

Utilization pattern of antenatal care in Lucknow under National Rural Health Mission

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Abstract

Background: Antenatal care (ANC) is a pivotal factor for the safe motherhood, but its utilization varies across the immensely varied Indian society, which by and large reside in urban slums and rural areas.

Objective: To assess the sociodemographic determinants, extent of ANC utilization and impact of National Rural Health Mission (NRHM) on ANC utilization in urban slum and rural areas of Lucknow. **Materials and Methods:** A cross sectional study was conducted at Bal Mahila Chikitsalaya, Aliganj, an urban area of Lucknow and Primary Health Centre, Bakshi Ka Talaab, a rural area of Lucknow between October 2008 to April 2009. A total of 682 recently delivered women (within 42 days of delivery) who came to these health facilities for their child's vaccination were interviewed, by a preformed and pretested schedule.

Results: Sociodemographic determinants of ANC were age, parity, religion and socioeconomic status (SES) of the women. Hindu women, those of lower age and parity and higher socioeconomic class formed the maximum utilization groups. Education and residential area (urban or rural) of the women was found to have no influence on their utilization level of ANC services. More than half of the women had first ANC visit within first four months of pregnancy and had three ANC visits. Majority of both urban and rural women had received tetanus toxoid vaccination and Iron Folic Acid supplementation. Nearly 80% urban and 50% rural women had their weight measured, blood pressure recorded and blood and urine tests done. **Conclusion:** Efforts are required for covering each and every antenatal mother for complete ANC package.

Keywords: Antenatal care, Sociodemographic determinants, Utilization level, Components of antenatal care, NRHM

Introduction

Systematic supervision (examination and advice) of a woman during pregnancy is called antenatal (prenatal) care¹. High quality antenatal care is a fundamental right for women to safeguard their health². The primary aim of antenatal care is to achieve healthy mother and a healthy baby at the end of pregnancy³. Women can access antenatal care services either by visiting a health center where such services are available for them or from health workers during their domiciliary visits. The former gives an idea about the voluntary utilization of the services by the women while the latter is related to quality aspect of the services⁴. However, uptake of antenatal care services is far from universal even in settings where they are readily available. To rectify the loopholes in maternal and child health care services, Government of India has launched a very ambitious programme, the National Rural Health Mission. One of the challenging tasks taken up by NRHM is that of promoting of high quality antenatal care. Thus, with this background, our study takes up the case of Lucknow, the elegant capital city of Uttar Pradesh and it was conducted with the objective to assess sociodemographic determinants, extent of ANC utilization and impact of NRHM on ANC utilization in urban slum and rural areas of Lucknow.

Materials and Methods

The present study was conducted in urban slum and rural area of Lucknow city from October 2008 to April 2009 after obtaining the approval of institutional ethical committee. In the urban area, the present study was conducted at Bal Mahila Chikitsalaya (BMC), a government, maternal and child health care centre, established to cater maternal and

child health (MCH) care needs of basically the slum population of this area. In the rural area, this study was conducted in Bakshi Ka Talab (BKT) block, at Primary Health Centre (PHC), BKT. The study design was observational cross sectional. For selecting the sample, all the consecutive recently delivered women (RDW) (within 42 days of delivery) who came for vaccination of their child to these health facilities were interviewed about their sociodemographic characteristics and level of utilization of ANC services, after getting informed consent, until the required sample size was reached. Child birth being an important event in a woman's life, chances of all recall bias were considered minimum. In order to find out the impact of NRHM on the ANC utilization, the present utilization level of ANC reported in this study was compared with the levels of ANC utilization reported by the National Family Health Survey (NFHS)-III, Uttar Pradesh⁵, considering it as a baseline. The impact indicators considered for assessing impact of NRHM on ANC utilization were number of women receiving ANC, early registration for pregnancy, receiving of three or more ANC visits, ANC received from doctor and components of ANC received.

Inclusion Criteria: Recently delivered women (within 42 days of delivery) who were willing to participate were included in the study.

Exclusion Criteria: Non cooperative women who refused to furnish necessary information were excluded.

As per NFHS-III, UP⁽⁶⁾ key indicators, percentage of any antenatal care received in Uttar Pradesh is 67%. Based on this, the required sample size, as calculated by the formula,

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$$n = \frac{Z_{1-\alpha/2}^2 p(1-p)}{d^2}$$

works out to be 587, where p=0.67,

α=0.05, Z= 1.96 (for 95% confidence interval), d=5% (margin of error).

However, in the present study 682 women were included (341 urban and 341 rural), which is much more than the required sample size.

The study tool consisted of a schedule that was prepared at the Upgraded Department of Community Medicine and Public Health, Chhatrapati Shahuji Maharaj Medical University, Lucknow, in consultation with guides after reviewing relevant literature on the topic. A pre test run was done to validate the questionnaire. The data collected was tabulated and analyzed. Descriptive statistics, Chi square test and Proportion test were used for data analysis.

Results

Out of the total 682 respondents, majority of women were of age group 21-25 years (52.8%), of parity one (37.5%), Hindus (85.6%), educated upto secondary (38.4%) and of social class II-III (60.3%) according to Modified B.G. Prasad classification⁷. On applying Chi square test, statistically significant association was found between utilization of antenatal care (ANC) services by women and their age (P<0.001) and parity (P<0.001). Women of age group 21-25 and parity one or two were the maximum utilisers of ANC services. Religion was found to have significant effect on utilization of ANC services (P<0.001) i.e more Hindu (99.8%) as compared to Muslim (77.6%) women utilized ANC services. While level of education of the women was not found influencing their utilization of ANC services, the SES of women had an considerable affect (P<0.001). More women of higher SES utilized ANC services as compared to those of lower SES. (Table 1)

The study showed maximum percentage of women (58.5%) both in urban and rural areas had their first ANC visit within first four months of pregnancy. This was followed by 21.7% urban and 45.2% rural women who received first ANC between four to six months. Only 2.6% urban and 4.1% rural women did not receive any antenatal care. (Table 2)

Major proportion of women both in urban (86.5%) and rural (70.4%) areas had three or more ANC visits. These figures included 52.2% urban and 64.9% rural women who had atleast three ANC visits whereas 34.3% urban and 5.5% rural women who had more than three antenatal checkups. Out of the total respondents 3.4% women had no ANC visit. (Table 3)

Table 4 shows that most of the women of both urban and rural areas were given two shots of tetanus toxoid (TT) (95.9%), 100 tablets of Iron and Folic Acid (IFA) (93.5%), had an abdominal examination (78.3%) and were given dietary advice (85.6%). Blood and urine tests and recording

of weight and blood pressure was done for 67.9%, 67%, 70.5%, and 70.2% women respectively. Ultrasonography was the least utilized component among both the urban (59.8%) and rural (20.2%) groups.

Table 5 shows that on comparison with NFHS-III, UP⁽⁶⁾ which was taken as baseline, the impact indicators of the present study showed highly statistically significant improvement (P<0.001) in ANC utilization.

Table 1: Sociodemographic Determinants of Antenatal Care

Sociodemographic Determinants	N=682		Receiving of Antenatal Care N=659		χ ² , p value
	No.	(%)	No.	(%)	
Age (in years)					
Upto 25	360	52.8	355	98.6	9.2, 0.0024, d.f.=1
Above 25	322	47.2	304	94.4	
Parity					
1	256	37.5	255	99.6	48, 0.00, d.f.=2
2	237	34.8	236	99.6	
3 and more	189	27.7	168	88.9	
Residence					
Urban	341	50.0	332	50.3	1.12, 0.289, d.f.=1
Rural	341	50.0	327	49.6	
Religion					
Hindu	584	85.6	583	99.8	121.06, 0.0001, d.f.=1
Muslim	98	14.4	76	77.6	
Education					
Illiterate	257	37.7	246	95.7	5.01, 0.08, d.f.=2
Upto Secondary	262	38.4	251	95.8	
HS & above	163	23.9	162	99.3	
SES*					
Class II-III	411	60.3	406	98.8	14.75, 0.0001, d.f.=1
Class IV-V	271	39.7	253	93.4	

*Socioeconomic status as per Modified B.G. Prasad Classification (CPI July 2009)

Table 2: Distribution of Women According To Duration of Pregnancy at the Time of First Antenatal Care (ANC) Visit

Duration Of Pregnancy At First ANC Visit	Urban (n=341)		Rural (n=341)		Total (n=682)	
	No.	(%)	No.	(%)	No.	(%)
Less than 4 months	237	(69.5)	162	(47.5)	399	(58.5)
4-6 months	74	(21.7)	154	(45.2)	228	(33.5)
7-9 months	21	(6.2)	11	(3.2)	32	(4.7)
No antenatal care	9	(2.6)	14	(4.1)	23	(3.4)
TOTAL	341	(100.0)	341	(100.0)	682	(100.0)

Table 4: Distribution of Women According to Components of Antenatal Care Received

ANC Visit Number	Urban (n=341)		Rural (n=341)		Total (n=682)	
	No.	(%)	No.	(%)	No.	(%)
Adequate T.T. vaccination [#]						
Received IFA (100 tablets)	331	(97.1)	327	(95.9)	658	(96.5)
Weight recorded	323	(94.7)	315	(92.4)	638	(93.5)
Haemoglobin tested	285	(83.6)	196	(57.5)	481	(70.5)
Blood pressure recorded	289	(84.8)	174	(51.0)	463	(67.9)
Urine for albumin and sugar tested	287	(84.2)	192	(56.3)	479	(70.2)
Abdomen examined	282	(82.7)	175	(51.3)	457	(67.0)
Ultrasound done	298	(87.4)	236	(69.2)	534	(78.3)
Information on danger signs of pregnancy received	204	(59.8)	69	(20.2)	273	(40.0)
Dietary advice given	198	(58.1)	72	(21.1)	270	(39.6)
None	315	(92.4)	269	(78.9)	584	(85.6)

* Multiple responses

[#] Adequate T.T. vaccination include women who received two shots of T.T. and those multipara women whose difference in two pregnancies is less than three years.

Table 3: Distribution of Women According to Number of Antenatal Care (ANC) Visit

ANC Visit Number	Urban (n=341)		Rural (n=341)		Total (n=682)	
	No.	(%)	No.	(%)	No.	(%)
One	4	(1.2)	1	(0.4)	5	(0.7)
Two	33	(9.7)	86	(25.1)	119	(17.4)
Three	178	(52.2)	221	(64.9)	399	(58.5)
More than three	117	(34.3)	19	(5.5)	136	(19.9)
None	9	(2.6)	14	(4.1)	23	(3.4)
TOTAL	341	(100.0)	341	(100.0)	682	(100.0)

Table 5: Changes in the key impact indicators of ANC utilization

Impact indicators	URBAN			RURAL		
	NFHS -III (UP) ⁽⁵⁾ (Baseline)	Present study	p value	NFHS -III (UP) ⁽⁵⁾ (Baseline)	Present study	p value
Increase in percent of women receiving ANC	79.3	97.4	<0.001	63.1	95.9	<0.001
Early registration for pregnancy	41.7	69.5	<0.001	21.4	47.5	<0.001
Receiving of three or more ANC visits	42.1	86.5	<0.001	22.5	70.4	<0.001
ANC received from doctor	45.2	87.4	<0.001	16.5	69.2	<0.001
ANC components received:						
Two TT doses	77.6	96.2	<0.001	61.1	95.6	<0.001
IFA supplements	61.6	94.7	<0.001	50.9	92.4	<0.001
Weight recorded	44.0	83.6	<0.001	13.2	57.5	<0.001
BP recorded	49.7	84.2	<0.001	17.6	56.3	<0.001
Haemoglobin tested	45.6	84.8	<0.001	14.3	51.0	<0.001
Urine tested	47.2	82.7	<0.001	17.2	51.3	<0.001
Abdomen examined	64.3	87.4	<0.001	37.2	69.2	<0.001
Ultrasound done	21.2	59.8	<0.001	6.1	20.2	<0.001

Discussion

In the present study, there was a reduction in the proportion of women obtaining antenatal care services with increasing age and parity. Similar findings were also observed by Chandhiok et. al⁴. Results of NFHS-III, India⁸ also show

that number of women with no ANC increased with increasing age and parity. Pradhan⁹ reported that all the primipara and 78.3% women with second pregnancy had received antenatal care. This may be due to women of higher age and parity are usually less anxious about their pregnancy as they had children before and do not pay heed towards the importance of antenatal care.

In this study, association of utilization of ANC services by women was not found statistically significant with their educational level but SES and religion of women were found influencing factors on ANC utilization. Reasons may be that women of higher SES are in a better position as compared to those of lower SES to pay for the transport to the health facilities where the ANC services are being provided and have not to bear the problem of loss of daily wages on days of ANC checkups. It was encouraging to note that educational level was not found affecting the utilization of ANC services by them and this might be due to the efforts made by female health workers i.e Anganwadi workers (AWWs), Auxillary Nurse Midwives (ANMs) and especially the Accredited Social Health Activists (ASHAs) in the rural area who constantly keep motivating women for more and more use of ANC services. Results of NFHS-III, India⁸ show that number of women with no ANC increased with decreasing education level and socioeconomic status. Pradhan⁹ in her study reported percentage of women with educational attainment of School Leaving Certificate (SLC) and above, attended the ANC visits, double as compared to the illiterate women and the coverage was nearly five times higher for four or more ANC visits made by women of per monthly income of more than four thousand as compared with the women of lesser income. NFHS- III, India⁸ reported that larger proportion of women with no ANC were Muslims as compared to Hindus and from rural area as compared to urban area. These findings were in accordance with the results of our study.

As per the present study, most of women (58.5%) had first ANC visit within first four months of pregnancy. Nearly 34% women had first ANC visit between four to six months and only five percent women had first ANC between seven to nine months. Deb³ found 21.7% of women had antenatal checkup from the first month of their pregnancy, 17.5% from second month, 13.2% from third month, 14.7% from fourth month and 30.7% from fifth to ninth months of pregnancy. According to NFHS-III, India⁸ 43.9% women had their first ANC visit in the first trimester, followed by another 22.4% who had their first ANC visit during their fourth or fifth month of pregnancy. Only about ten percent of women had their first ANC when they were six or more months pregnant. According to Srilatha et.al.¹⁰ where 1.2% women had first ANC in first month, 9.3% in the second month and 30.8% in the third month of pregnancy. Trinh and Rubin¹¹ found 41% women commenced ANC after 12 weeks of ges-

tation, 16% after 17 weeks and 10% after 20 weeks whereas, Low et al¹² observed that 26.6% mothers initiated ANC at 15 weeks or even later.

In the present study most of the women had three ANC visits, followed by those who had more than three ANC visits. According to NFHS-III, India⁸, only 24.5% of women had one to two ANC visits whereas 52% had three or more ANC visits. Pradhan⁹ found in her study that 62% respondents made ANC visits four or more times and 16% made it less than four times. Singh and Arora¹³ noted that 34.9% of cases had three or more ANC visits, Srilatha et. al¹⁰ reported that 94% mothers received atleast four ANC whereas 4% had three checkups and Banerjee¹⁴ estimated that 93% of women had, three ANC checkups. Higher values of our study were observed in comparison to Chandio et.al⁴ where 73.9% mothers had one ANC contact.

The effectiveness of antenatal care in ensuring safe motherhood depends on the tests and measurements done as a part of antenatal care. In the present study, almost all the women had two shots of TT and received IFA. Reason for lower utilization of some components of ANC package might be that for these tests and measures, women have to go to health facilities where these services are being provided and factors like lack of transport, long waiting time for investigations, no one to look after children in their absence, play detrimental roles. In our study nearly 80% urban and 50% rural women had weight and blood pressure (BP) recorded and blood and urine tested. Among urban 87.4% and among rural 69.2% women had their abdomen examined. Deb³ reported 83.3% received TT injections twice, 79.8% received IFA, 79% had their BP measured, 80% had an abdominal examination, 78% had weight measured, 51% reported having a blood test and 41% had a urine test. These observations were a marked improvement, when compared with figures reported by Nisar and Amjad², Pradhan⁹, Kumar et. al¹⁵, Banerjee¹⁴, Chandio et al⁴ and Agarwal et. al¹⁶. Even as compared to NFHS-III, India⁸, the results of our study are on a better note. Coverage of ANC components, better than our study were reported by Srilatha et. al¹⁰.

In the present study all the impact indicators showed statistically significant improvement and this can be seen as an encouraging note for the NRHM efforts to increase ANC utilization. Reason for the improvement might be that Accredited Social Health Activists (ASHAs) appointed in rural areas with the objective to guide and convince women for optimal utilization of the ANC services are working meticulously. Also the upgradation of health facilities in urban area under NRHM with extra staff and amenities have triggered the proper utilization of ANC services by women.

Conclusion

Our study concludes that NRHM has shown a positive impact on the ANC utilization in Lucknow city. However, some deficiencies still exist.

About 96.6% of women received antenatal care but few ANC components had shown lower utilization level in the rural area as compared to urban area. Majority of women had first ANC during first four months of pregnancy and had three ANC visits. Maximum utilization of antenatal care services was seen among Hindu women, those of lower age and parity and among women of higher socioeconomic status. Educational level of women was not found influencing factor in utilization of antenatal care services.

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