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24

Utilization of Maternal Health Care Services by Mothers during the First Wave of COVID-19 Pandemic

J.S. Hallad, Usha Ram, Bashir Bhat, Dilip Kalita, Vini Sivanandan, Dilip Kumar, M.R. Pradhan and Study Collaborators

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From the Editors' Desk…..

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IIPS Working Paper No. 24

Utilization of Maternal Health Care Services by Mothers during the First Wave of COVID-19 Pandemic

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Abstract: The present working paper reports the findings of a multi-centric study undertaken in five districts of Kamrup (Assam), Patna (Bihar), Pulwama (Jammu & Kashmir), Dharwad (Karnataka) and Pune (Maharashtra) by the PRCs. The study investigated the utilization of maternal and child health care, including ICDS services, by mothers during lockdown due to the first wave of the COVID-19 pandemic. The study surveyed 2516 eligible women in the age group of 15-49 years in urban and rural areas of five districts, 1209 of whom had delivered between January 2019 and February 2021.

The results suggest that a majority of the mothers received most of the antenatal, natal and postnatal care services during the first wave of the pandemic (that is, between March 2020 and February 2021) and rarely encountered difficulty while seeking/availing these services. Further, most mothers reported that they received treatment for complications experienced during the pregnancy, at the time of delivery or during the post-delivery period. The frontline health workers, especially ASHAs, played a significant role in fulfilling these women's maternal health care needs during the first wave of the COVID-19 pandemic. Moreover, most mothers received supplementary nutrition from ICDS Centres during the first wave of the pandemic. Nonetheless, the study noted that relatively fewer mothers received these services for free as a sizeable proportion reported spending a substantial amount of money for the services. Only a handful of mothers received JSY benefits during the study period.

Keywords: Maternal health, Antenatal care, Natal care, Postnatal care, India, COVID-19, Lockdown, Healthcare utilization, live birth

Introduction

World Health Organization (WHO) has raised concerns that healthcare systems worldwide are challenged by increasing demand for care by people with COVID-19. When health systems are overwhelmed and people fail to access the needed care, direct mortality from an outbreak and indirect mortality from preventable and treatable conditions increase dramatically due to COVID-19 (WHO 2020). UNICEF has cautioned that an estimated 116 million births will occur in the World, of which, 20.1 million babies will be born in India under the shadow of COVID-19. The containment measures for COVID-19, burden on the healthcare system and disturbance in life-saving services have put millions of pregnant mothers and their babies at greater risk (Leussing, n.d.). The factors affecting these services are present on both, the demand and supply side. As the majority of health care services are dedicated to COVID-19 care, staff engaged in emergency COVID-19 duties, many staff getting infected and mandatory quarantines of staff have restricted delivery of ANC services. On the demand side, lack of information on the availability of services,

increased fears and concerns of being exposed, movement restrictions, loss of income, and social factors caused hindrance in seeking continuous ANC services (Motihar 2020). Overwhelmed health centres, lack of resources, and restrictions on movement negatively impact the utilization of maternal health services (Pant et al. 2020). As a support to this argument, Aggarwal and others revealed that there was a decline in the number of ANC registrations to approximately 80 percent in April-May 2020 as compared to 2019. Many patients had severe anemia due to the lack of regular supply of Iron, Folic Acid and calcium supplements. Therefore, there has been a 2.5 folds rise in admission of pregnant women to intensive care units during the pandemic. Besides, there have been reports of cases of women giving birth in the ambulance because of delays in transportation during the pandemic. Even if they reached a facility on time, they had to get a COVID-19 test done, and in case they tested positive, they were referred to a COVID-19 designated facility for delivery, thereby causing further delay (Aggarwal et al., 2021). The magnitude of this kind of risk is reportedly higher in the rural sector. The most vulnerable pregnant women in rural, low-resource, and fragile conflict- affected settings are at the greatest risk because they already have inadequate access to quality care which will decrease even further as the pandemic continues (Mcdonnell et al. 2020). The WHO also worried that COVID-19, compounded by fear, stigma, misinformation and limitations on movement might disrupt the delivery of health care for all conditions (WHO 2020). Over 40 percent were hesitant to visit health facilities due to fear, stigma and lack of proper COVID-19 preventive measures at the facilities (Oluoch-Aridi et al. 2020). Thus, in this context even the long-term impact of maternal morbidity and mortality on families, society and communities should not be underestimated (Rocca-Ihenacho and Alonso 2020). However, the impact of this pandemic has not necessarily been negative. There are also a few evidences to manifest the positive lessons of the pandemic. What the COVID-19 pandemic has taught us is that appropriate health preparedness is necessary for dealing with any unprecedented situation in future (Pant et al. 2020). Most of the women perceived improvements in quality of care due to short-waiting times, hygiene measures in OPDs and responsive health personnel and health workers, hand washing practice during childbirth was increased by 12.9 percent during the lockdown compared with the earlier period (KC et al. 2020).

Different studies prescribed a few solutions to overcome the negative and unprecedented impact of COVID-19. Local Maternal Neonatal and Child Health (MNCH) care providers and managers need to be consulted to understand the extent of socio-economic impact of COVID-19 and also, more importantly, efficient community-based education is helpful in improving service accessibility for maternal care (Ahmed et al. 2021). Furthermore, health care facilities need to develop plans to minimize exposure of healthy pregnant women while providing routine and emergency obstetric care. Reduction in the number of visits and segregations of the place of care within the health facility (to reduce the crowd) may be helpful. Besides, a collaborative work model involving health workers in the community and at regional levels of health centers by exchanging mutual ideas and experiences, also has the potential to prevent catastrophic collapse of obstetric care services

during the pandemic (Chowdhury and Chakraborty 2017). Effective preventive and clinical strategies are required to control COVID-19 infection among pregnant women, along with special efforts to ensure timely transportation services exclusively for maternal health services to reduce maternal mortality during the pandemic (Pant et al. 2020). Further, ensuring face-to-face consultation service through obstetric and gynecological examinations for high-risk pregnant women helps to reduce the maternal health complications (Rocca-Ihenacho and Alonso 2020). In addition, various IEC materials to be demonstrated at public places and media, and enhance facilities for virtual consultation with obstetricians through telemedicine services to women seeking maternal health services are effective ways to prevent the consequences of the pandemic (Tadesse 2020).

Background of the study

Five Population Research Centres (PRCs), Dharwad (Karnataka), Guwahati (Assam), Srinagar (Jammu & Kashmir), Patna (Bihar) and Pune (Maharashtra) joined in collaboration with International Institute for Population Sciences (IIPS), Mumbai, to launch a project to assess the utilization of reproductive and child health services during the COVID-19 pandemic in August 2020. The period of collaboration of the study was nine months ending in March 2021. The information was collected from women aged 15-49 years. The study covered background characteristics of households and women, information on antenatal care utilization and treatment-seeking behavior for currently pregnant women, information about antenatal, natal and postnatal care utilization among women who experienced abortion, stillbirth and live birth, along with contact with health or Integrated Child Development Services (ICDS) Scheme workers during the pandemic. The study further collected information on the use of contraceptives, menstruation-related problems, utilization of immunization services and getting treatment for children who fell ill during the pandemic. The present paper analyzes the data related to the utilization of maternal health services by the women having at least one live birth during the reference period.

The study was implemented in one district of each of the five participating States/Union Territory (UT). The five districts were – Kamrup in Assam (AS), Patna in Bihar (BI), Pulwama in Jammu and Kashmir (JK), Pune in Maharashtra (MH) and Dharwad in Karnataka (KA). The study was designed to provide estimates for a district. The sample size of the study was not adequate to provide separate estimates for urban and rural areas of the district for all indicators. A target sample of 500 eligible women aged 15-49 years was divided between urban and rural samples by allocating the sample proportionately to the population of these two areas according to the district population of the 2011 Census. Considering the non-response rate of 30 percent because of pandemic conditions, this estimated sample size is reliable to estimate the targeted indicators with 95 percent confidence interval. The data was collected by face-to-face interviews and by telephonic interviews as convenient during the pandemic. Jammu & Kashmir and Assam PRCs did all the interviews through face-to-face interviews, Dharwad and Patna PRCs did all the interviews through telephonic, and Pune PRC did 94 percent of the interviews through face to face and remaining 6

percent of the interviews telephonically. The survey instrument was pre-tested and revised in view of the pre-test results before being administered for the data collection.

Sample Design

Multi-stratified sampling design with Probability Proportional to Size (PPS) within each sampling domain of urban and rural areas was used.

Sample Selection in Rural Areas: In rural areas, three Community Health Centers (CHCs) were selected in such a way that one of the selected CHCs was located farthest from the district headquarter, one situated at a mid-distance and another, closest to the district headquarter. In the next stage, from each selected CHC, two Primary Health Centres (PHCs) were selected based on the distance from the selected CHC (one attached to the CHC and another far away from the CHC); making a total of six-PHCs (3x2). Thereafter, from each selected PHC, we selected two Sub Health Centers (SHCs) based on distance from the selected PHC (one attached to the PHC and another far away from the PHC); making a total of 12-SHCs (6x2). From selected SHC, we selected two villages – one SHC village and another non-SHC village served by the selected SHC; making it 24-villages (12x2). Finally, the required number of eligible women were selected from the list of reproductive age group women available with the health worker of the selected SHC with equal probability in each selected village using systematic sampling.

Sample Selection in Urban Areas: Of the three selected CHCs, we first identified the urban catchment area of the CHC. For each CHC, we selected two catchment areas – one closest to the CHC and another farthest from the CHC. In the next stage, the required number of eligible women were selected from the list of reproductive age group women available with the health worker of the selected six urban catchment areas with equal probability in each catchment area being chosen using systematic sampling.

The field teams updated the list before the launch of the data collection work.

In all, 30 PSUs (Six in urban areas and 24 in the rural areas) were selected to undertake the data collection work for the study. The field-work for the study was undertaken between November 2020 and February 2021. The PRC field investigators collected the data for the study. Each member of the field team was trained for two days on the study instrument before the main data collection. The data processing was done by the PRC IT staff, who were also trained along with the field team members. The data processing team consisted of an office editor, coder and data entry operator. The data entry was done in CSPro. We did 100% double entry to avoid data entry errors. The data validation was done by the PRCs themselves.

Among all the five districts considered for the study, a total 2516 women in the age group, 15-49 years, were interviewed of which, 932 women (37 percent) were from urban areas and the remaining

1584 (63 percent) were from rural areas. Informed consent procedures were followed and only those who voluntarily consented to be part of the study were interviewed.

The information was collected from women about the utilization of health care services during pregnancy, delivery, post-partum period from all those women who had had one or more live births during the two years prior to the survey, i.e. from January 1, 2019. Information was gathered on a range of services, including registration of pregnancy, the timing of registration, antenatal care visits and services received during antenatal are, place of service, complications experienced and treatment sought for complications, difficulties faced by the women in seeking services etc. Information was also collected on services provided by the health workers during the pandemic and on receiving supplementary nutrition from the Anganwadi Centres.

Background Characteristics of Live Births

Among 2516 women interviewed, 1209 live births occurred during the reference period, and these live births are analyzed further in this paper. Table 1 provides the distribution of all live births enumerated during the reference period by selected maternal and household background characteristics by district and place of residence. A total of 1209 live births were enumerated (422 in urban areas and 787 in rural areas) among 2516 women interviewed; 95 live births listed in Pulwama, 148 in Patna, 351 in Kamrup, 336 in Pune and 279 in Dharwad. Thirty- nine percent of the total live births occurred before the pandemic, and 61 percent occurred after the onset of pandemic, i.e. during 2020 and 2021. The percentage of live births was comparatively more in both urban and rural areas and all the districts except Patna after the onset of the pandemic than before the pandemic. About 49 percent of the live births were male and 51 percent, female, hence the sex ratio at birth was 97 boys per 100 girls. The proportion of boys was comparatively more in rural areas than in urban areas, and the sex ratio at birth was relatively on the higher side in Kamrup and Patna, indicating that male births constituted a slightly higher share of live births in rural areas, especially in these two districts. Fifty-five percent of the live births were of first birth order, and 10 percent of them were of birth order three or higher (more in urban areas than in rural areas, 13 percent and 9 percent, respectively). Overall, eight percent of the births were preterm births (gestation of less than 9 months) and the share of preterm births was more in urban areas (10 percent) compared to rural areas (7 percent) and more in Pulwama (27 percent) followed by Dharwad district (19 percent).

Thirty-eight percent of the births occurred to mothers in poor households and 29 percent among mothers from high wealth tertile. In urban areas, the share of birth in rich households was more compared to those in rural areas (47 percent and 20 percent, respectively). The percentage of live births from rich household was more in Pulwama, followed by Pune. On the other hand, more live births were enumerated from households with poor economic conditions in Patna and Dharwad (More than 50 percent). With respect to maternal age, 39 percent of all births occurred among

younger mothers aged 15-24 years while 56 percent were among mothers aged 25-34 years. The mean age of mothers was 26 years, 26.8 in urban areas and 25.8 in rural areas. The share of births among younger mothers was considerably greater in Patna and Dharwad (more than 40 percent) and very little in Pulwama (12 percent). The mean age of mothers was 30 years in Pulwama, and ranged between 25-26 years in the remaining districts. Majority of the births were by Hindu mothers (78 percent). The same trend was observed in all the districts except Pulwama, where 96 percent of the births occurred to Muslim mothers. The proportion of births by women belonging to other religions was comparatively higher in Pune, 13 percent. Seventeen percent of the births were among mothers from the scheduled castes (SCs) and three percent among mothers of scheduled tribes (STs). Proportion of births by SCs was more in Patna, Kamrup and Pune, while the share of births by the OBC category was comparatively higher in Patna and Dharwad. More than 50 percent of the births were among mothers who had completed 10-12 years of schooling, and another 20 percent of the total births were among mothers having more than 12 years of schooling. The mean years of education of the mother was 10.5 years and was comparatively more in urban areas (11.3 years) than in rural areas (10.1 years). The educational level of mothers covered was comparatively better in Pune.

Table 1: Distribution of Live births from January 2020 to February 2021 by Year of Birth, gender, birth order, duration of gestation and some selected maternal characteristics by District and Place of residence (2020-21)

Characteristics	Name of DISTRICT - STATE/UT					ALL		
	Pulwama -JK	Patna -BI	Kamrup -AS	Pune -MH	Dharwad -KA	Urban	Rural	Combined
Year of Birth								
Before Pandemic-2019	28.4	56.8	40.5	28.3	44.8	34.1	41.8	39.1
After onset of Pandemic -2020 & 2021	71.6	43.2	59.5	71.7	55.2	65.9	58.2	60.9
Gender								
Boy	47.4	52.0	53.8	43.5	49.1	45.7	51.0	49.1
Girl	52.6	48.0	46.2	56.5	50.9	54.3	49.0	50.9
Sex ratio at birth (males per 1000 females)	90	108	117	77	96	84	104	97
Birth order								
One	49.5	43.2	66.1	59.5	44.4	52.1	56.8	55.2
Two	33.7	30.4	33.3	33.6	39.1	34.6	34.3	34.4
Three or higher	16.8	26.4	0.6	6.8	16.5	13.3	8.9	10.4
Birth by gestation								
Preterm	27.4	2.7	0.9	3.3	18.6	10.2	6.7	7.9

Full term	72.6	97.3	99.1	96.7	81.4	89.8	93.3	92.1
Household wealth tertile								
Low	4.2	59.5	45.3	17.3	53.0	16.8	49.0	37.8
Medium	21.1	29.1	36.5	37.2	29.7	36.5	31.1	33.0
High	74.7	11.5	18.2	45.5	17.2	46.7	19.8	29.2
Maternal age								
15-24	11.6	46.6	39.6	37.2	43.7	31.8	42.2	38.5
25-34	63.2	49.3	56.7	59.2	53.0	62.8	52.6	56.2
35-49	25.3	4.1	3.7	3.6	3.2	5.5	5.2	5.3
Mean	30.2	25.0	25.8	26.1	25.8	26.8	25.8	26.1
Maternal religion								
Hindu	1.1	94.6	88.3	83.6	77.1	73.7	80.8	78.3
Muslim	95.8	5.4	11.7	2.1	21.9	17.3	17.2	17.2
Christian	0.0	0.0	0.0	0.9	0.7	0.5	0.4	0.4
Other Religions	3.2	0.0	0.0	13.4	0.4	8.5	1.7	4.1
Maternal caste								
Scheduled castes	0.0	21.6	25.4	20.8	4.3	19.0	15.6	16.8
Scheduled tribes	1.1	2.0	1.4	4.5	5.7	2.4	3.8	3.3
Other backward classes	7.4	55.4	6.0	17.0	39.1	27.0	20.6	22.8
Others (General castes)	91.6	20.9	67.2	57.7	50.9	51.7	60.0	57.1
Maternal education								
Fewer than 5 years incl. never went to school	15.8	14.9	4.8	3.9	4.7	6.2	6.9	6.6
5 to 9 years	38.9	17.6	21.1	10.7	23.3	14.9	22.2	19.7
10 to 12 years	24.2	54.1	63.8	53.3	51.6	48.3	56.7	53.8
More than 12 years	21.1	13.5	10.3	32.1	20.4	30.6	14.2	19.9
Mean	9.4	9.3	10.3	11.6	10.5	11.3	10.1	10.5
Overall (%)	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Number of Live Births	**95**	**148**	**351**	**336**	**279**	**422**	**787**	**1,209**

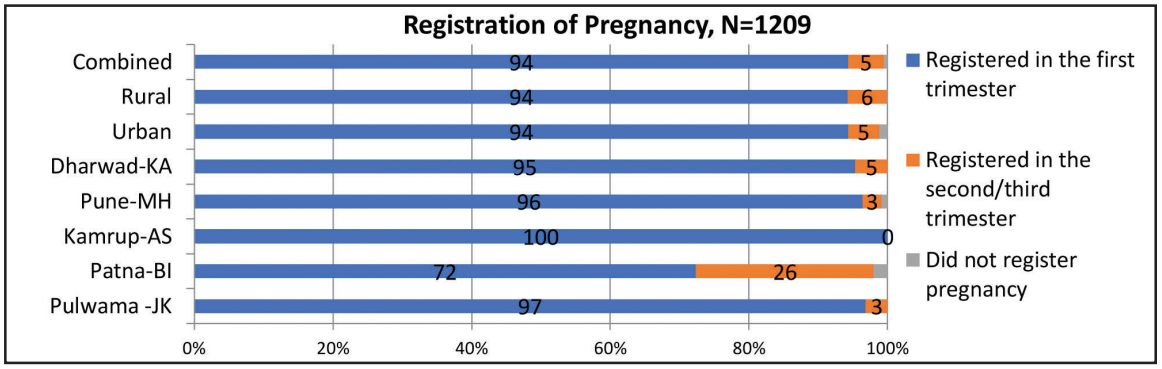
Antenatal Care Services

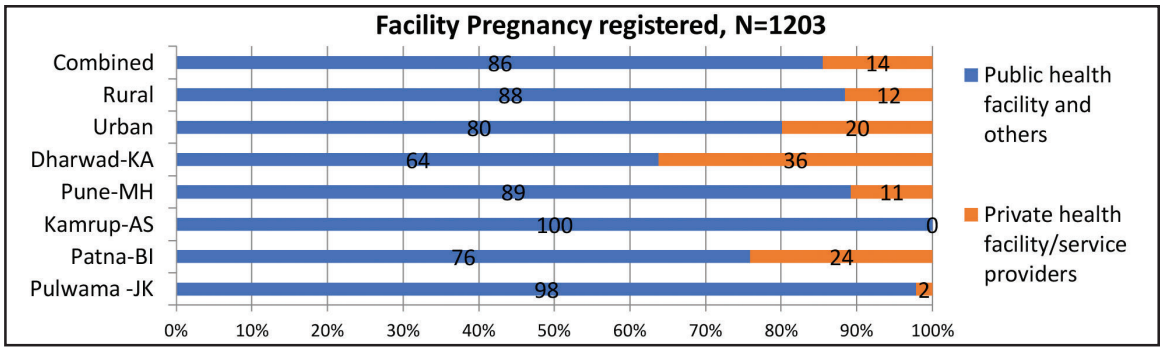
Table 2 and Figure 1 provide information on various ANC services utilized by mothers during pregnancy for births that occurred during the reference period. It is encouraging to note that as many as 99.5 percent of the women registered their pregnancy, of whom 94 percent registered in the first trimester itself. Eighty-six percent of the mothers received four or more ANC visits during their pregnancy. Receiving four or more ANC checkups was comparatively more in rural areas (88 percent) than in urban areas (84 percent). Such visits were the highest in Pulwama district (99

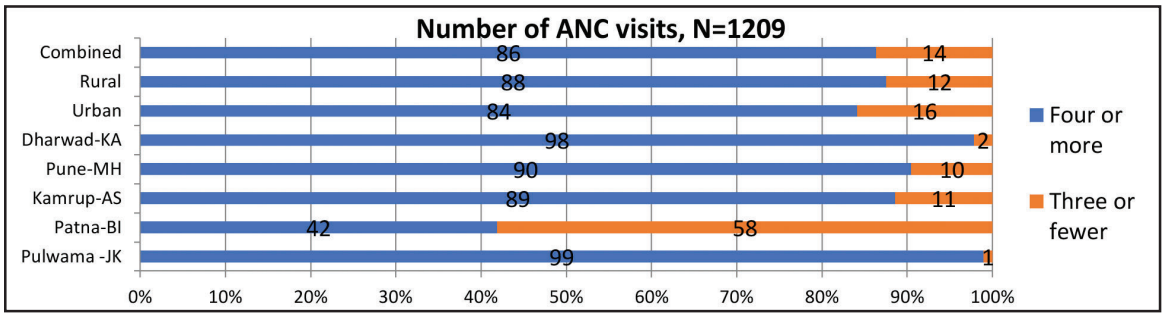
percent) followed by Dharwad (98 percent). All women received IFA tablets during their pregnancies. Almost all (more than 99 percent) got abdominal examination done, weight taken, blood pressure and Hb tested, received TT injections, blood sugar tested and received MCP card. As many as 97 percent had an ultrasound done while 95 percent were tested for HIV and 39 percent for COVID-19. It is encouraging to note that the proportion of mothers receiving all these ANC services was more than 90 percent in both rural and urban areas in all the five districts covered. Mothers tested for COVID-19 was comparatively more in urban areas and in Pulwama and Pune districts.

Further, 68 percent of the mothers received most of the ANC services from public health facilities, while 32 percent of the mothers visited private facilities for ANC services. The proportion of mothers approaching public health facilities was comparatively more in rural areas (74 percent) than in urban areas (56 percent) and more in Kamrup (97 percent) and Pulwama (86 percent); whereas it was low in Dharwad district (38 percent). Similarly, of the women who registered their pregnancy, 86 percent registered at a public health facility, which was again higher in rural areas (88 percent) than in urban areas (80 percent). The tendency of registering pregnancy at private hospitals was comparatively more in Dharwad (36 percent) and Patna (24 percent).

Figure 1: Share of births by Registration of Pregnancy, Place of registration, Number of ANC visits and Place where most ANC services received, by District and Place of residence







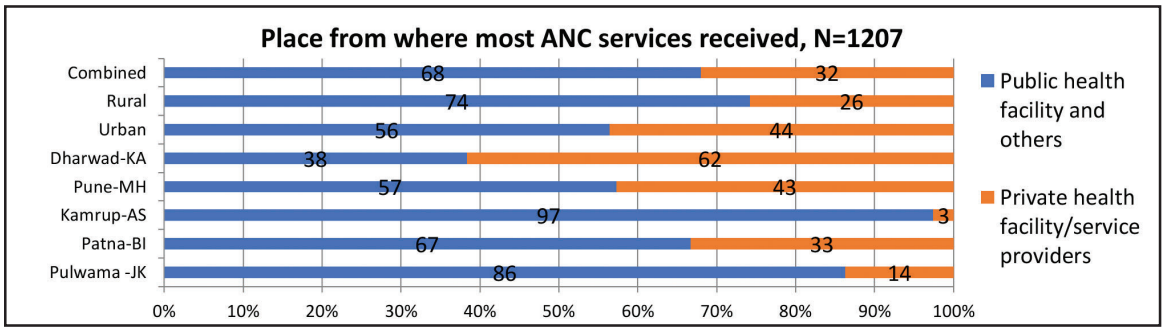


Table 2: Utilization of various antenatal care services by State and place of residence (2020-21)

Percentages mothers who received:	Name of DISTRICT/STATE					ALL		
	Pulwama -JK	Patna -BI	Kamrup -AS	Pune -MH	Dharwad -KA	Urban	Rural	Combined
Received IFA tablets/Syrup	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Abdomen examined	98.9	99.3	100.0	99.1	99.6	99.5	99.5	99.5
Weight taken	98.9	99.3	100.0	98.8	99.6	98.8	99.7	99.4
Blood pressure measured	100.0	99.3	99.1	99.1	99.6	99.5	99.2	99.3
Haemoglobin tested	100.0	99.3	99.1	98.8	99.6	99.5	99.1	99.3
Received one or more TT injection	100.0	99.3	99.7	97.9	100.0	98.6	99.6	99.3
Blood sugar tested	100.0	97.3	99.1	99.4	99.6	99.0	99.2	99.2
Consumed IFA tablets/Syrup	91.6	100.0	100.0	99.4	100.0	99.8	98.9	99.2
MCP card	100.0	98.0	99.7	99.1	97.5	97.4	99.6	98.8
Had an ultrasound/sonography	100.0	94.6	93.7	96.4	100.0	96.9	96.3	96.5
Tested for HIV	100.0	76.2	98.0	97.3	97.8	94.8	95.6	95.3
Tested for COVID-19	54.7	22.4	36.8	47.2	33.7	47.6	33.8	38.6

Difficulties experienced in getting ANC services during the pandemic

Table 3 and Figure 2 provide information on whether mothers faced any difficulties while seeking ANC during the pandemic and, if so, what was the nature of problem experienced. In an overwhelmingly large proportion of cases (87 percent), mothers did not experience any difficulty. The proportion of mothers who did not experience any difficulty while getting ANC services was higher in urban areas (91 percent) compared to rural mothers (86 percent). District-wise it was observed that mothers in Pune more often mentioned that they did not have any difficulty while getting ANC services (97 percent). In contrast, only 68 percent of the mothers in Pulwama district mentioned that they did not experience any difficulty while seeking ANC. As high as 19 percent of the mothers in Pulwama experienced difficulties every time or most of the time. 'No transport facility' was the most common difficulty experienced by the mothers (62 percent) followed by 'Family did not allow due to COVID-19 fear' (34 percent). Financial problem was mentioned by only 6 percent of the mothers who faced difficulties.

'The family did not allow due to COVID-19' was mentioned more frequently by rural mothers (41 percent) than urban mothers (15 percent). Similarly, refusal of family to accompany was frequently mentioned by rural mothers (17 percent) compared to urban mothers (5 percent). On the other hand, comparatively more urban mothers complained of 'Too much time for travel' and 'Long waiting time at the facility' compared to rural mothers. No transport facility was quoted by mothers in most of the districts except Patna. Restrictions imposed by family was comparatively more at Kamrup and Pune. 'Facility closed' was the main reason (40 percent) in Patna. Financial reasons were mentioned more frequently in Pulwama district. This clearly indicates very few mothers experienced difficulty in seeking ANC and mostly the problems were facility- related except at Kamrup and Pune where the difficulties were more family-related.

Fig. 2: Frequency of experiencing difficulties in seeking ANC during pregnancy, N=1209

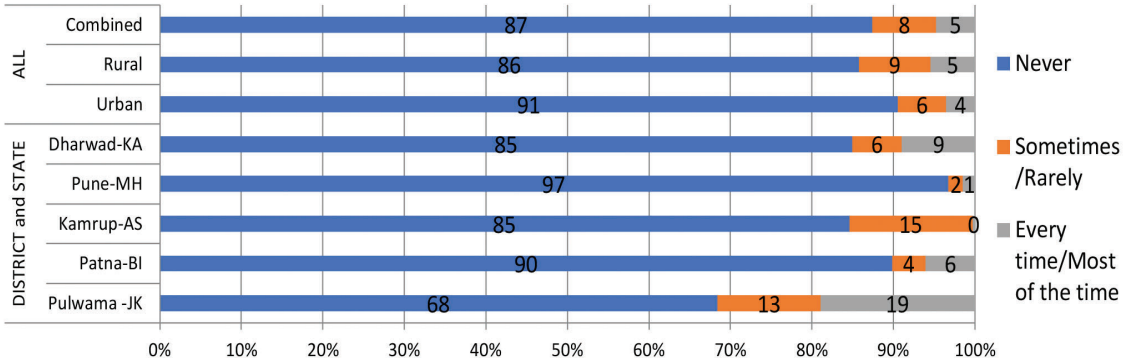


Table 3: Difficulties experienced by the mothers in seeking ANC during the pregnancy due to pandemic, how often mothers faced difficulties and nature of difficulty, by District and Place of residence (2020-21)

Characteristics	Name of DISTRICT - STATE/UT					ALL		
	Pulwama -JK	Patna -BI	Kamrup -AS	Pune -MH	Dharwad -KA	Urban	Rural	Combined
Nature of difficulty experienced (%)*								
No transport facility	70.0	26.7	61.1	63.6	69.0	52.5	65.2	61.8
Family did not allow due to COVID-19	6.7	13.3	63.0	45.5	21.4	15.0	41.1	34.2
Stressed due to strict COVID-19 protocols	26.7	60.0	0.0	45.5	47.6	30.0	26.8	27.6
Stress due to COVID-19 infection while waiting at facility	13.3	26.7	9.3	36.4	38.1	20.0	22.3	21.7
Family refused to accompany due to COVID-19 fear	0.0	6.7	24.1	45.5	4.8	5.0	17.0	13.8
Staff refused to provide service due to COVID-19	36.7	13.3	1.9	18.2	11.9	12.5	14.3	13.8
Too much time for travel due to COVID -19 restrictions/checks	10.0	13.3	1.9	45.5	21.4	15.0	12.5	13.2
Too long wait at facility due to COVID-19 protocol	6.7	33.3	0.0	0.0	26.2	20.0	8.9	11.8
Facility closed	3.3	40.0	3.7	9.1	14.3	15.0	8.9	10.5
Health facility converted to COVID-19 hospital	6.7	6.7	1.9	9.1	16.7	10.0	7.1	7.9
ASHA/ANM not available	0.0	33.3	0.0	0.0	11.9	10.0	5.4	6.6
No money	23.3	6.7	0.0	9.1	0.0	5.0	6.3	5.9
No staff at facility	10.0	20.0	0.0	0.0	4.8	5.0	5.4	5.3
Number of women experienced difficulty	**30**	**15**	**54**	**11**	**42**	**40**	**112**	**152**

* Total will not add up to 100% as more than one difficulty experienced

Complications during Pregnancy, delivery and post-delivery and treatment sought

Pregnancy complications and Treatment sought

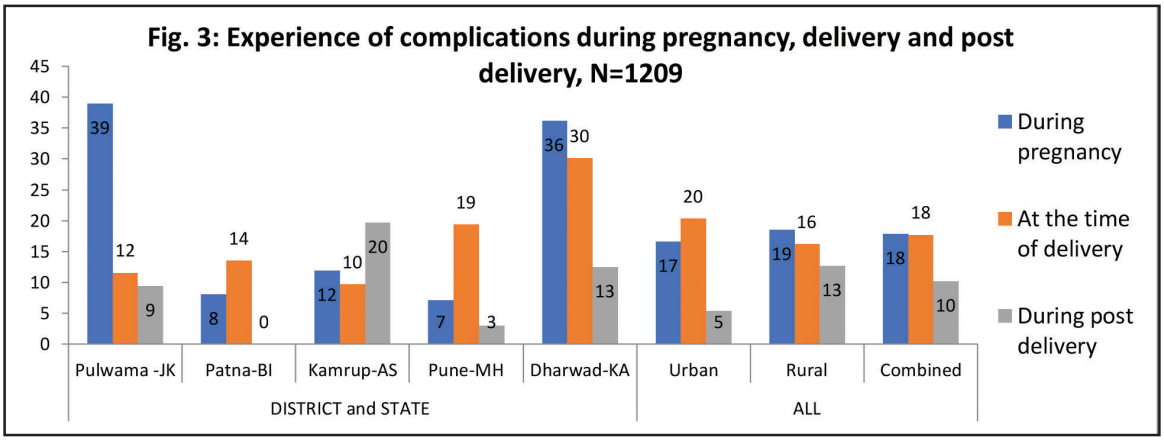
All the 1209 mothers were asked whether they experienced any complications during pregnancy and, if so, the type of pregnancy complications experienced by them as well as whether they sought treatment for those. As observed in Table 4a and Figure 3, only 18 percent of the mothers experienced some complications during pregnancy, slightly less in urban areas (17 percent) than in rural areas (19 percent). Experience of complications during pregnancy was more in Pulwama (39 percent) and Dharwad (36 percent). Overall, 46 percent of the mothers experienced pregnancy complications such as: excessive vomiting followed by weakness/excessive fatigue (24 percent); swelling of legs, body, face (22 percent); bleeding or spotting was experienced by 11 percent of the mothers during pregnancy and 1 percent mentioned having difficulty with vision during day light. There was not much difference between rural and urban mothers in the type of pregnancy complication except that of swelling of legs, body and face, which was more in urban areas compared to rural ones (31 percent and 18 percent, respectively). District-wise, it was observed that excessive vomiting was not experienced much by women in Patna compared to other districts whereas body swelling was observed to be as high as 50 percent among women in Pune. Bleeding or spotting was experienced by 50 percent of the mothers in Patna.

An overwhelming 96 percent of the mothers who experienced any pregnancy complications sought treatment. Seeking treatment for pregnancy complications was more prevalent among mothers in urban areas compared to rural ones. District-wise, not seeking treatment was comparatively higher (7 percent) in Dharwad than in other districts. The reason for not seeking treatment was mainly 'complications not severe' or 'long waiting time at the facility due to COVID-19 protocol'.

Delivery complications and Treatment seeking

Table 4b and Figure 3 show whether mothers experienced any complications during and post-delivery, type of complications experienced and whether they sought treatment for those complications. As observed, 18 percent of the women, slightly higher in urban areas (20 percent) than in rural areas (16 percent) experienced one or more delivery complications. District-wise, the proportion of women who experienced any complication at the time of delivery was comparatively higher in Dharwad (30 percent) and the least in Kamrup (10 percent). Overall, 83 percent of the women who experienced complications at the time of delivery reported the problem of excessive bleeding, followed by 19 percent of the women experiencing prolonged bleeding lasting longer than 12 hours, 16 percent of the women had breech presentation, four percent of the women had sepsis or fever, and another two percent experienced perinatal asphyxia. More women in urban areas experienced prolonged bleeding and excessive bleeding, whereas breech presentation and pre-term labour were experienced more often in rural areas. District-wise, blood pressure problem

and placenta problem were more prevalent in Pulwama district. Among mothers who experienced any delivery complications, as many as 98 percent sought treatment for their complications.



Post-delivery complications and treatment seeking

Further, when mothers were asked whether they experienced any complications in the post-partum period (Table 4c and Figure 3), 10 percent of the women admitted that they did have some complication. Comparatively higher complications were reported in rural areas (13 percent) than in urban areas (5 percent). Proportion of mothers having complications post-delivery was found to be comparatively higher in Kamrup and Dharwad. Overall, around 26 percent of the women had bleeding/spotting and swelling of legs, body or face in the post-partum period, 15 percent of the women had low blood pressure (BP), and 11 percent had a fever. Bleeding was experienced by more women in urban areas than in rural areas whereas, body swelling, low BP and fever were experienced more among rural mothers. Among the five districts covered, bleeding or spotting was experienced comparatively more in Dharwad, whereas body swelling was more prevalent in Kamrup along with low BP and fever. All the 123 women who experienced post-delivery complications sought treatment.

Table 4a: Type of complication experienced during pregnancy and treatment sought for complication, by District and Place of residence (2020-21)

Type of pregnancy complication experienced during pregnancy (%)*	Name of DISTRICT - STATE/UT					ALL		
	Pulwama -JK	Patna -BI	Kamrup -AS	Pune -MH	Dharwad -KA	Urban	Rural	Combined
Excessive vomiting	40.5	8.3	23.8	45.8	61.4	41.4	47.9	45.8
Weakness/Excessive fatigue	27.0	0.0	4.8	16.7	35.6	21.4	25.3	24.1
Swelling on legs, body, face	10.8	8.3	11.9	50.0	25.7	31.4	17.8	22.2
Headache	16.2	0.0	23.8	8.3	8.9	10.0	13.7	12.5

Abdominal pain	18.9	0.0	14.3	4.2	11.9	8.6	13.7	12.0
Bleeding / Spotting	8.1	50.0	11.9	12.5	5.9	10.0	11.0	10.6
Weak or no fetus movement	5.4	25.0	9.5	0.0	5.0	5.7	6.8	6.5
Convulsions (not from fever)	8.1	0.0	2.4	25.0	3.0	7.1	5.5	6.0
Vaginal discharge	2.7	0.0	7.1	8.3	5.0	4.3	5.5	5.1
Abnormal fetus position	0.0	16.7	7.1	0.0	5.0	5.7	4.1	4.6
Difficulty with vision during daylight	0.0	0.0	2.4	8.3	0.0	1.4	1.4	1.4
Other complications	40.5	0.0	0.0	20.8	17.8	21.4	15.8	17.6
Sought treatment for pregnancy complication(s)								
No	2.7	0.0	0.0	0.0	6.9	2.9	4.1	3.7
Yes	97.3	100.0	100.0	100.0	93.1	97.1	95.9	96.3
Overall (%)	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
No. of births, mother experienced complication	**37**	**12**	**42**	**24**	**101**	**70**	**146**	**216**
* Total will not add up to 100% as more than one complication experienced								

Table 4b:Type of complication experienced during delivery and sought treatment for complication, by District and Place of residence (2020-21)

% Experienced delivery complication(s)	Name of DISTRICT - STATE/UT					ALL		
	Pulwama -JK	Patna -BI	Kamrup -AS	Pune -MH	Dharwad -KA	Urban	Rural	Combined
Excessive bleeding	45.5	30.0	35.3	3.1	14.3	84.9	81.3	82.7
Prolonged bleeding lasting longer than 12 hours	9.1	20.0	11.8	33.8	11.9	29.1	12.5	19.2
Breech presentation (abnormal fetus position)	0.0	45.0	2.9	15.4	16.7	11.6	18.8	15.9
Blood pressure problem	36.4	0.0	8.8	4.6	22.6	7.0	18.0	13.6
Umbilical cord prolapse	0.0	0.0	0.0	30.8	1.2	16.3	5.5	9.8
Vaginal discharge	0.0	25.0	8.8	6.2	10.7	14.0	7.0	9.8
Placenta problem	18.2	0.0	2.9	12.3	9.5	5.8	10.9	8.9
Weak/No fetus movement	0.0	15.0	14.7	1.5	11.9	4.7	11.7	8.9

Premature rupture of membranes	0.0	0.0	2.9	7.7	15.5	11.6	7.0	8.9
Preterm labor	0.0	5.0	8.8	1.5	9.5	2.3	8.6	6.1
Obstructed labor	0.0	5.0	8.8	1.5	4.8	2.3	5.5	4.2
Sepsis / Fever	0.0	0.0	2.9	0.0	8.3	1.2	5.5	3.7
Perinatal asphyxia	0.0	0.0	0.0	0.0	4.8	2.3	1.6	1.9
Other complications	9.1	0.0	0.0	20.0	14.3	17.4	8.6	12.1
Sought treatment for delivery complications								
No	0.0	10.0	0.0	4.6	0.0	3.5	1.6	2.3
Yes	100.0	90.0	100.0	95.4	100.0	96.5	98.4	97.7
No. of births mother suffered complication	**11**	**20**	**34**	**65**	**84**	**86**	**128**	**214**

* Total will not add up to 100% as more than one complication experienced

Table 4c: Type of complication experienced after delivery (post-partum period) and sought treatment for complication, by District and Place of residence (2020-21)

% Experienced post-delivery complication(s)	Name of DISTRICT - STATE/UT					ALL		
	Pulwama -JK	Patna -BI	Kamrup -AS	Pune -MH	Dharwad -KA	Urban	Rural	Combined
Bleeding / Spotting	22.2	NA	24.6	10.0	37.1	30.4	26.0	26.8
Swelling on legs, body, face	11.1	NA	36.2	20.0	11.4	8.7	30.0	26.0
Low blood pressure	11.1	NA	23.2	0.0	5.7	8.7	17.0	15.4
Lower abdominal cramps	11.1	NA	1.4	30.0	31.4	43.5	6.0	13.0
Fever	0.0	NA	14.5	10.0	8.6	4.3	13.0	11.4
Rapid breathing	0.0	NA	7.2	10.0	2.9	0.0	7.0	5.7
Convulsions (not from fever)	0.0	NA	0.0	20.0	5.7	8.7	2.0	3.3
Nausea / Vomiting	11.1	NA	2.9	0.0	2.9	4.3	3.0	3.3
Red, Sore and Tender breasts	11.1	NA	0.0	0.0	8.6	8.7	2.0	3.3
Prolonged bleeding lasting longer than 12 hours	11.1	NA	0.0	10.0	2.9	0.0	3.0	2.4
Foul smelling coucha	0.0	NA	0.0	10.0	0.0	0.0	1.0	0.8
Difficulty with vision during daylight	0.0	NA	0.0	0.0	0.0	0.0	0.0	0.0

Urine perforation	0.0	NA	0.0	0.0	0.0	0.0	0.0	0.0
Other complications	22.2	NA	0.0	10.0	31.4	26.1	8.0	11.4
Sought treatment for post-delivery complications								
No	0.0	NA	0.0	0.0	0.0	0.0	0.0	0.0
Yes	100.0	NA	100.0	100.0	100.0	100.0	100.0	100.0
No. of births, mother suffered complication	**9**	**0**	**69**	**10**	**35**	**23**	**100**	**123**
* Total will not add up to 100% as more than one complication experienced								

Natal Care

Table 5 and Figure 4 provide results on place of delivery, type of delivery, assistance at the time of delivery, transportation used to reach to the hospital and duration of stay in the health facility. It is crucial to mention here that only 0.5 percent of the deliveries took place at home. Fifty-eight percent of the deliveries occurred at public health facilities and 42 percent of the women approached private health facilities for their delivery. As expected, a comparatively higher proportion of deliveries occurred at public health facilities (66 percent) in rural areas compared to those in urban areas (41 percent). Preference for private health facilities for delivery was high in Pune (76 percent) whereas approaching public health facilities was greater in Pulwama (83 percent). As many as 46 percent of the births were through C-section, slightly higher in rural areas (47 percent) than in urban areas (45 percent). The proportion of C-section deliveries was substantially higher in Pulwama (85 percent) and Kamrup (52 percent). The findings from NFHS-5 also reveal high rate of C-section delivery in Pulwama along with many other districts in Jammu & Kashmir.

Eighty-three percent of the deliveries were conducted by a Doctor, and 16 percent of the births were conducted by an ANM/Nurse/LHV. The share of births assisted by a Doctor was more in rural areas (84 percent) compared to that in urban areas (81 percent). District-wise, more than 90 percent of the deliveries were conducted by a Doctor in Pulwama, Kamrup and Pune, whereas 57 percent of the births were conducted by an ANM/Nurse/LHV in Patna.

Findings further show that private vehicles were used more frequently (69 percent) to reach a health facility for delivery and only 27 percent of the mothers used government vehicle to reach the facility. The use of government vehicle to reach the facility was more in rural areas (33 percent) compared to urban areas (15 percent). Mothers at Kamrup and Patna used government vehicles more frequently (46 percent and 35 percent, respectively) to reach the facility. On the other hand, use of private vehicles was more than 88 percent in Pulwama and Pune districts.

For about 50 percent of the cases ASHAs accompanied mothers to the hospital, more in rural areas (62 percent) than in urban areas (27 percent). The tendency of ASHAs accompanying

mothers to a facility for delivery was more in Kamrup (86 percent), whereas as many as 78 percent of the mothers at Pune mentioned that ASHA did not accompany them. About 13 percent of the mothers were discharged on the same day, and another 53 percent got discharged from the health facility 2-3 days after the delivery. Mean duration of stay at the health facility was 3.8 days after delivery, more (4.4. days) in urban areas compared to rural areas (3.4 days). The mean duration of stay at the health facility was comparatively more in Dharwad with mean duration of 5.7 days and less in Patna and Kamrup, around two days.

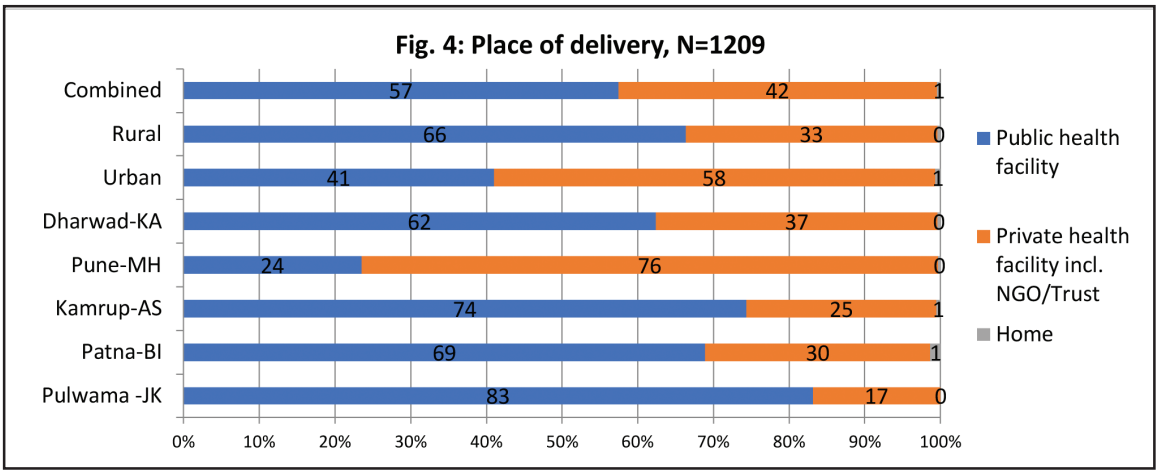


Table 5:Type of delivery and assistance at the time of delivery, transportation used to reach facility, ASHA accompanied to facility and duration of stay at hospital after delivery by place of residence, by District and Place of residence (2020-21)

Characteristics	Name of DISTRICT - STATE/UT					ALL		
	Pulwama -JK	Patna -BI	Kamrup -AS	Pune -MH	Dharwad -KA	Urban	Rural	Combined
Type of delivery								
Normal	14.7	79.1	48.4	54.5	59.1	55.5	52.7	53.7
C-Section	85.3	21.0	51.6	45.5	40.9	44.6	47.3	46.3
Assistance at delivery								
Doctor	99.0	41.2	99.4	90.5	70.3	80.8	84.2	83.0
ANM/Nurse/LHV	0.0	56.8	0.6	8.9	29.0	18.3	15.3	16.3
Others	1.1	2.0	0.0	0.6	0.7	0.9	0.5	0.7
Overall (%)	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Number of live births	**95**	**148**	**351**	**336**	**279**	**422**	**787**	**1,209**

Mode of transport used to reach facility								
Government vehicle	10.5	34.9	46.1	6.9	28.8	15.0	33.4	27.0
Private vehicle	88.4	59.6	53.3	91.3	61.2	80.2	63.4	69.2
Walking/On foot	1.1	4.1	0.6	0.6	4.3	2.4	1.7	1.9
Other modes used	0.0	1.4	0.0	1.2	5.8	2.4	1.5	1.8
Did ASHA accompany to facility								
No	62.1	52.7	14.0	78.2	56.8	73.3	38.0	50.3
Yes	37.9	47.3	86.0	21.8	43.2	26.7	62.0	49.7
Duration of stay in the health facility								
Discharged same day/stayed for one day	10.5	63.7	9.2	4.5	4.0	11.7	14.3	13.4
2-3 days	60.0	22.6	85.7	42.1	39.2	41.5	59.3	53.1
4-5 days	24.2	4.1	3.2	26.0	22.7	21.5	12.8	15.8
More than 5 days	5.3	9.6	2.0	27.5	34.2	25.3	13.6	17.7
Mean	3.2	2.1	2.3	4.5	5.7	4.4	3.4	3.8
Overall (%)	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Number of Institutional births	**95**	**146**	**349**	**335**	**278**	**419**	**784**	**1,203**

* Others include Traditional Birth Attendant/Friends/Relative/Neighbors

Health check-ups in the Post-partum period

Table 6 and figure 5 provide results on health check-ups for mothers in the post-partum period, place of first PNC check-up, person who conducted health check-up and total number of health check-ups within the first 2 weeks as well as within first 2 months after delivery. Around three-fourths of the mothers had their first post-natal check-up within 24 hours of delivery, and 27 percent of the women did not have any PNC check-up by the time data was collected. Having the first PNC check-up within 24 hours of delivery was more prevalent in urban areas (87 percent) than in rural areas (64 percent). More than 90 percent of the women had their first PNC check-up within 24 hours in Dharwad and Pune. On the other hand, more than 50 percent did not get any PNC check-up done in Patna and Kamrup. A relatively higher proportion of mothers got their first PNC check-up done at a public health facility (56 percent), more in rural areas (67 percent) than in urban areas (40 percent). More mothers at Pulwama, Kamrup and Patna approached public health facilities for PNC check-up but very few did so at Pune. Check-up was done by a Doctor

for 91 percent of the mothers who went for PNC check-up, while for the remaining 10 percent it was done by an ANM or Nurse. Slightly more mothers got the PNC check-up done by a Doctor in rural areas (92 percent) compared to those in urban areas (88 percent) and more than 90 percent did the same in Pulwama, Kamrup and Dharwad.

About 50 percent of the mothers who got PNC check-up done, received only 1 PNC check-up within the first 2 weeks while 25 percent had 3 or more check-ups within the first 2 weeks. Getting 3 or more PNC check-ups within the first 2 weeks of delivery was more prevalent in urban areas (34 percent) than in rural areas (18 percent) and in Pulwama (88 percent) compared to other districts. Further, only 42 percent of the mothers received 3 or more PNC check-ups within the first 2 months of their delivery, higher in urban areas (56 percent) than in rural areas (32 percent) and in Pulwama (88 percent).

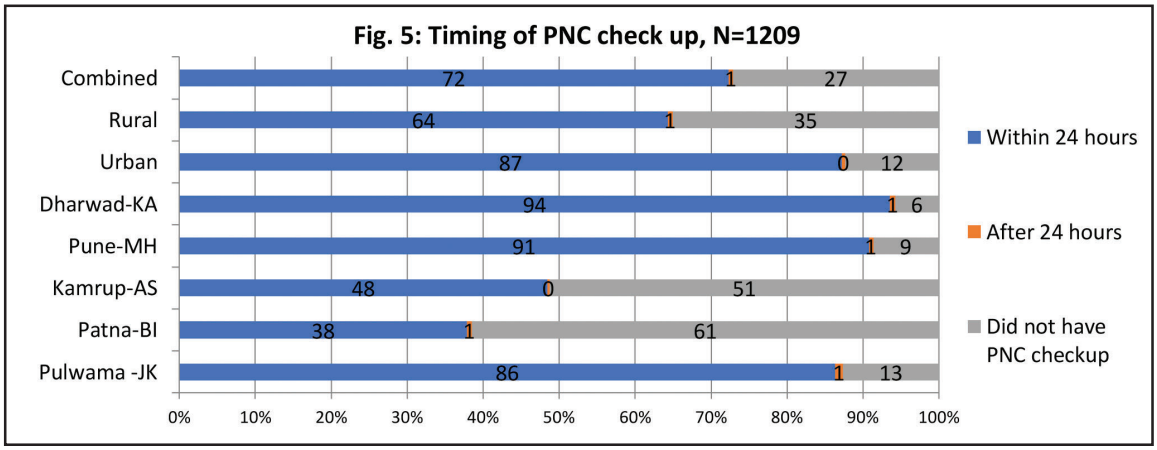


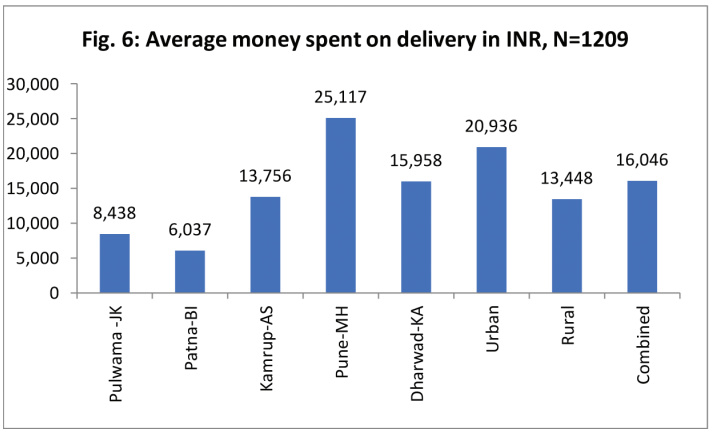
Table 6:Health checkups of mother in post-partum period, place of health checkup, person conducting health checkup and total number of health checkups within first two weeks and two months after delivery, by District and Place of residence (2020-21)

Characteristics	Name of DISTRICT - STATE/UT					ALL		
	Pulwama -JK	Patna -BI	Kamrup -AS	Pune -MH	Dharwad -KA	Urban	Rural	Combined
Place of first post-delivery PNC checkup								
Public health facility incl. ICDS center	84.3	70.2	78.9	27.0	61.6	40.3	66.7	55.6
Private facility, service providers incl. NGO/Trust	15.7	29.8	21.1	73.0	38.4	59.7	33.3	44.4

Person who did first post-delivery PNC checkup								
Doctor	97.6	77.2	95.3	88.6	90.1	88.1	92.2	90.5
ANM/Nurse/LHV	2.4	22.8	4.7	11.4	9.9	11.9	7.8	9.5
Number of PNC checkup within first two weeks								
One	4.8	19.3	63.7	28.3	85.6	35.7	59.5	49.5
Two	7.2	45.6	32.2	35.5	11.4	30.5	22.1	25.7
Three or more	88.0	35.1	4.1	36.2	3.0	33.8	18.4	24.9
Number of PNC checkup within first two months								
One	4.8	10.5	3.5	10.1	73.8	19.7	32.9	27.4
Two	7.2	35.1	67.8	24.4	20.2	24.6	35.0	30.6
Three or more	88.0	54.4	28.7	65.5	6.1	55.7	32.1	42.0
Number of Mothers received PNC	**83**	**57**	**171**	**307**	**263**	**370**	**511**	**881**

Money spent on delivery, benefits received under JSY

Table 7 and figures 6 and 7 give results on money spent on delivery, whether mothers received any JSY benefit, and the amount received under JSY. One in five mothers did not spend any money on live birth as they received all the services free. Getting free services during delivery was higher in rural areas (23 percent) compared to urban ones (17 percent). On an average, Rs. 16,046/- was spent on delivery, higher in urban areas (Rs. 20,936/-) compared to that in rural areas (Rs. 13,448/-). Amount spent on delivery was comparatively higher in Pune with an average of Rs. 25,117/- and least in Patna Rs. 6,037/-. Similarly, women getting all the services free of cost was as high as 48 percent in Patna and 31 percent in Kamrup, whereas none of the mothers in Pulwama got delivery services free of cost.



Only 38 percent of the mothers had received JSY benefits while 62 percent had not. More JSY benefits were received by mothers in rural areas (43 percent) compared to those in urban areas (28 percent). District-wise, a higher proportion of mothers in Kamrup (61 percent) had received JSY benefit while around 20 percent had received the same in Pune and Dharwad. A majority of the mothers received an incentive between Rs. 601/- to Rs. 1400/- while 22 percent received more than Rs. 1400/- as an incentive under JSY. On an average, mothers received Rs. 1356/- as an incentive under JSY (Figure 7). Not much difference was observed between rural and urban mothers on average money received under JSY. The incentive received was very little in Dharwad (Rs. 666/-) compared to other districts (between Rs. 1400-1600/-).

Fig. 7: Average money received under JSY, N=454

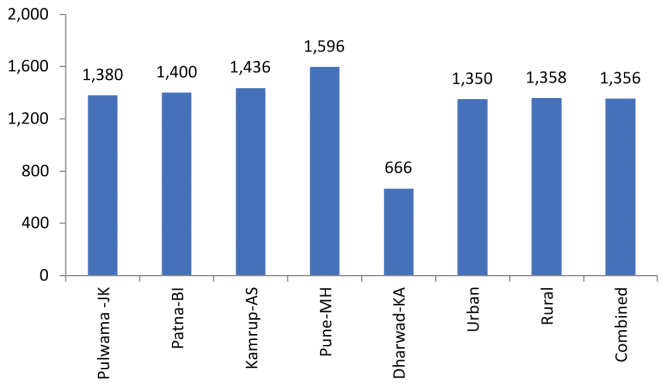


Table 7:Money spent on delivery, received JSY incentives and amount received under JSY, by District and Place of residence (2020-21)

Characteristics	Name of DISTRICT - STATE/UT					ALL		
	Pulwama -JK	Patna -BI	Kamrup -AS	Pune -MH	Dharwad -KA	Urban	Rural	Combined
Money spent on live birth (in Rs.)								
None	0.0	48.0	30.8	14.9	8.2	17.1	22.9	20.8
Up to 2000	13.7	14.2	31.6	3.0	26.2	11.4	22.9	18.9
2001-5000	61.1	8.1	9.1	6.3	10.8	10.2	14.0	12.7
More than 5000	25.3	29.7	28.5	75.3	41.6	57.6	37.4	44.4
Do not remember	0.0	0.0	0.0	0.6	13.3	3.8	2.9	3.2
Mean money spent on delivery	**8,438**	**6,037**	**13,756**	**25,117**	**15,958**	**20,936**	**13,448**	**16,046**
Received JSY benefits								
No	56.8	52.0	39.0	78.6	79.9	71.8	57.4	62.5
Yes	43.2	48.0	61.0	21.4	20.1	28.2	42.6	37.6
Number of live births	**95**	**148**	**351**	**336**	**279**	**422**	**787**	**1,209**

Amount received under JSY								
Up to 600 Rs.	0.0	0.0	0.0	1.4	62.5	10.1	7.2	7.9
601 to 1400 Rs.	100.0	100.0	71.0	50.0	33.9	62.2	73.1	70.3
More than 1400 Rs.	0.0	0.0	29.0	48.6	3.6	27.7	19.7	21.8
Mean money received under JSY	**1,380**	**1,400**	**1,436**	**1,596**	**666**	**1,350**	**1,358**	**1,356**
No. of birth for which mothers received JSY money	**41**	**71**	**214**	**72**	**56**	**119**	**335**	**454**

Contact with the Health Worker / ASHA

Table 8 provides results about a mother's contact with health workers and about the services they received from the health worker when contacted during pregnancy, delivery or post-delivery. An overwhelmingly large proportion of mothers (92 percent) reported that a health or an ICDS worker had visited them during pregnancy, slightly higher in rural areas (93 percent) compared to urban areas (90 percent). Among all the five districts, visit of the health worker during pregnancy was observed to be the least in Patna (64 percent). As many as 88 percent of the mothers reported that a health worker had visited them during pregnancy; 53 percent mentioned the visit of a health worker at the time of delivery, while 73 percent of the mothers had a visit from a health worker after their delivery. Visit of a health worker was more in rural areas than in urban areas during all the 3 phases - during pregnancy, at the time of delivery and after delivery. Visit by a health worker was comparatively less in Patna during all these 3 phases - during pregnancy, delivery and post-delivery.

As many as 87 percent of the mothers reported that a health worker gave advice to them and 47 percent mentioned the health worker accompanied them to the health facility while 37 percent of the mothers mentioned that health workers arranged for a vehicle to take them to health facilities. Accompanying mothers as well as arranging for vehicles to take them to a health facility was comparatively higher in rural areas (59 percent and 49 percent, respectively) than in urban areas (23 and 15 percent, respectively). Accompanying mothers to the facility was comparatively higher in Kamrup (99 percent) and less in Pune district (13 percent).

Further, all mothers were explicitly asked whether ASHA visited them during the pandemic. As many as 86 percent of mothers reported that the ASHA visited them during pandemic, more in rural areas (88 percent) than in urban areas (81 percent) and also more than 90 percent in Kamrup and Pune. A majority of the mothers (78 percent) contacted ASHA, and also got help particularly more in rural areas (80 percent) compared to urban areas (74 percent) and also in Kamrup and Pune (90 percent). Among those women who contacted ASHA, 95 percent mentioned that they got advice, 68 percent of mothers got some medicine, 49 percent reported that ASHA accompanied

them to the health facility and 42 percent said that ASHA arranged a vehicle for them to go to the health facility. Again accompanying to the health facility and arranging for a vehicle was reported to be more in rural areas than their urban counterparts and in Kamrup compared to the other four districts.

Table 8: Health worker(s) visited mother, mother contacted ASHA for pregnancy related help and type of help ASHA provided during the pandemic, by District and Place of residence (2020-21)

Characteristics	Name of DISTRICT - STATE/UT					ALL		
	Pulwama -JK	Patna -BI	Kamrup -AS	Pune -MH	Dharwad -KA	Urban	Rural	Combined
ASHA/ANM/AWW/TBA visited during pregnancy								
No	6.3	35.8	0.0	3.9	10.8	10.4	7.4	8.4
Yes	93.7	64.2	100.0	96.1	89.3	89.6	92.6	91.6
% visited by the health worker								
During pregnancy	92.6	56.1	99.4	90.8	83.9	82.0	90.6	87.6
At the time of delivery	35.8	4.1	99.7	37.8	42.7	36.5	61.3	52.6
After delivery	57.9	7.4	99.4	68.8	83.9	65.6	76.6	72.8
Type of help HEALTH WORKER provided during pregnancy								
Gave advice	87.4	42.6	99.2	92.3	88.2	81.8	89.6	86.9
Accompanied to facility	31.6	25.0	98.9	12.8	38.0	23.0	59.2	46.6
Arranged vehicle to go to facility	3.2	0.7	99.4	11.3	21.5	14.7	49.4	37.3
Other help	0.0	0.0	0.3	3.6	9.0	4.0	2.7	3.1
ASHA visited during pandemic								
No	12.6	54.7	2.9	3.9	20.4	18.7	11.9	14.3
Yes	87.4	45.3	97.2	96.1	79.6	81.3	88.1	85.7
Mother contacted ASHA for help and if ASHA helped								
Contacted ASHA and got help	74.7	31.1	96.6	91.7	63.4	74.2	79.8	77.8

Contacted ASHA, did not get help	0.0	8.1	0.6	0.9	1.8	2.4	1.5	1.8
Did not contact ASHA	25.3	60.8	2.9	7.4	34.8	23.5	18.7	20.4
Number of live births	**95**	**148**	**351**	**336**	**279**	**422**	**787**	**1,209**
Type of help ASHA provided when contacted								
Gave advice	98.6	21.7	99.4	96.8	99.4	93.0	95.5	94.7
Got medicine	1.4	32.6	98.8	81.8	19.8	67.4	68.0	67.8
Accompanied to facility	16.9	39.1	98.8	10.7	37.3	21.7	63.1	49.3
Arranged vehicle to go to facility	2.8	4.4	98.8	5.5	19.2	11.8	56.2	41.5
Number of births, mother contacted ASHA	**71**	**58**	**341**	**311**	**182**	**323**	**640**	**963**

Supplementary Nutrition

Table 9 provides results on the distribution of live births by whether the mothers received supplementary nutrition from ICDS / Anganwadi Centre (AWC) during the pandemic. During the pandemic, as many as 26 percent of the mothers received supplementary nutrition almost every day, while another 43 percent received it most of the days. On the other hand, 21 percent of the mothers rarely or never received any supplementary nutrition from AWCs. The proportion of mothers not receiving supplementary nutrition was comparatively more in urban areas (35 percent) than in rural areas (14 percent). Getting supplementary nutrition from AWC was comparatively better in Dharwad and Kamrup, whereas it was not very satisfactory in Patna, Pune and Pulwama. Thirty percent of the mothers who had not received supplementary nutrition mentioned that AWCs did not provide supplementary nutrition at home, which was more in rural areas (42 percent) compared to urban areas (21 percent). Ninty three percent of the mothers in Patna complained that they did not get supplementary nutrition, whereas 10-18 percent of the mothers in other Districts (Pulwama, Pune and Dharwad) complained that the ‘Centre was closed due to COVID-19 pandemic’ and hence, they did not get supplementary nutrition. Twelve percent of the mothers at Pulwama who did not avail this facility during the pandemic mentioned that 'AWC did not receive supply due to COVID-19'. A comparatively higher proportion of women (15 percent) at Pune mentioned that their family members did not allow them to go to AWC due to COVID-19.

Table 9:Pregnant mothers received supplementary nutrition (SN) from the ICDS during the pandemic, by District and Place of residence (2020-21)

Characteristics	Name of DISTRICT - STATE/UT					ALL		
	Pulwama -JK	Patna -BI	Kamrup -AS	Pune -MH	Dharwad -KA	Urban	Rural	Combined
Received supplementary nutrition from ICDS/AWC								
Almost everyday	4.2	12.8	0.6	27.7	71.7	28.0	25.4	26.3
Most of the days	20.0	20.3	98.9	27.7	10.4	27.3	51.2	42.9
Fewer than half of the days	41.1	21.0	0.6	9.5	5.4	10.2	9.7	9.8
Rarely/Never	34.7	46.0	0.0	35.1	12.5	34.6	13.7	21.0
No. of live births	**95**	**148**	**351**	**336**	**279**	**422**	**787**	**1,209**
Reason mothers rarely/ never received SN								
AWW did not provide at home	12.1	92.7	NA	1.7	17.1	20.6	41.7	29.5
ICDS/AWC closed due to COVID-19	18.2	0.0	NA	9.3	17.1	9.6	8.3	9.1
Not allowed to go to AWC due to COVID-19	0.0	2.9	NA	15.3	8.6	11.6	5.6	9.1
AWC did not receive supply due to COVID-19	12.1	1.5	NA	1.7	5.7	2.7	4.6	3.5
Other reasons	57.6	2.9	NA	72.0	51.4	55.5	39.8	48.8
Number of births, mothers rarely/never received SN	**33**	**68**	**0**	**118**	**35**	**146**	**108**	**254**

Selected indicators by socio-demographic characteristics

Table 10 shows the percentage of births based on place of residence, district, household wealth tertile, women's age, religion, caste and educational status for selected indicators including if mothers faced difficulty in getting ANC services, if they received most of the ANC services from a public health facility, had their delivery at a public health facility, had C-section delivery, experienced pregnancy complications, delivery complications, post-delivery complications and if they received JSY money. Relatively, more mothers in rural areas, mothers from Pulwama district, mothers from low wealth tertile and older age group (35-49 years), belonging to Muslim religion, having an education at least upto 10th standard reportedly experienced difficulties in getting ANC services during the pandemic. Further, mothers from rural areas, in Kamrup district, low household wealth

tertile, older age group, belonging to the Muslim religion, Scheduled Castes, having less education received most of the ANC services from a public health facility and also delivered at a public health facility. On the other hand, C-section deliveries were observed to be more in Pulwama, among mothers belonging to households with better wealth index, older age group, other religions and better education. Experiences of pregnancy complications were reported more by mothers in rural areas, Pulwama and Dharwad districts, mothers from high wealth index, older age group, Muslim religion, STs and other backward classes. Further, women reporting delivery complications were comparatively more from urban areas, at Dharwad, from a high wealth tertile, younger age group, Christian religion, ST and OBC category and higher education standards. On the other hand, post-delivery complications were reported comparatively more by mothers in rural areas, at Kamrup, older age group, women belonging to ST category. Receiving an incentive under the JSY scheme was more in rural areas, at Kamrup, mothers belonging to low and medium household wealth tertile, and SC category compared to others.

Table 10: Selected maternal health care indicators for births during reference period by selected background characteristics, (2020-21)

Background characteristics	% faced difficulty in getting ANC	% had most ANC from a PHF*	% delivered in PHF*	% had C-section delivery	% had a pregnancy compli-cation	% had a delivery compli-cation	% had a post-delivery compli-cation	% received JSY money	No. of live births
Place of residence									
Urban	9.5	56.2	41.0	44.6	16.6	20.4	5.5	28.2	422
Rural	14.2	74.2	66.3	47.3	18.6	16.3	12.7	42.6	787
District - State/UT									
Pulwama -JK	31.6	86.3	83.2	85.3	39.0	11.6	9.5	43.2	95
Patna-BI	10.1	66.2	68.9	21.0	8.1	13.5	0.0	48.0	148
Kamrup-AS	15.4	97.4	74.4	51.6	12.0	9.7	19.7	61.0	351
Pune-MH	3.3	57.1	23.5	45.5	7.1	19.4	3.0	21.4	336
Dharwad-KA	15.1	38.4	62.4	40.9	36.2	30.1	12.5	20.1	279
Household wealth tertile									
Low	14.9	73.3	71.8	34.4	17.9	17.7	12.0	40.5	457
Medium	11.5	67.2	55.6	45.9	16.5	16.5	11.8	42.1	399
High	10.8	61.8	41.1	62.3	19.3	19.0	6.0	28.6	353
Age									
15-24	11.6	68.7	61.6	38.0	17.4	18.7	9.4	41.2	466
25-34	12.1	66.9	54.8	49.9	17.2	17.4	10.2	34.6	679

35-49	25.0	73.4	56.3	68.8	28.1	14.1	15.6	42.2	64
Religion									
Hindu	11.8	66.5	54.3	43.6	15.7	18.3	10.8	35.8	947
Muslim	19.2	76.9	76.9	56.7	28.9	15.4	10.1	39.4	208
Christian	0.0	40.0	60.0	20.0	0.0	20.0	0.0	20.0	5
Other Religions	0.0	59.2	36.7	57.1	14.3	16.3	0.0	65.3	49
Caste									
Scheduled castes	8.9	77.8	61.6	47.3	14.8	12.3	7.4	60.1	203
Scheduled tribes	10.0	67.5	77.5	25.0	22.5	25.0	17.5	35.0	40
Other backward classes	10.9	63.8	55.1	44.9	25.7	23.6	8.0	34.1	276
Others (general castes)	14.5	66.7	56.1	47.8	15.4	16.5	11.5	32.5	690
Education									
< 5 years	10.0	76.3	66.3	33.8	13.8	12.5	7.5	35.0	80
5 to 9 years	10.9	72.7	75.2	39.9	17.7	13.5	7.1	39.9	238
10 to 12 years	13.5	72.0	60.2	45.4	19.2	18.3	12.2	42.8	650
More than 12 years	12.5	49.4	29.9	59.3	15.8	22.0	8.7	22.0	241
Combined	12.6	67.9	57.5	46.3	17.9	17.7	10.2	37.6	1,209

Summary and Conclusions

The utilization of ANC services is satisfactory in the study area as almost all the women had registered their pregnancy in the first trimester itself and got more than 4 ANC services. Most of them had monitoring of their weight, blood pressure/sugar level and haemoglobin level. It is encouraging to note that getting an ultrasound test, protection against tetanus and having an MCP card was almost universal. One in three pregnant women approached private hospitals for most of their ANC services. However, registration of pregnancy was done mainly at a public health facility. Not much variation was observed between rural and urban areas and among the five districts. Patna seemed to have lagged in providing ANC services during the pandemic. The study found that the majority of the women did not face much difficulty in getting ANC services. One in every five women experienced pregnancy complications, comparatively more in Pulwama and Dharwad. Type of complications seemed to be minor; however, almost all of them sought treatment. Experiencing complications at the time of delivery was also around 18 percent, comparatively more in Dharwad. Almost all had sought treatment for delivery complications. Post-delivery complications were experienced by one out of every ten pregnant women, comparatively more in Kamrup. All of them sought treatment for post-delivery complications.

As many as 42 percent of the deliveries took place at private health facilities and 46 percent of them with C-section, mainly with the help of a medical personnel. Approaching private hospitals for delivery was comparatively more in Pune, and C-section deliveries were very high in Pulwama. In the majority of the cases, mothers used private vehicles to reach health facilities and they stayed for 2-3 days in the hospital after the delivery.

Three-fourths of the mothers got the first PNC check-up within 24 hours, comparatively more in urban areas, mainly by a Doctor. One-fifth of the mothers had all delivery services done free of cost, and getting free delivery services was comparatively more in Patna. Mothers spent comparatively more money for delivery in Pune. Receiving JSY benefits was not so satisfactory in most of the regions, both in rural and urban areas.

Most of the women had a contact with frontline workers during pregnancy, at the time of delivery and after delivery in all the districts; slightly higher in rural areas compared to urban areas. Usually, they got help in the form of advice, accompanying to the facility or for arrangement of a vehicle to go to a health facility. Particularly, contact with ASHA and getting help from her in these aspects was satisfactory in both rural and urban areas and in all the districts except for Patna. The majority of the women received supplementary nutrition during the pandemic in both rural and urban areas, slightly better in rural areas in Kamrup and Dharwad.

The study clearly indicates that mothers received most of the ANC, Natal and PNC care services during the pandemic and did not face much difficulty while getting these services and getting treatment for any complications experienced by them during pregnancy, delivery or post-delivery. All the frontline health workers especially ASHAs played a major and significant role in providing maternal care services during the first wave of the COVID-19 pandemic.

To sum up, although the first wave of the COVID-19 pandemic did not really affect the uptake of maternal health care services as such, utilization varied across study districts and by place of residence. The utilization of all maternal health services was quite high during the first wave of the COVID-19 pandemic in all districts except Patna. The study also noted that more women in the urban areas experienced difficulties in seeking maternal health services. Transportation to the health facility was found to be a major barrier to utilization of services suggesting that there was a need to make a provision of transportation services during future pandemics, if any, for efficient utilization. The study found that some of the respondents did not use the services due to fear of getting the infection while visiting a health facility. It is therefore important to consider additional initiatives during the pandemic situation to reassure the clients that the facility has taken all possible steps to prevent spread of infection when clients visit. This would help to elevate uptake of the services. Regulating price of essential services related to health care utilization during the pandemic is extremely important especially to protect those belonging to socio-economically deprived groups of the population.

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