

Original Research Article

A study on utilization of maternal and infant health services in rural area of district Kanpur Nagar

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Received: 02 February 2023

Accepted: 06 March 2023

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ABSTRACT

Background: There is a pressing need to identify and address the grass root determinants of maternal health care utilization to steer the health services toward achieving the ambitious SDG target of reducing the global MMR to <70 per 100 000 births by 2030. Objective of current study was to assess the utilization of health services provided to mothers and infants.

Methods: The present cross-sectional study was conducted by the department of community medicine GSVM Medical College Kanpur using multistage random sampling technique including women having children less than 1 years of age and Infant (less than one year) born to these eligible women in rural blocks of district Kanpur Nagar for evaluation mother and infant care services from February 2021 to September 2022.

Results: 94.17% participants had at least one antenatal visit, 85.06% of delivery were take place at CHC, 83.80% post natal care provided by doctor, 30.76% infant were treated properly for Acute respiratory symptom 21.31% infant received ORT and Zinc for treatment of diarrhea. Similar results were found as per NFHS-5 in rural Uttar Pradesh in previous published research work.

Conclusions: Utilization of health care services require more improvement for infant disease treatment.

Key words: Utilization maternal, Infant, Health services, Uttar Pradesh

INTRODUCTION

The government of India is a signatory to the United Nations (UN) sustainable development goals (SDG), which adopted a maternal mortality ratio (MMR) target of fewer than 70 deaths per 100 000 live births by 2030.¹ However, in India, currently only 51% of mothers receive four antenatal checkups, 79% of births occur in health centres, 81% of deliveries are assisted by health professionals, and 65% of women receive PNC.² There is a pressing need to identify and address the grass root determinants of maternal health care utilization to steer the health services toward achieving the ambitious SDG target of reducing the global MMR to <70 per 100 000 births by 2030. Also, maternal death is a relatively rare event and

its trends over time are difficult to measure, but data on skilled birth attendance are readily available and are often used as a proxy indicator to track progress. The MMR of India is declining; it has come down from 342 in the year 2000 to 211 in 2017.³ However, there is a long way to achieve the target mentioned in the SDG goals. In India, there are wide variations in MMR across different states, ranging from 300 in Assam to 61 in Kerala.⁴ Among the northern states, Uttar Pradesh has the highest MMR of 285 maternal deaths per 100,000 live births. Almost 70% of the maternal deaths happen within the age group of 20 to 29 years which is the age group where fertility rates are also very high. It was reported that about 38% of maternal deaths were caused by haemorrhage, 11% due to sepsis and 5% due to obstructed labour, majority of which can be

prevented if women regularly go for antenatal care (ANC), deliver in an institution and utilize postnatal care services.⁵ It is well known and widely accepted that use of maternal health services reduces maternal morbidity and mortality.⁶ Utilization of maternal health services is influenced by multiple factors and this required focused attention. Various studies in India have concluded socio-economic factors and service delivery environment as important determinants influencing maternal health services.⁷ In another study in India, proportion of institutional deliveries among women from low socio-economic status was just 13% as compared to 84% among highest wealth quintile.⁸ It has also been shown that ANC is the gateway for other healthy behaviours adopted during and after pregnancy, like institutional delivery, providing newborn care, exclusive breastfeeding, complimentary feeding and many more.⁹ India shares burden of about 63 percent of total neonatal deaths in South Asia and is the second largest contributor to the global maternal deaths.^{10,11} More than a quarter of neonatal deaths have been noted to occur within first 24 hours in the country, according to NFHS-5 infant mortality rate infant mortality rate is 35 death per 1,000 live birth and neonatal mortality rate is 25 death per 1000 live birth however infant mortality rate declined from 41 deaths per 1000 live birth to 35 deaths per 1000 live birth from 2016 to 2021.¹² Despite of having appropriate maternal and child healthcare policies in place the country faces significant regional inequities in reproductive health.¹³ These inequities strongly determines the healthcare service utilization.¹⁴ The present study will assess the utilization of health care services during pregnancy, delivery and post-delivery and infant diseases among rural women in Kanpur and examine its determinants. To find out the utilization of maternal health services, three outcome variables will be considered at least 4ANC visits during pregnancy, institutional delivery and PNC within 42 days of delivery.

Objectives

Objective of current study was to assess the utilization of health services provided to mothers and infants.

METHODS

The present cross sectional study was conducted by the department of community medicine GSVM Medical college Kanpur using multistage random sampling technique including women having children less than 1 years of age and Infant (less than one year) born to these eligible women in rural blocks of district Kanpur Nagar for evaluation mother and infant care services from February 2021 to September 2022, Sample size was calculated on the basis of prevalence of at least 4 antenatal visit i.e 39.6% as per data of NFHS-5 Uttar Pradesh. Sample size was calculated using following formula;

$$n = z^2PQ / d^2 = z^2P (1-P) / d^2 = 4 P(1-P) / d^2$$

Where Z is Standard normal variate whose value for 95%

confidence interval of significance is 1.96, P is prevalence of mother who had at least 4 ANC visit (NFHS-5), Q is 100-P, D is Absolute error i.e., 5 after substituting the values the calculated sample size was 382. Participants were informed about the purpose of the visit and the study and informed consent was obtained to participate in the study.

RESULTS

In present study out of 395 total 94.17% participants had at least one antenatal visit. Majority of study subjects attended government hospital for ANC (PHC/CHC/DH/Medical college) i.e., 92.15% whereas private ANC were 2.02%. 95.44% of study subjects were delivered by skilled health person. Majority of delivery were take place at CHC (85.06%). The percentage of PHC, DH, Medical college, Private and Home delivery were 1.52%, 0.00%, 0.25%, 8.61% and 4.56%, respectively.

Table 1: Utilization of ANC services by study subjects during pregnancy (n=395).

Characteristics		N	%
At least one antenatal visit	Yes	372	94.17
	No	23	5.82
Place of ANC visit	No ANC	23	5.82
	PHC/CHC/DH/Medical college	364	92.15
	Private	8	2.02

Table 2: Utilization of health care services for delivery (n=395).

Characteristics		N	%
Delivery by skilled health person	Yes	377	95.44
	No	18	4.56
Place of delivery	PHC	6	1.52
	CHC	336	85.06
	DH	0	0.00
	Medical college	1	0.25
	Private	34	8.61
	Home	18	4.56

Majority of study subjects post natal care provided by doctor (83.80%), the percentage of postnatal care provided by Nurse, ANM, other health care provider were 14.43%, 0.25% and 1.01% respectively whereas 0.51 study subjects don't received post natal care, majority of study subjects post natal check up done within 1 hr (63.29%). The percentage of post natal check up done within 1 hour to 1 day and after 1 day were 31.39% and 4.81%, respectively. The percentage of abdominal examination was performed in 90.38% participants. The new born care was advice for 94.43% participants. Total 15.44% of infant was suffered from diarrhoea within 2 weeks preceding survey, among them 21.31% infant received ORT and Zinc.

Table 3: Utilization of health care services for PNC (n=395).

Characteristics		N	%
First post-natal check-up after delivery by health care provider	Doctor	331	83.80
	Nurse	57	14.43
	ANM	1	0.25
	other health care provider	4	1.01
	not done	2	0.51
Post-natal check-up done	within 1 hr	250	63.29
	1 hour to 1 day	124	31.39
	After 1 day	19	4.81
	not done	2	0.25
Abdominal examination	Yes	357	90.38
	No	38	9.62
New born care advice	Yes	373	94.43
	No	22	5.57

Table 4: Utilization of health care services for infant disease (n=395).

Characteristics		N	%
Whether infant suffered from diarrhoea within 2 weeks preceding survey	Yes	61	15.44
	No	334	84.55
If yes then ORT was given (N=61)	Yes	13	21.31
	No	48	78.68
If yes then Zinc was given (N=61)	Yes	13	21.31
	No	48	78.68
Health facility visited for treatment of diarrhoea in infant (N=61)	CHC	21	34.42
	PHC	26	42.62
	Sub-centre	2	3.72
	Private	12	19.67
Whether infant suffered from Acute respiratory infection within 2 weeks preceding survey	Yes	13	3.29
	No	382	96.71
If yes then treated properly (N=13)	Yes	4	30.76
	No	9	69.23
Health facility visited for acute respiratory infection treatment (N=13)	CHC	10	76.92
	PHC	3	23.07
	Sub-centre	0	0.00
	Private	0	0.00

Maximum infant received treatment for diarrhea at PHC 42.62% followed by CHC 34.42% and private hospital 19.67%, Total 3.29% infant was suffered from acute respiratory infection within 2 weeks preceding survey. Among them 30.76% were treated properly. Maximum

infant received treatment for acute respiratory symptom at CHC 76.92%, followed by PHC 23.07%.

DISCUSSION

All pregnant women must have access to excellent obstetric care throughout their pregnancies because there is no accurate way to anticipate which women may experience pregnancy-related problems. Poor socioeconomic conditions of the patient and non-use of prenatal and delivery care services are strongly linked to maternal difficulties and poor perinatal outcomes. Unbooked patients tend to have worse results than booked patients. Out of 395 total 94.17% participants had at least one antenatal visit. Majority of study subjects attended government hospital for ANC (PHC/CHC/DH/ Medical college) i.e., 92.15% whereas private ANC were 2.02%. Similar findings were observed by Chandra et al 91.9% utilization of antenatal care which was based on receiving at least one antenatal check up.¹⁵ Majority (73.1%) of women received antenatal care from government hospital while 18.8% women had visited to private hospitals for antenatal care. In present study out of 395, total 377 (95.44%) study subjects were delivered by skilled health person. According to NFHS-5 83.8% of delivery were conducted by skilled health personnel in rural area of Uttar Pradesh. In present study Majority of delivery were take place at CHC (85.06%). The percentage of PHC, DH, Medical college, Private, and Home delivery were 1.52%, 0.00%, 0.25%, 8.61%, and 4.56%, respectively and only 11.11 % of home birth were conducted by skilled health personal according to NFHS-5 61.5% of institutional births in public facility and only 4.6 % home births were conducted by skilled health personnel. In present study Majority of study subjects had normal delivery i.e., 87.85% and percentage of assisted and caesarean section mode of delivery were 0.25% and 11.90% respectively similar findings were observed in NFHS-5 were 11.0% of the births delivered by caesarean section.

In present study majority of study subjects post natal care provided by doctor (83.80%) The percentage of postnatal care provided by Nurse, ANM, other health care provider were 14.43%, 0.25% and 1.01% respectively whereas 0.51 study subjects don't received post natal care. In majority of study subjects post natal check up done within 1 hr (63.29%). The percentage of post natal check up done within 1 hour to 1 day and after 1 day were 31.39% and 4.81%, respectively. The percentage of abdominal examination was performed in 90.38% participants. The new born care was advice for 94.43% participants. In case of home delivery total 55.55% participant had PNC in which, 80% PNC was done within a week and 20% PNC was done after 1 week. According to NFHS-5 mothers who received postnatal care from a doctor, nurse, ANM, midwife other health personnel within 2 days of delivery were 70.0 % in Rural areas of Uttar Pradesh along with this children born at home who were taken to a health facility for a check-up within 24 hours of birth were 2.4% and children who received postnatal care from a doctor, nurse,

ANM, midwife, other health personnel within 2 days of delivery were 68.1%. Agarwal et al investigated PNC in case of non-institutional delivery total 17% of subjects received PNC, 14% of subjects received PNC within 2 days, 31% of subjects received PNC within a week and 55% of subjects received PNC within one week.¹⁴

Abdominal examination were done in 38% of study subjects, family planning were advised in case of 27% of study subjects, breast feeding were advised in case of 43% of study subjects and new born care were advised in case of 46% of study subjects. Total 15.44% of infant was suffered from diarrhoea within 2 weeks preceding survey, among them 21.31% infant received ORT and Zinc. Maximum infant received treatment for diarrhoea at PHC 42.62% followed by CHC 34.42% and private hospital 19.67% Total 3.29% infant was suffered from acute respiratory infection within 2 weeks preceding survey. Among them 30.76% were treated properly. Maximum infant received treatment for Acute respiratory symptom at CHC 76.92%, followed by PHC 23.07%. According to NFHS-5 prevalence of diarrhoea in the 2 weeks of preceding survey is 5.6% in rural Uttar Pradesh among them 51.5% children received ORS, 28.2% of children received Zinc, 69.9% of children with diarrhoea within the 2 weeks of preceding survey were taken to a health facility or health provider. According to NFHS-5 prevalence of symptoms of acute respiratory infection (ARI) within 2 weeks preceding the survey is 3.8% in rural Uttar Pradesh and 62.1% Children with fever or symptoms of ARI in the 2 weeks preceding the survey taken to a health facility provider.

CONCLUSION

Majority of participants attended government hospitals for ANC and majority of deliveries were conducted by skilled health personnel, majority of post natal care were provided by Doctor, only few home deliveries were conducted skilled health personnel with missing post natal care, Utilization of health care services require improvement for infant disease treatment.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Rathore R, Nigam S, Barman SK. A study on utilization of maternal and infant health services in rural area of district Kanpur Nagar. *Int J Community Med Public Health* 2023;10:1513-6.