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Patterns of antenatal care services utilization in rural Amroha, Uttar Pradesh: a community based cross sectional study

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ABSTRACT

Background: Antenatal care (ANC) services are considered to be the crucial element in the primary health care delivery system of a country. World Health Organization (WHO) estimates suggested that almost all of the maternal deaths (99%) and child deaths (98%) occurred in developing countries. These maternal deaths could have been prevented if the pregnant women or adolescent girls had been able to access quality antenatal care. The objectives of the present study were conducted in rural parts of district Amroha, Uttar Pradesh for assessing the patterns of utilization of the ANC services and to ascertain the factors influencing utilization of ANC services.

Methods: The present study was a cross sectional in nature. Recently delivered women were selected as study subject. A multi-stage stratified sampling design with random approaches had been used. Total 360 subjects included in the study.

Results: Respondents age, education, occupation, socio economic status, family type and family size were the factors that influenced the utilization of the ANC services. With 100% ANC registration, sub centre was the most preferred place for registration. 76.9% of woman received more than 3 ANC visits. 315 (87.5%) and (71.9%) respondents received 2 doses to TT vaccine and more than 100 IFA tablets respectively.

Conclusions: Utilization of ANC services are on rise in rural parts of Amroha, Uttar Pradesh. Still significant proportions of women are doesn't return to health facility after the ANC registration. Intensification of efforts is needed to cater this left out group through improving community awareness and motivation.

Keywords: Recently delivered woman, Antenatal care, Utilization

INTRODUCTION

Antenatal care (ANC) services are considered to be the crucial element in the primary health care delivery system of a country.

ANC can be defined as the care provided by skilled health-care professionals to pregnant women and adolescent girls in order to ensure the best health conditions for both mother and baby during pregnancy. The components of ANC include: risk identification; prevention and management of pregnancy-related or concurrent diseases; and health education and health promotion.1

Approximately 303,000 women and adolescent girls died from pregnancy and childbirth-related complications in 2015.1.² World Health Organization (WHO) estimates suggested that almost all of the maternal deaths (99%) and child deaths (98%) occurred in developing countries. These maternal deaths could have been prevented if the pregnant women or adolescent girls had been able to access quality ANC.3

There are stark differences between rural and urban areas especially in terms of health care infrastructure and services offered. Although the utilization rates of maternal health care in India have been increasing over the past few years, large disparities between states, regions and households can be noticed. This disparity could be related to several factors, an important one being non-utilization or under-utilization of maternal health-care services, especially amongst the rural population. The reason behind the poor utilization of health care services by the mothers was found to be associated with many factors like, inaccessibility, illiteracy, cultural factors which have significant relationship as a determinant of maternal and child health.⁴

In this article, major three component of ANC services i.e., number, place and time of ANC visits, receiving days of iron tablets and numbers of TT vaccinations are investigated. Special focus is given on the sociodemographic variables of respondent mothers.

The present study was carried out in the rural area of Amroha district, Uttar Pradesh with the following objectives to study the patterns of utilization of the ANC services and to ascertain the factors influencing utilization of ANC services.

METHODS

The present study was a cross sectional study conducted in the rural area of Amroha district for a period of one year from July 2015 to June 2016 to know the utilization of health care services during antenatal period among recently delivered women (RDW) refers only to women of reproductive age (15 to 49 years) who have delivered a live baby within the past 12 months prior to the conduct of this study.

The required sample size for the study among the RDW was calculated based on the standard formula for one point sample estimation:

$$N = \frac{4PQ}{d^2}$$

To ensure coverage of minimum required sample size for estimating various outcome indicators the value of 'P' (maternal health care service utilization) is taken as 64%.⁵ With the above assumption the required sample size at 95 percent level of confidence with 5 percent of permissible error in the estimates, is worked out as:

$$n = \frac{1.962 \times 0.64 \times 0.36}{0.052} = 354$$

The survey was conducted to find out at least 354 recently delivered women from each selected rural area but for the convenience purpose 360 RDW included in the study.

A multi-stage stratified sampling design with random approaches had been used.

Selection of primary sampling units (PSUs): PSUs, which where villages in the field practice area of rural health training center, with probability proportional to population size (PPS) at the first stage.

Second stage

After selection of 18 PSUs, the number of households selected per village was fixed at 20. Each selected village was divided into 4 quadrants and from each quadrant, 5 RDWs were selected randomly for the interviews. In each village, to select the required number of respondents the field supervisor was moved to the centre of the quadrant and selects a household randomly. In the contacted household, it was verified whether the household have RDWs. If the child and the mother were present there then the household was selected and the structured questionnaire was canvassed. If not, the investigator has moved to the immediate next household for the similar enquiry. This process was continued till the required sample size of 5 mothers in each quadrant was achieved.

Ethical approval

The study received the ethical clearance from the Institutional Ethical Review Committee.

Data analysis

Primary data was collected by face-to-face interviews from RDW. Visits was made to all selected 18 villages with the help of Medico Social Worker (MSW). Data was compiled on excel sheet and presented in tabular form. Data analysis was done with the help of statistical software SPSS (version 23.0). Chi-square test and other appropriate statistical test were applied. The differences were considered to be statistically significant at p<0.05 level.

RESULTS

Socio demographic profile of study population: majority of the RDW were in the age group of 21-25 years (52.8%). Mean age was 25.35±3.51 years.

In the present study 80.4% RDWs were housewives and rest 70 (19.6%) was doing other works like farming and teaching. Maximum RDWs were illiterate (55%). Maximum RDWs (57.2%) belonged to nuclear family. According to modified B. G. Prasad's classification, maximum recently delivered women's (50.0%) were in class IV (lower middle) followed by 13.6% in class V (lower class) (Table 1).

 $Table \ 1: Distribution \ of \ RDW \ according \ to \ socio-demographic \ variables \ (n=360).$

Socio-demographic variable	Frequency	%
Age category (in years)		
≤20	14	3.9
21-25	190	52.8
26-30	139	38.6
31-35	14	3.9
>35	3	0.8
Respondent's occupation		
Housewife	290	80.4
Farmer	56	15.6
Other	14	4
Respondent's education		
Illiterate	198	55.0
Just literate	38	10.6
Primary	32	8.9
Secondary	44	12.2
High school	14	3.9
Intermediate	13	3.6
Graduate	15	4.2
Post graduate	6	1.7
Socio-economic status		
I	10	2.8
II	38	10.6
III	83	23.1
IV	180	50.0
V	49	13.6
Type of family		
Nuclear	206	57.2
Joint	154	42.8

Table 2: Distribution of RDW according to antenatal registration (n=360).

Characteristics	Frequency	%
Antenatal registration	· · · · · · · · · · · · · · · · · · ·	
Yes	360	100
No	0	0
By whom		
ANM	228	66.1
Medical officer	94	27.6
Private practitioner	28	8.3
Place of antenatal registration		
Sub-centre	228	66.1
PHC/CHC/FRU	94	27.6
Private hospital	28	8.3
Time of antenatal registration (weeks)		
≤6	158	43.9
6-12	176	48.9
12-18	21	5.8
18-24	3	0.8
>24	2	0.6
Number of ANC visit		
<3 visit	83	23.1
≥3 visit	277	76.9

Table 3: Distribution of RDW according to services received during ANC (n=360).

Characteristics	Frequency	%
No. of TT received		
None	22	6.1
1	23	6.4
2	315	87.5
No. of IFA tablets received		
No IFA	31	14.2
<100	53	13.9
≥100	276	71.9
No. of IFA consumed (N=329)	•	
No. IFA	14	4.3
<100	56	17.0
≥100	259	78.7

Table 4: Association table between socio-demographic variable and ANC registration in first trimester, TT doses and IFA consumed (n=360).

Socio-demographic variables	ANC Registration in first trimester (334)	2TT Doses (315)	IFA consumed ≥100 (259)
Age category (in years)	2	$\chi^2 = 7.55$ p value=0.00229 df=2	$\chi^2 = 7.19$ p value=0.027 df=2
<20	χ^2 =6.159638 p value=0.045968 df=2		
20-35			
>35			
Respondent's education	2 22 22	$\chi^2 = 7.64$ p value=0.0219 df=2	χ^2 =51.6 p value=0.0000000 df=2
Illiterate	$\chi^2 = 22.92$ - p value=0.0000105 - df=2		
<10 th			
≥10 th			
Husband's education	2 12 22	χ^2 =48.60 p value=0.00000000 df=2	χ^2 =12.43 p value=0.0020 df=2
Illiterate	$\chi^2 = 12.30$		
<10 th	p value=0.002132 df=2		
≥10 th			
Socio-economic status	$\chi^2 = 16.03$	$\chi^2 = 7.70$	$\chi^2 = 18.74$
Upper class	p value=0.0000623 df=1	p value=0.0055 df=1	p value=0.0000150 df=1
Lower class			
Type of family	$\chi^2 = 1.65$	$\chi^2 = 7.94$	$\chi^2 = 11.35$
Nuclear	p value=0.198	p value=0.0048	p value=0.0007564
Joint	df=1	df=1	df=1
Family size	2 2 64	2 0 77	2 12 16
≤3	$\chi^2 = 3.64$ - p value=0.161 - df=2	$\chi^2 = 9.77$ p value=0.0075 df=2	χ^2 =13.16 p value= 0.00138 df=2
4-6			
≥7	ui-2		

Distribution of RDW's according to antenatal registration. In the present study 100% women registered for antenatal care. Maximum ANC registration (66.1%) done by ANM at sub centre. Nearly half of the women (48.9%) registered at the time of 6-12 weeks. Majority of the RDW's (76.9%) received \geq 3 numbers of antenatal visits (Table 2).

Distribution of RDW according to services received during ANC. Majority of RDW's (87.5%) received 2 TT vaccines. Mostly of the RDW's (71.9%) received \geq 100 IFA tablets and out of 329 respondents, maximum RDW's (78.7%) consumed \geq 100 IFA tablets (Table 3).

RDW with the ANC registration within the first trimester were having statistically significant association with their

age, educational status, education of the husband, socioeconomic status (p value <0.05). However respondent's type of family and family size was not found to be statistically associated with their ANC registration within first trimester (p value >0.05). RDWs with 2 tetanus toxoid doses were having statistically significant association with their age, education, husbands education, socio economic status, type of family and family size (p value <0.05). RDWs with \geq 100 IFA consumed doses were having statistically significant association with their age, education, husbands education, socio-economic status, type of family and family size (p value <0.05) (Table 4).

DISCUSSION

This study explored the factors influencing the utilization of ANC services among the recently delivered women in rural areas of district Amroha.

The socio-demographic data revealed that maximum women 52.8% were in the age group of 21-25 years followed by the 38.6% in the 26-30 years group. In the present study, majority 80.4% women were housewives and rest 70 (19.6%) was doing other works like farming and teaching. 55% of the respondent mothers were found to be illiterate. Our study findings are comparable to the findings by Baruah et al with 54.78% women in 21-25 years age group while Gupta et al noted 94.3% of housewives in their study.

In the present study, the socio-economic status of women shows that majority 63.6% respondent were found in lower middle and lower class followed by 33.7% in middle class and upper middle class while 2.8% in upper class. The findings are in line with the study findings by Gogoi et al.⁷

Mostly women 57.2% were belong to nuclear family and rest 42.8% were belongs to joint family. These findings are in accordance with study findings by Dahal et al mentioning 42.9% and 57.1% belonged to nuclear family and joint family respectively.⁸

In the present study, it was observed that 100% RDW's registered for antenatal care. The similar studies conducted had shown lower ANC registration rates i.e., Gupta et al (96.4% ANC registration), Srivastava et al (88.6% ANC registration). Maximum (66.1%) antenatal registrations were done by ANM at sub-centre while rest 27.6% by Medical Officer at PHC/CHC/FRU and 8.3% by private practitioner at private hospital. These findings were consistent with study observation by Shidhaye et al which stated 19% at Private health services and 81% at Government health services (sub-centre/PHC/RH). The study explored 48.9% women registered at the time of 6-12 weeks followed by 43.9% at ≤6 weeks, 5.8% at 12-18 weeks and only 1.4% at the time of 18-≥24 weeks.

Out of 360 respondents, 76.9% women had \geq 3 numbers of antenatal visits and rest 23.1% women had less than 3 antenatal visit. These findings are consistent to the study findings by Singh KM et al with 52.6% women had \geq 3 numbers of antenatal visits. 12 87.5% women received 2 TT vaccines and 23 (6.4%) women received 1 TT injections and only 22 (6.1%) women did not receive any TT vaccine. These findings are comparable to the study findings by Sahni et al which reported 86.74% pregnant females received 2 doses of TT. 13

Out of total respondents 71.9% women received \geq 100 IFA tablets and 13.9% women received <100 IFA tablets. 78.7% consumed \geq 100 IFA tablets and 17% women consumed <100 IFA tablets and only 4.3% women did not consume any IFA tablets. The comparatively lower values were recorded in a study by Baruah et al quoting 0.28% had no IFA, 65.97% had \geq 100 IFA and 33.75% had <100 IFA.

RDW with the ANC registration within the first trimester were having statistically significant association with their age, educational status, education of the husband, socioeconomic status (p value <0.05). In a study conducted by Gudayu et al on logistic regression analysis reviewed that first ANC registration timing in weeks was having significant association with maternal age in years. ¹⁴

RDWs with 2 tetanus toxoid doses were having statistically significant association with their age, education, husbands education, socio economic status, type of family and family size (p value <0.05). RDWs with $\geq \! 100$ IFA consumed doses were having statistically significant association with their age, education, husbands education, socio-economic status, type of family and family size (p value <0.05). The consistent findings noted in study by Dahal which revealed that number of TT doses were significantly associated with educational status, parity while number of IFA tablet consumption was significantly associated with types of family, educational status, parity.

CONCLUSION

Hundred percent 360 (100%) of RDW were registered for ANC check-up during pregnancy. 334 (92.8%) pregnant women registered in first trimester, preferred place for ANC was sub-centre 228 (66.1%) and maximum 277 (76.9%) pregnant women received more than three antenatal check-up. Most of the ANC services were facilitated by ANM 228 (66.1%). Out of 360 registered women, 315 (87.5%) pregnant women received 2 doses of tetanus toxoid or a booster, 23 (6.4%) received partial immunization (one dose of TT). Out of 360 women, 276 (71.9%) pregnant women received 100 IFA tablets but only 259 (78.7%) women consumed 100 IFA.

Limitations

The study findings are applicable to the rural population of Amroha and may be generalized with caution.

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