Original Research Article

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20205178

Utilization of antenatal care services in rural population of north India: a cross sectional study

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Received: 07 September 2020 **Revised:** 31 October 2020 **Accepted:** 03 November 2020

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ABSTRACT

Background: Antenatal care (ANC) is an opportunity to encourage a positive pregnancy experience and improved maternal and child survival. Care in the antenatal period is also essential for supporting the long-term growth and development of the child. ANC visits are vital for providing counselling to mothers about the care they should take during pregnancy and in preparation for childbirth. The principal objective of the study was to evaluate the utilization of antenatal care services in rural population of North India.

Methods: The present community based cross-sectional study was conducted among 200 mothers over a period of Eight months. A semi structured, pre-tested questionnaire was used for data collection, the statistical data was recorded and analysed using by the SPSS Software.

Results: In present study all the pregnancies had ANC registration and 20.5% of them had ≥4 ANC visits. 91% of the mothers received Iron and Folic Acid supplementation while 95% of mothers immunized with adequate dose of Tetanus Toxoid. With regards to the type of delivery 87.5% were normal vaginal deliveries and 75.5% were occurred at health facility. The length of stay in the hospital was less than 2 days in 55% of deliveries and 52% of the mothers received cash assistance for institutional delivery by the government under Janani Suraksha Yojana (JSY) scheme.

Conclusions: The present study showed low utilization of full antenatal care services and JSY Scheme among the mothers. There is need to educate and council the mother and their family by health personnel regarding significance of utilization of antenatal services.

Keywords: Antenatal care, Iron folic acid supplementation, Janani Suraksha Yojana, Tetanus toxoid

INTRODUCTION

The health of future generations is to a great extent determined by the child's growth and development within the uterus. The success of fetal life determines not only the health of the newborn, but also has a major effect on adult health and disease risk. Good perinatal health is therefore essential to individuals, to society and to future generations. Antenatal care (ANC) is an opportunity to encourage a positive pregnancy experience and improved

maternal and child survival. Care in the antenatal period is also essential for supporting the long-term growth and development of the child as its part of the critical "1000 days" window.² Globally two in three (65%) of pregnant women received the WHO recommended at least 4 antenatal visits throughout pregnancy.³ Latest study has shown a lower still birth rate, among mothers with a minimum of eight antenatal visits, based on which the minimum recommended number of antenatal contacts has now been increased from 4 to 8.⁴ According to World

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Health Organisation, several health problems in pregnant females is possibly prevented, detected and treated during antenatal care visits with trained health personnel so all pregnant females should avail at least four antenatal visits, with the first antenatal visit, preferably in the first trimester (WHO). The further guideline advises that every pregnant female must consume 90 or more Iron/Folic Acid (IFA) tablets and must have at least two tetanus toxoid (TT) injections.⁵

In India only 51.2% of mothers had more than four antenatal care visits and 78.9% had Institutional births while in Uttar Pradesh it is only 45.9% and 67.8% respectively according to National Family Health Survey 4.6 This is comparatively modest when compared to increase in the rate of institutional delivery which has increased from 38.7% to 79% during the 2006-2016, basically driven by Cash Assistance for Institutional Delivery by the government. 6-8

ANC visits are vital for providing counselling to mothers about the care they should take during pregnancy and in preparation for childbirth. The key element of antenatal care comprise identification of warning signs, prevention and management of pregnancy-related complications, and health education and health promotion.³ Specific elements, which can significantly reduce maternal and neonatal mortality, including iron and folic acid supplementation, tetanus toxoid immunization, malaria prophylaxis, nutrition education, early detection and treatment of pre-eclampsia, preparedness of delivery and safe delivery education among mothers. In this perspective, the present study aimed to assess the utilization of antenatal care services in rural population of North India.

METHODS

The present community based cross-sectional study was conducted in rural field practice area Sarojini Nagar of Department of Community Medicine and Public health, King George's Medical University, Lucknow, Uttar Pradesh over a period of eight months (From November 2015 to June 2016). The present study employed purposive sampling. Cooperative mothers of newborns who were living in study area since one year and delivered during the study time period were included in the study. The data was obtained by house to houses visits of the subjects in the study area, during study period, a total of 351 deliveries occurred at PHC Sarojini Nagar, out of which only 246 deliveries were from service area of PHC, Out of 246, 46 mothers denied to give interview so total 200 mothers were interviewed for the study. Interview was conducted with mothers to fill the interview schedule and where it was impossible to get them or there was denial, next household was considered for the study.

A semi structured, pre-tested questionnaire was used for data collection and all participants were informed regarding the purpose of study and their consent was obtained for data collection. The ethical clearance was gotten from the Institutional Ethical Committee of the King George's Medical University, Uttar Pradesh, Lucknow (Ref No. 78th ECM II B- Thesis/P10) before beginning of the study. The statistical data was recorded and analysed using by the Statistical Package for Social Sciences (SPSS) Software.

RESULTS

Out of total 200 mothers 94 (47%) were in the age group of 20 to 25 years. Only 6.0% of the mothers were illiterate, majority of the mothers were house wives, and 88.0% were Hindus, 58.50% belonged to Other Backward Class (OBC) and about 52.50% were from joint family.

Table 1: Socio demographic characteristics of postnatal mothers.

| Characteristics | n=200 | | | |
|--|-------|------|--|--|
| | N | % | | |
| Age (in years) | | | | |
| 20-24 | 94 | 47 | | |
| 25≤35 | 91 | 45.5 | | |
| ≥35 | 15 | 7.5 | | |
| Educational status of mothers | | | | |
| Illiterate | 12 | 6 | | |
| Primary school | 58 | 29 | | |
| Middle | 90 | 45 | | |
| High school | 31 | 15.5 | | |
| Intermediate and above | 9 | 4.5 | | |
| Occupation of mothers | | | | |
| House wife | 196 | 98 | | |
| Un-skilled worker | 4 | 02 | | |
| Type of family | | | | |
| Nuclear | 105 | 52.5 | | |
| Joint | 95 | 47.5 | | |
| Religion | | | | |
| Hindu | 176 | 88 | | |
| Muslim | 24 | 12 | | |
| *Socio economic status | | | | |
| Class III (Middle) | 7 | 3.5 | | |
| Class IV (upper lower | 108 | 54 | | |
| class) | 108 | 34 | | |
| Class V (lower class) | 85 | 42.5 | | |
| Birth order | | | | |
| 1 st | 107 | 53.5 | | |
| 2 nd | 51 | 25.5 | | |
| 3 rd and above | 42 | 21 | | |
| Birth weight | | | | |
| Normal weight | 181 | 90.5 | | |
| Low birth weight | 19 | 9.5 | | |
| Gestational age at birth | | | | |
| Term | 189 | 94.5 | | |
| Preterm | 11 | 5.5 | | |
| *BG Prasad's socio-economic classification | | | | |

^{*}BG Prasad's socio-economic classification.

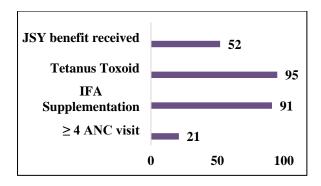


Figure 1: Utilisation of different components of ANC services.

Majority of mother 54.0% belonged to Upper lower class and 42.5% families belonged to lower Socio-economic class according to Kuppuswami socioeconomic classification. With regards to obstetrical score majority (53.5%) of mothers were primi and 46.5% mothers were multigravida. 90.5% of the newborns had normal birth weight and 94.5% had term gestational age at birth (Table 1). Majority of the mothers (91%) received Iron and Folic Acid supplementation while 95% of mothers immunized with adequate dose of tetanus toxoid and 20.5% had \geq 4 ANC visits.

Table 2: Utilization of antenatal services by mothers.

| Antenatal care in index | n=200 | | | |
|--|----------|------|--|--|
| neonates | N | % | | |
| ANC registered | | | | |
| Yes | 200 | 100 | | |
| Total no. of antenatal visit | | | | |
| ≤2 | 51 | 25.5 | | |
| 3 | 108 | 54 | | |
| ≥ 4 | 41 | 20.5 | | |
| Received others antenatal | services | | | |
| Weight recorded | 200 | 100 | | |
| BP measurement | 200 | 100 | | |
| Haemoglobin | 200 | 100 | | |
| Urine albumin | 200 | 100 | | |
| Urine sugar | 200 | 100 | | |
| HIV | 148 | 74 | | |
| VDRL | 148 | 74 | | |
| USG of abdomen | 140 | 70 | | |
| Any advice to the mother during antenatal visit* | | | | |
| (n=200) | | | | |
| Cord care | 12 | 6 | | |
| Eye care | 17 | 8.5 | | |
| Breast feeding | 37 | 18.5 | | |
| Wrapping | 22 | 11 | | |
| Skin to skin contact | 7 | 3.5 | | |
| Bathing | 11 | 5.5 | | |
| Immunization | 81 | 40.5 | | |
| Danger sign of newborn | 11 | 5.5 | | |
| 102 ambulance service | 0 | 0 | | |

^{*}Multiple responses

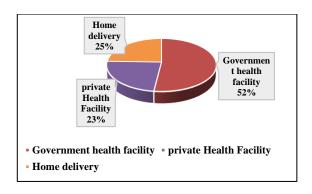


Figure 2: Place of delivery.

Only 52% of the mothers received cash assistance for institutional delivery by the government under JSY scheme (Figure 1). In present study all the pregnancies had ANC registration and 54% of them had a total of three ANC visits. Others ANC services like measurement of Weight, BP, Haemoglobin, Urine albumin and Urine sugar were done in all pregnancies, but HIV and VDRL test were done only in 74% of pregnancies.

Table 3: Utilization of intra natal and postnatal services by mother.

| | n=200 | | | |
|--|-------|------|--|--|
| Characteristic | N | % | | |
| Mode of delivery | | | | |
| Normal vaginal delivery | 175 | 87.5 | | |
| Caesarean section | 25 | 12.5 | | |
| Any advice to the mother for the care of the | | | | |
| newborn while in a health facility (n=151)* | | | | |
| Yes | 147 | 97.4 | | |
| Cord care | 90 | 61.2 | | |
| Eye care | 8 | 5.4 | | |
| Breast feeding | 133 | 90.5 | | |
| Wrapping | 51 | 34.7 | | |
| Skin to skin contact | 33 | 22.4 | | |
| Bathing | 86 | 58.5 | | |
| Immunization | 133 | 90.5 | | |
| Danger sign of newborn | 102 | 69.4 | | |
| 102 ambulance service | 7 | 4.8 | | |
| Counselled by* (n=147) | | | | |
| ASHA | 33 | 22.4 | | |
| ANM | 68 | 46.3 | | |
| Doctor | 136 | 92.5 | | |
| AWW and ASHA both | 34 | 23.1 | | |
| ASHA + ANM | 15 | 10.2 | | |
| ASHA + ANM + Doctor | 18 | 12.2 | | |

^{*}Multiple responses

During the antenatal visits the most frequent counselling given was on immunization (40.5%) followed by breastfeeding (18.5%) and wrapping of baby (11%), No information was given about the 102 ambulance service during the ANC visit (Table 2). With regards to the place of delivery most of the deliveries (75.5%) were occurred

at health facility in which 52% at Government health facility and 24% in private health facility while 24.5% mothers were delivered at home (Figure 2).

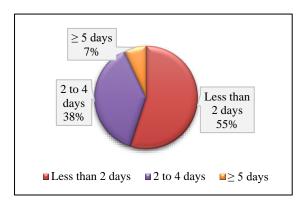


Figure 3: Length of stay in hospital.

With regards to the type of delivery most of the deliveries (87.5%) were normal vaginal deliveries and during the stay in the health facility 97.4% of mothers got counselling on newborn care. The maximum counselling were given on breastfeeding (90.5%), immunization (90.5%) and danger signs of newborn (69.4%) and the least was given on eye care (5.4%) and 102 ambulance service (4.8%). The majority of mothers counselled by the doctors (92.5%) followed by ANM (46.3%), ASHA (22.4%) during hospital stay (Table 3). The length of postnatal hospital stay of mothers was less than 2 days in 55% of deliveries followed by 2 to 4 days of hospital stay (Figure 3).

DISCUSSION

This present cross sectional study showed that, majority of mothers were Hindu, 47.5% belonged to joint family and most of the mothers (98%) were homemakers. Similar assessments were assessed by different study in our country by some authors. 9-11 The present study evaluated that 45% mothers were educated up to middle school, 54% families belonged to upper lower Socioeconomic class and 42.5% families belonged to lower Socio-economic class. Some authors in their study found that almost half of the families (51.9%) belong to lower socio-economic class. 12

The present study analysed that all women comprised in this study registered their pregnancy at government or private health facility for health check-up. This is quite similar to the findings of NFHS-4 (2015-16), Uttar Pradesh and Lucknow district in which registration of pregnancy was 82% and 84.4% respectively.⁶ This assessment was quite comparable with some other studies.¹³⁻¹⁵ In current study 20.5% women had four or more antenatal visits. This results are comparable to that of NFHS-4 Uttar Pradesh rural: 21.7% and some other Indian studies.^{6,13-15}

It was observed in present study that 91% of the mothers received iron and folic acid supplementation, this results are quite comparable to the observation of NFHS-4, the percentage of women who either received or bought IFA tablets was 77.7%, Gupta et al study reported that 93.7% mothers received IFA tablets and Gandhi et al study also revealed that all the mothers had received Iron supplements during ANC visit. 6.16-18

In the present study 95% of mothers immunized with adequate dose of Tetanus Toxoid, this findings is relatively compared to the result of Annual Health Survey (AHS) 2012-13 Uttar Pradesh and Lucknow district which is 83.2% and 87.5% respectively and also supported by some others Indian authors in their study. 6,19,20

In the present study, 75.5% mothers were delivered in health facility in which 52% at Government health facility and 24% in private health facility while 24.5% mothers were delivered at home. 12.5% mothers were delivered by caesarean section. This is quite comparable with NFHS 4 fact sheet reported that percentage of institutional deliveries was 75.1% in rural area, 66.8% in Uttar Pradesh, 84.5% in Lucknow district and 16.7% mothers were delivered by caesarean section.⁶ This assessment was quite comparable with some other studies. 11,21-24

The present study analysed that the length of stay in the hospital was less than 2 days in 55% of deliveries, this finding relatively comparable with the finding of Annual Health Survey (AHS) 2012-13 Uttar Pradesh which is 60.5%.¹⁹ Gupta et al reported that 76.2% babies were discharged at or before 48 hours of hospital stay.²⁵

The current study showed that 52% of the mothers availed Cash Assistance for delivery under JSY scheme, this findings is relatively compared to the result of Annual Health Survey (AHS) 2012-13 Lucknow district which is 47.2 percent while all of the mothers who delivered at government hospital received cash benefit, this results was also revealed by some other studies conducted by Indian authors such as Sidney et al. reported 100% receipt of the cash assistance in Ujjain, Santhya et al. found 92% receipt of cash benefit in Rajasthan while it was found to be 89% for rural Uttar Pradesh. 19,26-28

Limitations

However, the study was subject to various limitation. It is probable that selection bias occurred, as only those mothers who were residents of Lucknow and cooperative were included in the study.

CONCLUSION

The current cross sectional study showed low utilization of full antenatal care services and Janani Suraksha Yojana

Scheme among the rural area of Uttar Pradesh. There is also lack of advice and poor quality of communication to mother during ANC visit. The findings of this study may be utilized by the health care providers to address the problem of low ANC coverage.

Recommendations

To improve effective utilization of ANC services and JSY scheme there is need to educate and council the mother and their family by ANM, ASHA/Anganwadi workers regarding significance of utilization of antenatal services, JSY Scheme, Institutional delivery and create awareness by Information, Education and Communication (IEC) activities along with effective monitoring.

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: Pathak PK, Chaudhary N, Mishra S, Ayub A. Utilization of antenatal care services in rural population of north India: a cross sectional study. Int J Community Med Public Health 2020;7:5015-20.