and resource constraints.

CONCLUSION

The present study had inferred that the COVID-19 pandemic did not affect the antenatal care services being sought by the pregnant women. The pregnant women had the knowledge about the disease and they did practice all the required aspects of antenatal care despite of the restrictions imposed during various periods of the pandemic. The information about the disease available on mass media was used by the pregnant women and this did shape their attitude towards the disease.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Singh AK, Goel PKK, Kaur S, Goel VK. Knowledge, attitude and practices of pregnant women for antenatal care during COVID-19 pandemic. Int J Res Med Sci 2024;12:200-7.