

Knowledge and utilization of Integrated Child Development Services among antenatal women during COVID-19 pandemic

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ABSTRACT

Introduction: The coronavirus disease 2019 (COVID-19) pandemic has affected the healthcare delivery system in both developed and developing countries. Many antenatal women skipped their regular antenatal check-ups due to fear of viral contamination and lack of transport facilities. Integrated Child Development Services (ICDS), which plays a major role in antenatal care, also suffered a great deal during the pandemic. **Objectives:** 1. To assess knowledge and utilization of ICDS services by antenatal women during the COVID-19 pandemic. 2. To determine factors influencing the knowledge and utilization of ICDS services by antenatal women. 3. To determine the barriers to utilization of ICDS services during the pandemic. **Methodology:** This study was conducted as a descriptive study in a tertiary care center. Antenatal women whose pregnancy period coincided with the second wave of the COVID-19 pandemic were interviewed using a structured questionnaire. The sample size was calculated as 198. Data were entered in Microsoft Excel and analyzed using Statistical Package for Social Sciences (SPSS). **Results:** Around 61% of the study population had adequate knowledge about ICDS services. The proportion of antenatal women utilizing ICDS services reduced from 87.8% to 69.6% during the pandemic. Only a few of the mothers were followed up by the Anganwadi workers during the pandemic. The main barriers to not utilizing ICDS services were fear of the spread of the pathogen and lack of awareness about the availability of services during the pandemic. **Conclusion:** There has been a reduction in the utilization of ICDS services by antenatal women during the COVID-19 pandemic. Measures should be taken by the government to ensure undisrupted care for antenatal women during such hard times.

Keywords: Anganwadi, antenatal care, COVID-19, health lockdown, ICDS, quarantines

Introduction

One of the youngest nations in the world, India, is home to millions of children and women. Providing proper nutritional support to women using healthy food and essential medicines during pregnancy will bring healthier children to the nation. Realizing the importance, the Government of India has

implemented several health programs targeting pregnant women to reduce the maternal mortality rate (MMR), one of the key indicators of India's health.

Integrated Child Development Scheme (ICDS) is one such program launched on October 2, 1975 to improve maternal and child health and nutrition. This scheme offers a continuum of care starting from pregnancy to adolescence. Pregnant and lactating mothers can receive supplementary food, immunization services, health checkups, and health and nutrition education from an Anganwadi Centre (AWC).^[1]

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As per National Family Health Survey-5 (NFHS-5) conducted in the year 2019–21, nearly 66% and 63% of pregnant women have received supplementary nutrition and health checkups from an AWC, respectively. Pregnant women from rural areas received more services than those from urban areas. The most common service utilized by pregnant women was supplementary nutrition.^[2]

Of late, the coronavirus disease 2019 (COVID-19) pandemic has left drastic impacts in every sector of the country including the healthcare system.^[3] In addition to the shortage of manpower and equipment to treat the affected people, the pandemic also caused limitations in accessibility even to basic healthcare services worldwide.^[4,5] Globally, there was a significant reduction in the utilization of routine antenatal care services to reduce the risk of exposure to the virus.^[6]

In India, antenatal women faced great difficulties in accessing healthcare for routine checkups, safe abortion services, and diagnostic purposes, mainly due to the closure of routine out-patient departments (OPDs), restrictions in transportation facilities, and a nationwide lockdown.^[7,8]

One such difficulty that deserves a special mention is the lack of accessibility to the ICDS services offered at the AWCs which serve as the nearest and most reliable place of health checkups and nutrition supply, the two paramount parameters needed for the birth of a healthy child.^[9] This hindrance along with a lack of knowledge about the newly emerged COVID among the pregnant women must have been a real mayhem for them.

Understanding the extent of service disruption helps primary care providers recognize the gaps in care and nutrition that may have developed among their antenatal patients. Hence, this study was done to assess the knowledge about ICDS services and the utilization of these services by antenatal women during the COVID-19 pandemic. This study also aimed to determine the barriers to nonutilization of the services during the pandemic among the same study group. Primary care providers can use these insights to build trust within the community, encouraging antenatal women to seek necessary care without undue fear of infection.

Materials and Methods

Study setting and study population

This descriptive study was an approved Short-Term Studentship (STS) project under the Indian Council of Medical Research (ICMR) (Reference Id: 2022-08329). The study population consisted of mothers who were in their pregnancy period during the second wave of the COVID pandemic (around March 2021 to May 2021), so the participants selected for the study were those women who underwent childbirth in December 2021.

The study period ranged from August to October 2022. Contact details of mothers who delivered during December 2021 were

collected from the Obstetrics and Gynaecology department of a tertiary care center. Both primigravida and multigravida women were included in the study. Women who did not give consent and who could not understand the local language were excluded from the study.

Sampling and sample size

A convenience sampling technique was adopted for the study. The utilization of ICDS services by antenatal women was found to be 48.7% in a study done in Kerala.^[10] The sample size of this study was calculated using the formula $n = \frac{z^2 \cdot pq}{d^2}$. With a relative precision of 15% and a nonresponse rate of 10%, the sample size was calculated as 198.

Study tool

All the study participants were contacted through phone, and a validated structured interview-based questionnaire was administered. It consists of questions under the following sections:

1. Demographic details.
2. Questions to assess knowledge of the study subjects on the services offered by ICDS. Scoring was done based on the knowledge of the study participants with a total score of 14.
3. Questions to identify the utilization of ICDS during the COVID pandemic.
4. Questions to assess the barriers to not utilizing the services during the pandemic.

Ethical considerations

Ethical clearance for the study was obtained from the Institutional Ethics Committee. Official permission to conduct the study was obtained from the Head of the Department of Obstetrics and Gynaecology. Mothers were explained about the study, and informed consent was obtained before interviewing.

Results

Nearly 198 mothers who were pregnant during the COVID-19 pandemic were interviewed. The socio-demographic details of the study population are given in Table 1. The mean age of the mothers was 26.49 years with a standard deviation of 4.2 years.

Nearly 2% of study participants had never heard of ICDS or AWCs. Out of them, 117 mothers had heard about ICDS before pregnancy; 62 mothers had heard about ICDS during pregnancy; 15 mothers had heard about ICDS after pregnancy. The main source of information about ICDS was found to be relatives (53.5%), followed by Anganwadi workers (AWWs) (23%), hospitals (17%), and media (4.5%).

The mean knowledge score was 10.5 with a standard deviation of 2.6. Those who knew scores more than 10.5 were categorized as having adequate knowledge and below 10.5 as inadequate knowledge about ICDS. Around 61.1% of the study population

had adequate knowledge, and the remaining 38.9% did not have adequate knowledge about ICDS.

Out of 198 mothers interviewed, 187 mothers (94.4%) had visited an ICDS center and 189 (95.4%) were aware of the location of the center covering their locality. Only 182 mothers had visited the ICDS center of their concerned locality.

Most of the mothers were aware that pregnant women and children less than 6 years of age were beneficiaries of ICDS. Only 58 mothers (29%) were aware of the services available for adolescents in the ICDS. Awareness about ICDS services and their utilization by the study participants are shown in Figure 1.

Out of 198 mothers studied, 174 mothers (87.8%) had availed of ICDS services before the COVID-19 pandemic. During the pandemic (March to May 2021), only 138 mothers (69.7%) availed of Anganwadi services during the antenatal period [Figure 2]. AWWs visited only 29 mothers (14.7% of the study population) for antenatal care during the COVID-19 pandemic. Only 23 mothers (11.7%) received dry ration at their doorstep during the pandemic.

Sociodemographic factors did not show any statistically significant association with the knowledge and utilization of ICDS services. There is a significant association between knowledge and utilization of ICDS services [Table 2]. Various barriers reported by 60 mothers who did not use ICDS services during the COVID-19 pandemic are shown in Table 3.

Discussion

This study found that nearly 61% of mothers had adequate knowledge about ICDS services. This is by a similar study done in Kerala, where nearly 68.5% of the study population had adequate knowledge regarding ICDS.^[10] Most of the study participants were not aware of the services offered to adolescents at ICDS. Regular orientation and training courses for AWWs should be conducted to ensure better coverage for all beneficiaries.

The present study found that nearly 88% of mothers availed of ICDS services before the COVID-19 pandemic. This proportion is lesser when compared to a study done in Gujarat, where 94.7%

of antenatal women utilized ICDS services.^[12] National Family Health Surve-4 (NFHS-4) showed lower utilization of ICDS

Table 1: Sociodemographic details of the study population

Socio-demographic details	Frequency (n=198)	Percentage
Age group		
20-24 years	69	34.8%
25-29 years	86	43.4%
30-34 years	34	17.3%
35-39 years	8	4%
40 years and above	1	0.5%
Place		
Urban	149	75.3%
Rural	49	24.7%
Religion		
Hinduism	150	75.8%
Christianity	43	21.7%
Islam	5	2.5%
Education		
No education	1	0.5%
Primary or secondary	48	24.2%
High school or higher secondary	56	28.3%
Graduate or diploma	93	47%
Employment status		
Employed	41	20.7%
Homemaker	157	79.3%
Type of family		
Nuclear family	121	61.1%
Three generation family	77	38.9%
Socio-economic status*		
Class I	11	5.6%
Class II	63	31.8%
Class III	91	46%
Class IV	27	13.6%
Class V	6	3%

*B.G. Prasad's socio-economic scale was updated according to the Consumer Price Index for May 2021.^[11]

Table 2: Knowledge about ICDS and its utilisation

Knowledge adequacy	Utilizing	Not utilizing	Total	P	Test of significance
Adequate	114 (94.2%)	7 (5.8%)	121	0.001	Chi-square test
Inadequate	60 (77.9%)	17 (22.1%)	77		
Total	174	24	198		

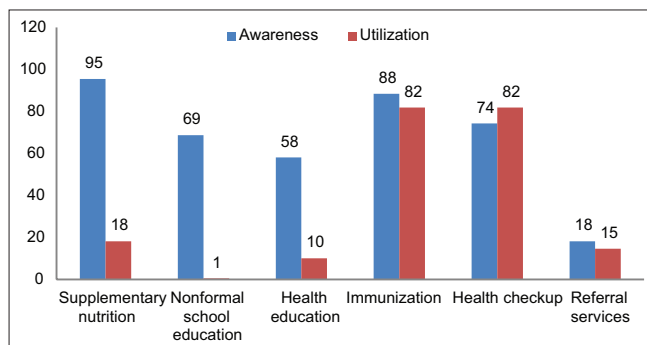


Figure 1: Awareness and utilization of the services provided by ICDS

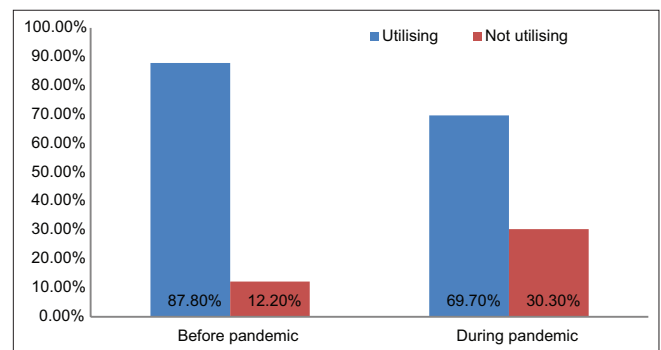


Figure 2: Comparison of the utilisation of ICDS by antenatal women before and during the COVID pandemic

Table 3: Barriers for utilisation of ICDS during the COVID pandemic

Barriers reported by the study population	Number of mothers (n=60)	Percentage
Fear of COVID-19 spread	48	80%
Lack of awareness about the availability of services	24	40%
No proper communication from the AWW	20	33.3%
Lack of accessibility	12	20%
Lack of transport facilities	9	15%
Lack of family support	4	6.7%

services by antenatal women. Rural women utilized more services when compared to urban women.^[13]

A study done in Arunachal Pradesh showed that poor households and rural populations were linked to the underutilization of ICDS services.^[14] However, the current study did not show any association between sociodemographic factors and utilization of ICDS. This difference may be due to interstate variations in the uptake of ICDS services.

In this study, around 90% of mothers reported that they started availing ICDS services for themselves. Nearly 63% of mothers found ICDS services to be most useful for children. It is evident from a previous study that there is high concordance between service utilization by mothers and their children, implying a higher likelihood of continuum if service utilization commences during pregnancy.^[13]

Next to immunization services, health checkups for children were also found to be highly utilized by the study population. Proper utilization of ICDS services for children would help in reducing malnutrition, thereby reducing mortality and morbidity.^[15] Similar to a previous study, this study also showed a low uptake of health education services from ICDS.^[13]

Only 18% of the study population used supplementary nutrition services. This proportion is very low when compared to a similar study done in Punjab, where nearly 48% used supplementary nutrition services.^[16] A study done in Karnataka found that nearly 96.5% of mothers were using supplementary nutrition.^[17] A study done in West Bengal found poor taste, inadequate hygiene, and improper preparation to be the reasons for underutilization of supplementary nutrition.^[18] This regional variation in utilizing supplementary nutrition should be overcome by regular monitoring of AWCs and the development of new strategies.

The proportion of antenatal women utilizing ICDS services reduced from 87.8% to 69.6% during the COVID-19 pandemic. There was an 18% reduction in the utilization of ICDS services during the pandemic. Only a few of the mothers were followed up by the AWWs during the pandemic. A study done in North India demonstrated lack of nutrition to be the most common problem faced by antenatal women during the pandemic.^[7] This

is aggravated by a lack of accessibility to ICDS centers due to the nationwide lockdown imposed by the government.

Secondary data analysis of Health Management Information Services of India showed a significant disruption in the delivery of maternal and child health services during the pandemic in the first wave and peak of the second wave.^[19] However, a study done in Bihar, Orissa, and Chhattisgarh found that antenatal care supported by Community Health Workers (CHWs) remains undisrupted during the pandemic. This shows that the ground-level primary care system which includes the ICDS services should be strengthened and utilized effectively to reduce the impact of health emergencies in the future.^[20,21]

A similar circumstance was seen in a similar study done in Jordan, where a significant number of antenatal women did not receive antenatal care during the pandemic.^[22] Such disruptions in essential health services were found in 90% of countries even after 1 year of the pandemic.^[23] Even though teleconsultation services were offered by the government, most of them found them unsatisfactory compared to routine services.^[7]

Postpartum family planning services were also affected due to the pandemic. A significant disruption of routine antenatal care services during the pandemic could cause antenatal health issues in several aspects. A study during a previous infectious disease outbreak in Sierra Leone showed an increase in maternal and neonatal deaths due to lack of proper health care during pregnancy.^[24]

A more in-depth qualitative analysis needs to be done to understand the challenges faced during the pandemic from the beneficiaries' perspectives to prepare the primary healthcare system for any unprecedented health emergencies. Insights from this research can guide policymakers to implement an evidence-based approach to modify health care service delivery, such as transitioning to telehealth consultations, to ensure continuity of care when traditional face-to-face services are disrupted.

Conclusion

This study showed that there has been a significant reduction in the utilization of ICDS services by antenatal women during the COVID-19 pandemic. Since pregnancy is a vulnerable period, continuity of care for pregnant women should be ensured during such a crisis to prevent adverse maternal and neonatal outcomes.

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Conflicts of interest

There are no conflicts of interest.

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