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Full Length Research Paper

Antenatal care services in rural areas of Aligarh, India: A cross-sectional study

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The present study was carried out to find out the current status of antenatal care services. A cross-sectional study was carried out in rural areas of Aligarh taking WHO 30 cluster methodology. The required number of villages from each stratum was selected with probability proportional to size (PPS). There were 154 currently pregnant women (CPW) and 248 recently delivered women (RDW), of these, a majority of CPW (72.1%) and RDW (59.7%) did not have any ANC checkup. 65.1% of CPW and 40.0% of RDW had their first ANC checkup in the first trimester. Majority of CPW (53.9%) did not receive any TT vaccination. On the contrary, most of the RDW (73.0%) had two doses of TT vaccination. Similarly, large number of the CPW (75.3%) and 52.4% of RDW did not receive iron folic acid (IFA) tablets. In CPW, weight was measured only in 16.3% women. However, height was measured in 41.9%, B. P. was recorded in 46.5%, The same pattern was observed in RDW. Preferred place of delivery was home in CPW (64.9%) and RDW (81.4%) and mostly conducted by trained birth attendant (TBA). It is concluded that among the aspects ignored during antenatal period, patient education is of vast importance and even a low level of counseling can improve utilization of health services by mothers.

Key words: Currently pregnant women (CPW), recently delivered women (RDW), ANC checkup, trained birth attendant (TBA).

INTRODUCTION

Pregnancy and birth of a baby is generally a celebrated event in most of the communities. However, in many families, these events may become a symbol of sorrow and grief where mothers depart from their babies and families because of inadequate and poor or nil maternal health services provided to these innocent mothers. These maternal deaths could be prevented by applying simple preventive measures.

Maternal Mortality Rate is low in Kerala and Punjab but in Assam, Bihar, Gujarat, Haryana, Karnataka, Madhya Pradesh, Rajasthan, Orissa, Uttar Pradesh and West Bengal, ratio exceeds 400 per 100,000 live births and in states like Assam. Madhya Pradesh and Uttar Pradesh, it is as high as 700 per 100,000 live births.

In India, reproductive, maternal and child health services are provided by the government sector and the private sector. While the government sector mainly provides services in rural areas, the private sector is more common in urban areas. The data on service coverage and its impact on health indicators are made available through National Family Health Survey and Sample Registration Survey. However, this data is usually made available after a long period of time. There is no other agency in the states which provide recent and concurrent information on health and family welfare activities.

Keeping in mind the aforementioned facts, present study has been carried out with the following objectives:

a. To find out the current status of antenatal care UTILIZATION OF services.

b. To find out the influences of some socio-demographic determinants on the utilization of these services.

MATERIALS AND METHODS

This cross-sectional study was carried out in rural areas of Aligarh district of Uttar Pradesh. The sampling technique of this study is based on the WHO 30 cluster methodology. In rural areas all the villages were stratified into different strata based on population/ HH size. The required number of villages from each stratum was

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Table 1. ANC in currently pregnant women (CPW) and recently delivered women (RDW).

No. of ANC checkup	CPW		RDW	
	No.	(%)	No.	(%)
1	18	11.7	17	6.8
2	14	9.1	32	12.9
3	06	3.9	21	8.5
4	05	3.2	30	12.1
No	111	72.1	148	59.7
Total	154	100.0	248	100.0

selected with probability proportional to size (PPS). The information from 2001 Census was used as sampling frame for selecting primary sampling units (PSUs). Thirty clusters from rural areas were selected. Selection of clusters was followed by a systematic sampling technique with population proportional to size accordingly (Annexure-I).

The sample size in the districts varies according to their performance in terms of antenatal care (ANC), institutional deliveries, immunization etc. For low performing districts, 1500 households (HHs), for medium performing districts, 1200 HHs and for low performing districts 1000 HHs have been fixed as sample size. In case of Aligarh, sample size was 1200 HHs with 10% additional HHs (1320) to take care of non response or refusal[2]. For larger villages having more than 300 HHs, segmentation was done. In case of 300-600 HHS, two segments of equal size were made and one was selected using PPS. For villages with more than 600 HHs, segments of 150 houses were created depending upon the size and then two segments were selected using PPS method.

The District level Household Survey of Aligarh (Rural) was carried out with a view to assess the utilization of antenatal care services provided by the public and private sectors.

A house to house survey was done in each of the clusters till target population was achieved. In case where requisite number of the mothers was not found in the same village, the searching activity was carried out in the adjacent village. Before carrying out the study, permission from Institutional Ethical Committee (IEC) was obtained.

The uniform bilingual questionnaire, both in English and local language (Hindi) were used. Questionnaire were developed and validated by the Secretariat of the Concurrent Assessment for Technical Assistance (CATA) at the state level at King George Medical University Lucknow (Uttar Pradesh). In the questionnaire, information was collected under the following headings:

1. Currently Pregnant Women (CPW): At least four currently pregnant women were identified in each cluster. In currently pregnant women, time of pregnancy registrations, place of registration, timing of antenatal care and future planning for natal services were inquired.

2. Recently Delivered Women (RDW): These were the mothers who had given birth during past twelve months. Similarly at least seven mothers who had given a live birth during past 12 months from the date of survey were also inquired. Survey of these mothers covered antenatal care, delivery practices and post partum care. Information pertaining to last birth was collected.

Some times more than target numbers of women were identified in a cluster and they were included in the study. A total of 1320 households in 30 villages (Annexure 1) were targeted but 882 households could be surveyed. Some houses were locked or refused to participate in the study. However, our target of currently pregnant and recently delivered women was achieved. Total population surveyed was 5401.

A survey team comprising of eight investigators, six females and two males with two skilled supervisors was selected on the basis of experience and knowledge of maternal and child health. Such two teams were constituted and they were trained by faculty and experienced resource persons at Department of Community Medicine, J. N. Medical College, Aligarh, India. Pre-test and post-test appraisal of the team members were carried out to know the impact of training. Training was followed by two days of field activities of data collection in presence of faculty and resource persons to identify the problems to be encountered during survey and get them rectified. Quality of data was assessed and shortcomings were rectified and explained. During the period of survey, the core committee members and senior resource persons closely watched and supervised.

All completed questionnaires were brought to the Department of Community Medicine for checking and editing before data processing. As such fifteen days were utilized in data collection and rest fifteen days for data editing. After these exercises, data were entered in the computer. The data was processed through specific software designed for this purpose. Problem in software was also validated from time to time by experienced software engineer.

RESULTS

There were 154 currently pregnant women (CPW) and 248 recently delivered women (RDW), of these,a majority of CPW (72.1%) did not have any ANC checkup. Similarly majority of RDW (59.7%) did not have any ANC checkup. Among women who had ANC checkup, only 25.6 % and 51.0% had three or more ANC checkups in CPW and RDW respectively (Table 1).

As shown in Table 2, first ANC checkup was done in 65.1% of currently pregnant women (CPW) and 40.0% of recently delivered women (RDW) who were in the first trimester. 30.2 and 4.7% of (CPW) had their first ANC checkup in the second and third trimesters respectively. Most of the CPW (44.0%) and RDW (47.0%) had second ANC checkup during second trimester. Third or more ANC checkups were carried out mostly in second trimester (50.0%) in CPW and during third trimester (49.4%) in RDW.

Data of antenatal services received during pregnancy in both the groups of women have been presented in Table 3. Majority of currently pregnant women (53.9%) did not receive any TT vaccination. 21.4% women received only one TT injection while 24.7% had two TT injections including single booster dose. On the contrary, most of

Table 2. ANC and trimester of pregnancy.

Currently pregnant women (N = 43)	1st Trimester		2nd Trimester		3rd Trimester		Total
	No.	(%)	No.	(%)	No.	(%)	
First ANC	28	65.1	13	30.2	02	4.7	43
Second ANC	09	36.0	11	44.0	05	20.0	25
Third or more ANC	03	25.0	06	50.0	03	25.0	12
Recently delivered women (N = 100)							
First ANC	40	40.0	41	41.0	19	19.0	100
Second ANC	11	13.3	39	47.0	33	39.7	83
Third or more ANC	06	7.4	35	43.2	40	49.4	81

Table 3. Services received during antenatal period.

Service	CPW (154)		RDW (248)	
	No.	(%)	No.	(%)
Received TT Injection				
Nil	83	53.9	51	20.6
1	33	21.4	15	6.0
2/ Booster	38	24.7	182	73.4
IFA tablets received				
Nil	116	75.3	130	52.4
<100	33	21.4	93	37.5
≥100	05	3.3	25	10.1
IFA tablets consumed	(n=38)		(n=118)	
Nil	02	5.3	09	7.6
<100	36	94.7	100	84.8
≥100	00	0.0	09	7.6
Main reasons for non-consumption of IFA tablets	(n=38)		(n=109)	
Constipation	02	5.3	00	0.0
Loose motions	03	7.9	07	6.4
Vomiting	03	7.9	06	5.5
Nausea	01	2.6	03	2.8
Black stool	01	2.6	00	0.0
Bad taste	03	7.9	15	13.8
Others	04	10.5	14	12.8
Do not know	21	55.3	64	58.7
Examination and investigations	(n=43)		(n=100)	
Weight measured	07	16.3	22	22.0
Height measured	18	41.9	56	56.0
B.P. measured	20	46.5	66	66.0
Abdomen examination	22	51.2	79	79.0
Urine test	23	53.5	73	73.0
Blood test	19	44.2	72	72.0

Table 4. Preferred place of delivery.

Place of delivery	Currently pregnant women (N = 154)		Recently delivered women (N = 248)	
	No.	(%)	No.	(%)
Government hospital	11	7.1	20	8.1
Private hospital	05	3.3	25	10.1
Home	100	64.9	202	81.4
Others	00	0.0	01	0.4
Do not know	38	24.7	00	0.0
Total	154	100.0	248	100.0

Table 5. Preferred personnel for home delivery.

Place of delivery	Currently pregnant women (N = 154)		Recently delivered women (N = 248)	
	No.	(%)	No.	(%)
Government hospital	11	7.1	20	8.1
Private hospital	05	3.3	25	10.1
Home	100	64.9	202	81.4
Others	00	0.0	01	0.4
Do not know	38	24.7	00	0.0
Total	154	100.0	248	100.0

the RDW (73.0%) had two doses of TT vaccination (Generally in the third trimester). Similarly, large number of the currently pregnant women (75.3%) did not receive iron folic acid (IFA) tablets. Among those (38) who received IFA tablets only 3.3% women got more than 100 tablets. None of them had taken more than hundred tablets. 52.4% of RDW had not received iron folic acid (IFA) tablets. Only 10.1% women got more than 100 tablets and out of these, only 7.6% of them had taken more than hundred tablets.

The main reasons for not taking IFA tablets, given by CPW were loose motion (7.9%), vomiting (7.9%) and bad taste (7.9%). Majority of them (55.3%) were not able to mention the exact reason of not taking these tablets. Similarly large number of RDW (58.7%) had no reason to mention why they did not consume the IFA tablets.

In CPW who received antenatal services, weight was measured only in 16.3% women (Weighing machine was not available/ nonfunctional). However, height was measured in 41.9%, B.P. was recorded in 46.5%, abdomen examination (fundal height) was done in 51.2% and routine urine and blood examinations (Haemogram, blood group) were carried out in 53.5 and 44.2% women respectively. The same pattern was observed in RDW where only in 22.0% women weight was recorded.

In Table 4 preferred place of delivery by both the groups of women have been shown. Majority of currently pregnant women (64.9%) said they would prefer a home delivery, 10.4% preferred institutional delivery. Home delivery was conducted in most of the RDW (81.4%).

As shown in Table 5, the preferred person to conduct the home delivery in CPW was trained birth attendant (TBA) or trained dai (70.0%). Similarly in most of the RDW, deliveries (67.8%) were conducted by the TBA.

As it is clear from Table 6, main reason for not going to hospital in RDW was that 38.1% women thought it was not necessary and 16.8% did not have time to go. 10.9% women said that centre of delivery was too far to reach and they faced the problem of non-availability of transport.

10.9% deliveries had one or more complications and the most common being prolonged labor (33.3%) and retained placenta (33.3%). Women who delivered in hospitals had more complications (18.0%) than delivered at home (11.4%). Most of the women having complications (48.2%) visited private hospitals for the treatment and 11.1% women did not take any treatment for the complications (Table 7).

DISCUSSION

The present study highlights that majority of currently pregnant women (CPW) and recently delivered women (RDW) did not have any ANC checkup. Among women who had ANC checkup, very small number of these women had three or more ANC checkups, 20.6% in RDW which is similar to the findings of NFHS-3 (2005 to 2006) (22.6% in rural areas). For many of these families, pregnancy and childbirth is not an area of concern on a priority basis. They could not see any reason to get ANC services in health institutions. Lack of consciousness in

Table 6. Reasons for not going to hospital for delivery in recently delivered women.

Reason (N = 202)	No.	(%)
Not necessary	77	38.1
Not customary	06	3.0
Too far	22	10.9
No time to go	34	16.8
No money	32	15.8
Not aware	26	12.9
Others	05	2.5

Table 7. Complications of delivery in recently delivered women.

Background characteristic	No.	(%)
Delivery complications (N = 248)		
Complications present	27	10.9
Complications absent	221	89.1
Types of complications (N = 27)		
Prolonged labour	09	33.3
Retained placenta	09	33.3
Excessive bleeding	01	3.7
Others	08	29.6
Place of delivery and complications (N = 27)		
Home (N = 202)	23	11.4
Government hospital (N = 20)	02	10.0
Private hospital (N = 25)	02	8.0
Place of treatment (N = 27)		
Home	01	3.7
Government hospital	07	25.9
Private hospital	13	48.2
Quakes	00	0.0
Others	03	11.1
None	03	11.1

case of illiterate mothers, economic and time constraints might stand in the way of utilizing ANC services. Similarly, very low coverage of ANC services were also observed by Gupta et al. (2006) in an Indian Council of Medical Research (ICMR) study carried out in seven districts of Uttar Pradesh. Impact of literacy on utilization of ANC services can be seen from a study conducted in Udupi by Jayakulasingham et al. (2008). They found that municipality area where 92% women were literate, 95.6% had more than three antenatal checkups.

Majority of CPW did not receive any TT vaccination. On the contrary, most of the RDW (73.0%) had two doses of TT vaccination. The reason of high coverage with TT injection was that generally most of the pregnant women have been vaccinated in the third trimester. It was expected that CPW would get TT vaccination in the third trimester as most of these women were in first and second trimesters. Same findings were also observed in Delhi by Yadav et al. (2008).

Large number of the CPW and RDW did not receive iron folic acid (IFA) tablets. Among those who received IFA tablets, majority of women in both the categories did not consume 100 IFA tablets after getting it from the health care facility. Only 7.6% of RDW had taken more than hundred tablets which match the findings of NFHS-3 (2005 to 2006) where only 8.7% had consumed 90 or more IFA tablets.

The main reasons for not taking IFA tablets, given by

them were loose motion, vomiting and majority of them were not able to mention the exact reason of not taking these tablets.

In CPW and RDW who received antenatal services, weight was not measured in most of the women. This could be attributed to the fact that weighing machine was either not available or nonfunctional. Weight recording is very essential and cost-effective component of antenatal care. However, height and B.P. were measured in nearly half of the patients but it was also a disappointing finding of the study. Providing measuring tape is not a big problem even in poorest of poor section of society in the country. Routine urine and blood examinations (Haemogram, blood group) were carried out in sizeable number of women. However these investigations were carried out in all women visiting ANC clinic in Udipi as reported by Jayakulasingham et al. (2008).

A majority of RDW preferred to deliver at home with the help of trained birth attendants (81.4%) and 64.9% CPW said they would prefer a home delivery. The rate of home delivery was close to 78.0% reported for the State of Uttar Pradesh in the report of basic facts of Uttar Pradesh (2005 to 2007) of NFHS-3 (2005 to 2006). The rate of home delivery was also more than the 70% reported in a study from urban slums and periurban area of Delhi by Agarwal (1997). Most common reasons stated for home delivery was that it was the norm to deliver at home and they could not see any reason for delivering in institutions and not needing expert interventions. They were not aware of the need for institutional delivery, childbirth for them being a normal phenomenon, traditionally carried out at home. For those who were aware of the need for institutional delivery facilities or wanted to deliver in the hospital, the reason for home delivery were mostly economic or lack of facility close to their homes. In another study, Aggarwal et al. (2007) also highlighted the lack of knowledge as an important barrier to utilization of care and pointed out that knowledge improves utilization rates. Only complicated cases were referred to hospitals and that could be a reason of high incidence of complications in institutional deliveries. In case of complications during pregnancy and child birth, most of them either took treatment from government or private hospitals and no one had gone to quack.

Conclusions

It is concluded that among aspects ignored during antenatal period, patient education is of vast importance and even a low level of counseling can improve utilization of health services by mothers, this increasing coverage with existing health services as seen by Baqui (2007). Mahaini and Mahmood (2005) observed that there is evidence that skilled attendant at birth is an important variable in promoting maternal and child health, and also that it is possible to reduce maternal mortality and morbidity even where resources are limited using a variety of models of care as noticed by Bernis (2003). Efforts should be made to educate the mothers about the importance of ANC by organizing information, education and communication (IEC) activities. Active follow up may be recommended for dropouts. There is also a need to strengthen the health care infrastructure. The findings of this study may be utilized by the health managers and health care providers to address the problem of low ANC coverage and home deliveries by traditional birth attendants.

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Annexure 1. List of clusters (District Aligarh - rural).

S/No.	Name of cluster	S/No.	Name of cluster
1.	Tappal	16.	Chitkaura
2.	Palsera	17.	Shadipur Kamrua
3.	Jaidpur	18.	Keshopur Japhro
4.	Nagliya Sopha	19.	Rorawar
5.	Gomat	20.	Jawan Sikanderpur
6.	Data Saidpur	21.	Rath Gawan
7.	Thanpur Khanpur	22.	Barutha
8.	Jakhauta	23.	Asadpur Kayam
9.	Pilauna	24.	Shaikha
10.	Kheda Rafatpur	25.	Ladhanwa
11.	Mohsinpur	26.	Maoi
12.	Raipur Khas	27.	Nagla Madho
13.	Qasimpur Nagri	28.	Kubera
14.	Rampur	29.	Bijhara
15.	Sunphera Edalpur	30.	Tara Sara