

KAP Study Regarding COVID-19 Amongst Pregnant Women, in Central India

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Abstract

Objectives: To assess the knowledge, attitude and practices of preventive measures against COVID-19 infection among pregnant women. It is our understanding that assessing healthcare needs and healthcare education form the pillars for better healthcare thereby this study was conducted.

Methodology: An observational cross-sectional study was conducted in which 150 antenatal women were included. Face-to-face interview was conducted by using a self-developed internally validated semi-structured questionnaire based on 3 major domains, Knowledge (10), Attitude (10) and Practice (4), with close ended questions. Each response -correct was allotted score 1 & incorrect allotted score of 0. The responses were described as frequencies and percentages. Scoring system- Poor score <60%, Fair score 60-75%, Good score > 75% of total score in each domain.

Results: 103(68.7%) had good knowledge and 121(80.7%) had poor attitude, regarding COVID affecting their pregnancy, antenatal visits and unborn baby. 113(75.3%) were practicing preventive habits.

Conclusion: Our study showed the anxiety and fear related to Covid-19 affected mental health of women and their adherence to antenatal care which needs to be addressed in providing antenatal care services.

Keywords: Knowledge, Attitude, Practice, COVID-19, pregnant women

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Introduction

The battle against COVID-19 is still continuing all over the world and is a constantly evolving one. Many of the facts on pandemic keep on changing and many myths are prevalent causing confusion and panic in the public. Anxiety and fear among the population further clouds the efforts to prevent the spread of infection. Several

preventive measures have been recommended to halt the spread of the disease and its associated mortality. To guarantee the final success over COVID 19, people's adherence to these control measures is essential, which is largely affected by their knowledge, attitudes, and practices (KAP) towards COVID-19 in

accordance with the KAP theory[1]. However, the level of knowledge and practice of these preventive measures against COVID-19 infection among pregnant women, which constitute vulnerable groups needed evaluation.

Pregnancy is one of the important milestones in a woman's life. During pregnancy, women are extremely apprehensive and anxious about their progress. There are fears of adverse maternal and perinatal outcomes in all pregnancies. In addition, there may be an increased risk of adverse pregnancy outcomes, such as preterm birth, among pregnant people with COVID-19[2]. Overall, pregnant women constitute a vulnerable group and need to be more cautious as shown in an analysis of 8207 cases of COVID-19 in the obstetric population, the Centers for Disease Control and Prevention (CDC) reported a higher risk of ICU admission and mechanical ventilation compared to not pregnant women, although no higher risk of mortality was identified (CDC 2020) [3]. The awareness among pregnant women regarding COVID-19 remains inadequately studied in central Indian population, so the aim of this analysis was to evaluate KAP of pregnant women regarding COVID-19 at a tertiary care obstetric centre in central India.

The Covid pandemic affected all spheres of healthcare and as obstetricians we perceived a need to assess the knowledge, attitude, and practices of antenatal women in central India regarding COVID-19 infection. It is our understanding that assessing healthcare needs and healthcare education form the pillars for better healthcare thereby this study was conducted.

Materials and Methods

It was an Observational cross-sectional study in OPD of Department of Gynecology and Obstetrics, LN Medical College, Bhopal, from January 2021 to

November 2021. Approval was sought from Institute Ethics Committee. All pregnant women attending the hospital were invited to participate in the study. Women who were not willing to participate were excluded. After obtaining informed written consent, 150 consecutive consenting pregnant women were recruited.

The data collection was based on face-to-face interview by doctors/nurses after receiving written consent, using a self-developed internally validated semi-structured questionnaire after conducting a pilot study on 10 candidates. The questionnaire consists of 3 major domains-Knowledge (10 questions), Attitude (10 questions) and Practice (4 questions). For each domain there were closed ended questions and each correct response has been allotted score 1 and an incorrect answer has been allotted score 0.

Scoring system on basis of standardized questionnaires studied was applied for our study as well.

Poor score <60%

Fair score 60-75%

Good score > 75% of total score in each domain.

The questions pertaining to the three domains (Knowledge, Attitude and Practice) were described as frequencies and percentages. SPSS version 25 was used for statistical analysis if needed.

Tool of data collection: The self-reported questionnaire has been developed as per the information available on websites of the Ministry of Health and Family Welfare (MoHFW), GOI, Ministry of AYUSH, GOI, WHO, and Centers for Disease Control and Prevention (CDC), United States of America. It was reviewed and verified by all the authors. The questionnaire had two language versions—Hindi and English, with questions framed in a way which aimed at being simple to understand for participants. In case the woman was illiterate, she was administered

the questionnaire verbally by a member of the study team.

Validity of semi structured questionnaire was established for face and content validity by a panel of five experts in obstetrics and gynecology and community medicine departments at our institute.

The questionnaire (**Table 1**) comprised of two sections—demographic details and KAP. Demographic details included name, age, address, religion, education status and profession. The KAP part of questionnaire assessed various aspects of knowledge, attitude and practices relating to COVID-19 infection.

The knowledge was evaluated through a set of 10 questions on epidemiology,

transmission, prevention, antenatal care in covid era especially teleconsultation provisions and its utilization as well as covid 19 vaccination.

Attitude was measured by a set of 10 questions which evaluated their behavior towards COVID-19 disease, anxiety related to being pregnant in covid times, concerns regarding contracting and transmitting the disease to the baby in utero and effect of covid 19 on making antenatal choices for this pregnancy like attending ANC clinics and deciding place of delivery.

Practices among participants were scored using 4 questions based on adherence to preventive measures such as social distancing, using face masks and frequent handwashing.

Table 1: Questionnaire used in the study.

Name:	Age:	Education:
Contact No:	Address:	Occupation:
GPLA:	Language of preference:	
Is this the first Hospital Visit in pregnancy:		

I. KNOWLEDGE DOMAIN- KNOWLEDGE TOWARDS COVID-19 INFECTION MEASURES

S.No	Question	Response		N(%)
K1	Are you aware of ongoing COVID-19 infection pandemic?	Yes-1	No-0	Yes-149(99.3%) No-1(0.7%)
K2	Do you think coronavirus disease is dangerous?	Yes-1	No-0	Yes-146(97.3%) No-4(2.7%)
K3	COVID-19 virus spreads via respiratory droplets of infected individuals?	Yes-1	No	Yes-137(91.3%) No-13(8.7%)
K4	To prevent infection with COVID-19, individuals should avoid going to crowded places as train/stations and avoid public transportation.	Yes-1	No-0	Yes-147(98%) No-3(2%)
K5	Do you think hand hygiene is important in controlling the spread of the virus?	Yes-1	No-0	Yes-147(98%) No-3(2%)
K6	Isolation and treatment of people who are infected with COVID-19 are effective ways to reduce the spread.	Yes-1	No-0	Yes-139(92.7%) No-11(7.3%)
K7	Did you know about the need for routine antenatal visits during pregnancy?	Yes-1	No-0	Yes-110(73.3%) No-40(26.7%)
K8	Do you know about tele consultation provisions?	Yes-1	No-0	Yes-78(52%) No-72(48%)
K9	Did you utilize tele consultation services at any time in this pandemic?	Yes-1	No-0	Yes-28(18.7%) No-122(81.3%)
K10	Do you know about vaccination for COVID19prevention?	Yes-1	No-0	Yes-129(86%) No-21(14%)

II. ATTITUDE DOMAIN- ATTITUDE CHANGES DUE TO COVID 19 INFECTION

S.No	Question	Response		Score
A1	Is this pregnancy a planned pregnancy?	Yes-1	No-1	Yes-92(61.3%) No-58(38.7%)
A2	Did you feel worried about getting pregnant in COVID 19 pandemic when you found out first about being pregnant?	Yes-0	No-1	Yes-97(64.7%) No-53(35.3%)
A3	Did you feel worried that since you are pregnant, you need to be more cautious than others?	Yes-0	No-1	Yes-140(93.3%) No-10(6.7%)
A4	Did you feel that since you are pregnant, if you get COVID 19 infection then there might be more chances of you than others of getting a severe form of disease?	Yes-0	No-1	Yes-122(81.3%) No-28(18.7%)
A5	Do you feel that COVID 19 infection during pregnancy can get transmitted to baby before it is born?	Yes-0	No-1	Yes-119(79.3%) No-31(20.7%)
A6	Over time and with increasing knowledge has your COVID19 related anxiety level decreased?	Yes-1	No-0	Yes-128(85.3%) No-22(14.7%)
A7	Do you feel that you could enjoy your pregnancy experience better if it was in a pre-Covid era?	Yes-0	No-1	Yes-129(86%) No-21(14%)
A8	Did you avoid going for routine antenatal visits due to the ongoing COVID 19 pandemic?	Yes-0	No-1	Yes-76(50.7%) No-74(49.3%)
A9	Do you feel comfortable in attending Antenatal clinics in hospitals which also treat COVID19 patients like medical colleges?	Yes-1	No-0	Yes-80(53.3%) No-70(46.7%)
A10	For all pregnant mothers: Have you altered your childbirth place due to this pandemic? If yes specify-- --Home delivery --Exclusively Non Covid institutions --Covid Institutions (non-covid +covid patients) Only for pregnant women who have given birth previously, where did you have your last childbirth? --home delivery --Small institutions (PHC, Nursing homes) --Large setup institutions (CHC, corporate setup,medical colleges)	Yes-0	No-1	Yes-41 (27.3%) All these changed to non-covid. No-109(72.7%) All these continued with mixed institutions.

III. PRACTICES DOMAIN- PRACTICE OF PREVENTIVE MEASURES OF COVID-19 INFECTION

S.No	Question	Response		Score
P1	In recent days, have you gone to any crowded places?	Yes-0	No-1	Yes-33(22%) No-117(78%)
P2	In recent days, do you practice wearing a mask while going outside?	Yes-1	No-0	Yes-147(98%) No-3(2%)
P3	In recent days, do you follow social distancing while going outside?	Yes-1	No-0	Yes-143(95.3%) No-7(4.7%)
P4	In recent days, do you practice hand sanitization?	Yes-1	No-0	Yes-142(94.7%) No-8(5.3%)

Total antenatal mothers were 150 with a mean age of 25.85 \pm 3.4 years with equal distribution of parity. All participants were literate and 92% belonged to urban areas while 84% were homemakers. Baseline information of study participants is depicted in **Table 2**.

Table 2: baseline characteristics of study participants

Parameter	Total number = 150
Age	
Age (Years) (Mean ± S.D)	25.85+/- 3.4
Range (Years)	19-36
Area of living n (%)	
Urban	138 (92)
Rural	12 (08)
Occupation	
Homemaker	126 (84)
Job	24(16)
Gravida Status	
PrimiGravida	75 (50)
Multigravida	75 (50)
Educational status	
Postgraduate	22(14.6)
Graduate	36(24)
Senior Secondary	30(20)
11th or Below	62(41.4)

Overall, the respondents had average knowledge score of 81%. Out of 150 women, 103(68.7%) had good knowledge of COVID infection and only 6(4%) had poor knowledge. The major area where knowledge was observed to be lacking was teleconsultation awareness and routine antenatal care awareness. Regards to teleconsultation, 78(52 %) were aware of

this provision but utilization was only 28 (18.7%) bringing out an area of possible interventions to ensure effective use of telemedicine in Covid era. Another area of antenatal care was observed where out of 150 about 40(26.7%) women were not aware of need for routine antenatal care even in Covid times.

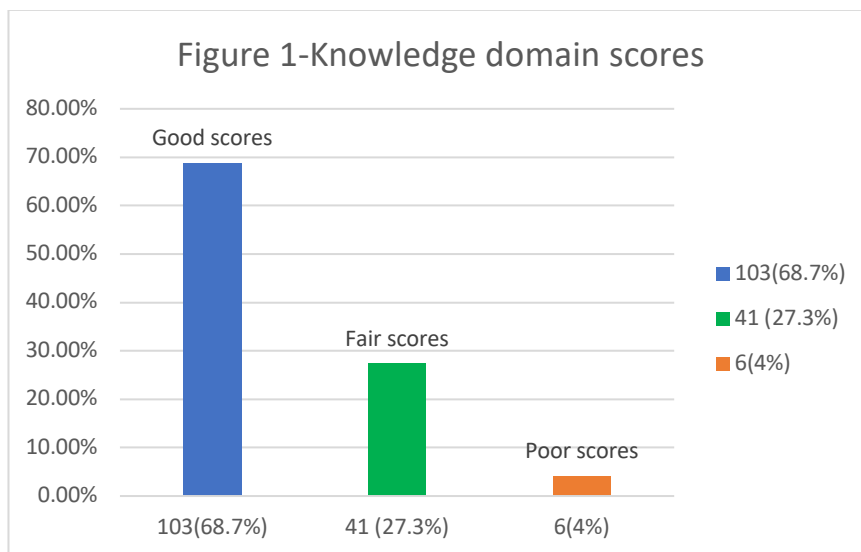


Figure 1: Knowledge Domain Scores

In the attitude’s domain, the distribution of responses from participants was also investigated (Figure 2). Overall, the

respondents had average attitude score of 42%. Out of 150, 121(80.7%) had poor attitude, regarding COVID affecting their

pregnancy, antenatal visits and unborn baby & only 7(4.7%) had good attitude. We also observed that only 42 (28%) participants changed their choice for place of birth to exclusively to non-Covid institutions. So,

although the attitude scores were generally very low and showed a negative effect of covid 19 on antenatal mothers' psychology but still antenatal choices largely remained unaffected.

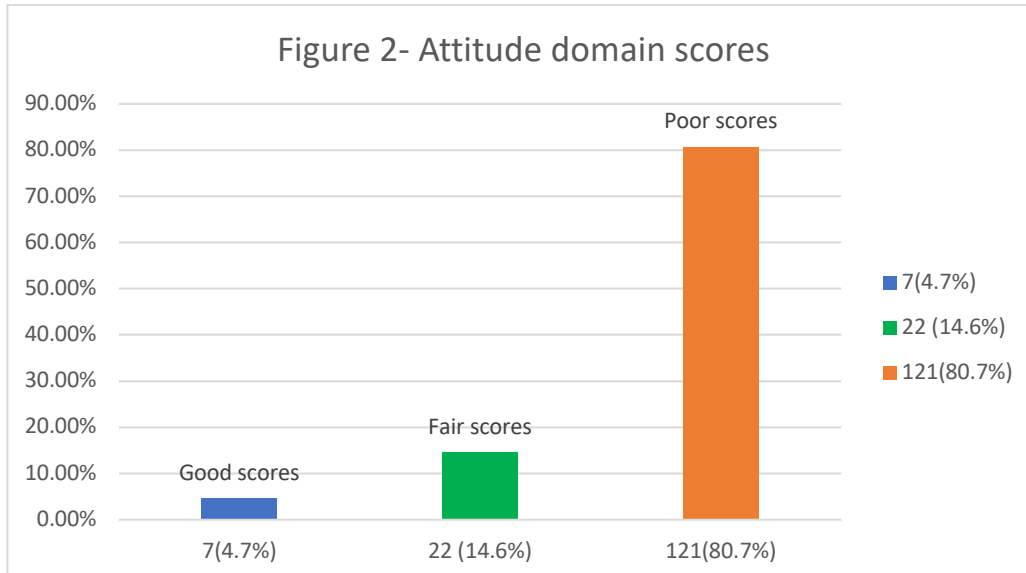


Figure 2: Attitude domain scores

In the practice's domain (**Figure 3**), 113(75.3%) were practicing habits for prevention of COVID infection & only 9(6%) had poor scores indicating that they were not practicing preventive measures. Overall, the respondents had average score of 92% in this domain which showed good adherence to covid preventive measures.

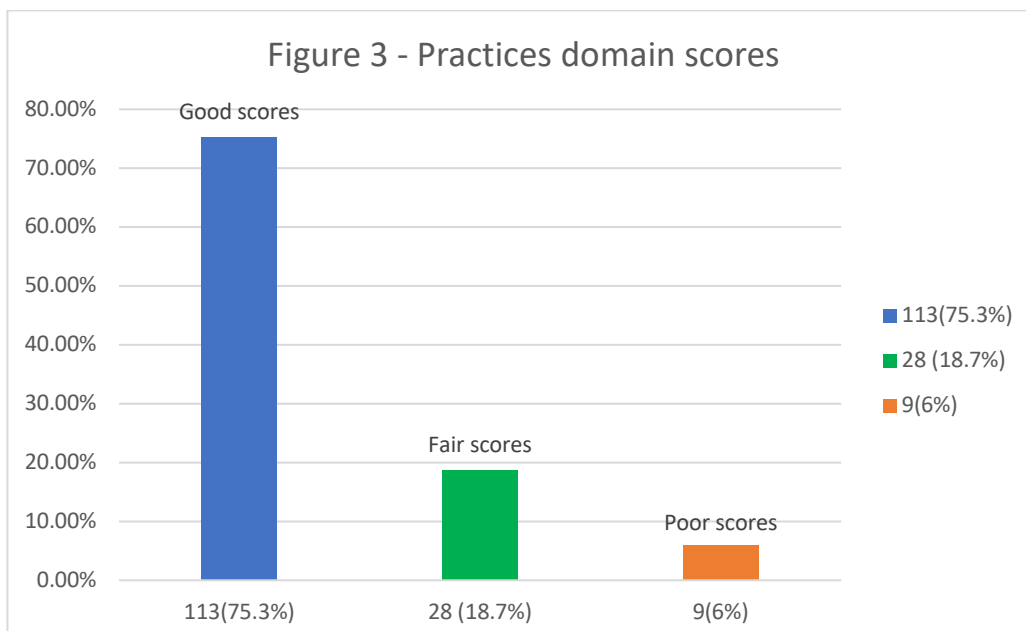


Figure 3: Practices domain scores

Discussion

Pregnancy is a landmark requiring extra attention and dissemination of information

regarding knowledge and right practices will help diminish the anxiety and apprehension among the pregnant women and their relatives and will enhance positive attitude. This study was conducted with the aim of providing an insight into the knowledge, attitude and practices of pregnant women regarding COVID-19 infection. Pregnant women form a unique vulnerable group due to the immunological suppression during pregnancy and measures should be taken to prevent COVID-19 infection in this subgroup. This is crucial particularly in developing nations like India where the health infrastructure is not as strong as in developed countries.

The first study published in Indian context to evaluate KAP in pregnant women was by deep Kamal et al [4]–July 2020. That cross-sectional, descriptive study was conducted for 509 pregnant women attending the outpatient department of Obstetrics in a tertiary care Defense hospital. They investigated 506 pregnant women serially from Obstetrics OPD of the hospital for KAP towards COVID-19 with a questionnaire of 14 questions. Their primary aim was to study KAP and secondary objective was to find association of KAP with demographic variables (age group, education, and place of residence). In their study scores for adequate knowledge, positive attitude, and good practices were 75.3 %, 73.9%, and 92.7 % respectively. The determinants of knowledge and practice scores were only education and place of residence whereas Attitude score had a significant association with age, education, and place of residence.

In 2020 [5] across sectional survey was conducted at Hyderabad, Pakistan in which 173 pregnant women were interviewed regarding COVID-19, their mean age was 29.34+13.12 years. 70.5% were multigravida and majority of women were uneducated. The questionnaire used had in all 19 questions which mostly focused on Covid 19 epidemiology, transmission and clinical features. Mostly women 75.1% had

heard regarding COVID 19. Most of the women had good knowledge and attitude, while preventive practice was found to be unsatisfactory. Only 25.4% said should wear the face mask indicating need for health awareness to deal with ignorance among the vulnerable group of antenatal women.

Recently in July 2021 another similar study was conducted at a tertiary care obstetric facility in India on 200 pregnant women by Kaur et al [6]. Participants were assessed for demographic details and KAP score (knowledge—17 questions, attitude—9 questions and practice—8 questions). They used self-constructed questionnaire based on Royal College of Obstetricians and Gynecologists (RCOG) guideline and World Health Organization (WHO) recommendations on COVID-19 in pregnancy. In this study the participants had adequate knowledge score of 22.5 and were following good practices as well. These results are similar to our study. They also studied sexual intercourse frequency during pregnancy which was found to be decreased in 50% of participants which could be due to the fear of contracting COVID-19 from their partners and thus affecting the course of pregnancy. When given the option of either continuing with pregnancy or terminating it in first trimester as a hypothetical situation, around 9% of pregnant mothers wanted to abort the baby in view of COVID-19 pandemic as they feared the effect on fetus as no cure was available. In their study they also studied effect of being a healthcare provider on the KAP. Health care workers had significantly increased mean knowledge score (P-value 0.030) when compared to non-health care workers but their mean practice scores revealed no statistically significant difference. It was seen that knowledge on handwashing and breastfeeding in COVID-19 positive mothers was significantly low in pregnant women.

In other countries, similar studies have been done with similar interpretations as in our

study. A community based cross-sectional study was conducted in Ethiopia.[7], which included 422 pregnant women from May 25-June 15, 2020. The mean age was 27.15 (SD± 4.719) years. Three hundred thirty (81.5%) of current pregnancy were wanted and planned whereas in pour study 61.3% were planned pregnancies. About 46.8% and 47.6 % of women were knowledgeable and had good practice against corona virus respectively. Pregnant women who had good ANC follow up in current pregnancy also demonstrated good level of knowledge towards COVID-19 indicating a positive relationship between ANC follow up and knowledge of women.

In the middle of the pandemic, a cross-sectional survey study [8] aimed to evaluate psychological impact and anxiety in pregnant women during the COVID-19 outbreak in Italy using Italian version of Impact of event scale revised questionnaire (IES-R) having 22 questions. During the study period, a total 100 women were enrolled; More than two-thirds of the women also reported higher than normal anxiety with more severe effect seen in first trimester. Especially regarding vertical transmission which is similar to our study results.

Our study was specific to pregnant population and hence, data might be helpful in formulating health policies targeting this subpopulation. There are limitations of our study as due to multitude of evidence on this topic, answers to the questionnaire may change with time. Furthermore, it is a single centre study and sample size limitations were there in covid 19 pandemic times due to decreased footfall as also seen in most health institutions . In future, multicentric research is warranted for better KAP assessment of pregnant women.

Conclusion

The knowledge and practice domain were adequate in most participants, and it was observed that antenatal choices remained largely unaffected. The attitude domain

showed anxiety and fear related to Covid-19 in most participants thus affecting mental health of women which needs to be addressed in antenatal care.

Declarations

Funding: None,

Availability of data and material: Department of Gynecology and Obstetrics, LN Medical College, Bhopal.

Code availability: Not applicable.

Consent to participate: Consent taken.

Ethical Consideration: There are no ethical conflicts related to this study.

Consent for publication: Consent taken.

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