Effect of Antenatal Services During Pregnancy on Prevalence of Anemia Amongst Pregnant Women in Lucknow

Research Article

Mishra A[1*], Mishra AN[2]

[1] Assistant Professor, Dept. of Community Medicine Integral Institute of Medical Sciences & Research, Integral University& Lucknow, India.
[2] Associate Professor, Dept. of Orthopaedics Era's Lucknow Medical College, Lucknow, India.

Abstract

Objective: To study the effect of antenatal care services (ANC) during pregnancy on prevalence of anemia amongst pregnant women in Lucknow.

Study design: Cross-sectional study

Study area: Urban and rural areas of Lucknow.

Study subjects: A total of 455 pregnant women residing in urban and rural areas.

Results: More than half (62.2%) of the pregnant women received ANC services at any health facility. The overall prevalence of anemia was 67.5%. Of these, the moderate anemia was 47.6%, mild was 43.6% and severe was 8.8%. The prevalence was almost similar in urban (73.3%) and rural (62.4%) pregnant women as well as in Hindu (64%) and Muslim (74.2%) women. Age at marriage did not affect in the prevalence of anemia among pregnant women. The education of women had significant association with the prevalence of anemia as the anemia was significantly (p<0.0001) higher in illiterate (81%) women than literates.

Conclusion: The ANC service is still not at par, it is to be promoted that every pregnant woman should get ANC services in time. This will decrease the anaemia prevalence.

Keywords: Pregnant Women; Anemia; ANC Services; Demographic-Characteristic.

*Corresponding Author:
Sandhya Mishra,
Research Assistant & Rehabilitation Psychologist, Department of Social Work,University of Kashmir, Hazratbal, Jammu and Kashmir, India.
E-mail: amitsandhya27@gmail.com

Introduction

Anaemia is a major public health problem. It is now one of the most frequently observed nutritional diseases in the world. It is especially prevalent in women of reproductive age, particularly during pregnancy. DLHS-III (2007-08) survey reported that around 96 percent of the pregnant women in India are suffering from some degree of anaemia. It includes 51 percent of women who are suffering from mild anaemia, 42 percent from moderate anaemia and 3 percent from severe anaemia.

Khosla et al (2002) conducted a study at rural north India on 5124 delivered women and of these 386 patients (7.5%) were severely anemic (Hb < 6.0 g/dl). 1083 units of blood were transfused to these patients, a mean of 2.80 units to each patient. There were 2 maternal deaths due to severe anemia. Of the 386 patients, 246 could be interviewed in detail and their demographic details were compared with 100 normal pregnant women with haemoglobin levels of 10 g/dl or more. In the anemic group, 62.1% had no antenatal checkup and in non-anemic group, 24% had no antenatal checkup. Agarwal et al (2007) in their study found that the prevalence of anemia was found to be significantly higher among women without antenatal care (95.8%) than those seeking antenatal care (53.9%).

Materials and Method

Study area

The present study was carried out in rural and urban field practice areas of Department of Community Medicine, Era's Lucknow Medical College & Hospital Lucknow.

Study unit

Pregnant women in rural and urban field practice areas of Department of Community Medicine, Era's Lucknow Medical College & Hospital Lucknow were comprised as the study unit in the present study.

Total period of Study

The period of study was eighteen months, which was used for the development of study tools, collection of data, analysis and presentation of findings.

Study design

This was a community based cross sectional study.

Sample size

As per NFHS-3 UP (2005-06), prevalence of anemia in reproductive was 51.6 percent. Taking 80% power, 5% significance level, and the total sample size calculated was375. Taking non- response to be 10%, the final sample size came out to be 420. A total of 455 pregnant women were included in the study.

Sampling technique

Multi stage random sampling was used to selected study unit.

Inclusion criteria

Pregnant women in the respective household and in the 1st, 2nd and 3rd trimester.

Exclusion criteria

Households not having pregnant women and not residing in that area for the last 6 months. Also, pregnant women with other complications of pregnancy like ante partum haemorrhage, hyper emesis gravid arum etc.

Tool of data collection

A pre-designed and pre-tested questionnaire was used to elicit information on socio-demographic characteristics and required information.

Pre-testing of the interview schedule

The schedule was pretested on a sample of 50 women, 25 each from urban and rural areas. Necessary modifications were made in the schedule to overcome the difficulties encountered during pre-testing.

Data collection

First household was selected randomly and then consecutive household was surveyed till the desired number of study units completed. Each participant was explained about the purpose of the study prior to administration of tool. Informed consent was taken from each participant. '

Hemoglobin estimation

Sahli's Method was used for Hb estimation. The graduated tube placed between the brown glass standard of Sahli's haemoglobinometer was filled with N/10 hydrochloric acid up to lowest mark (mark 2). Blood sample obtained from the finger prick or from the vein was drawn into Sahli's pipette till 20 mm-3 mark and added into graduated tube containing N/10 hydrochloric acid. The blood and acid are mixed thoroughly with a glass stirrer and allowed to stand for 3 minutes for acid hematin to form. Distilled water was added drop by drop mixing it with a stirrer until color in the graduated tube was matched with the brown glass standard.

Data Analysis

The data collected was entered in Microsoft Excel and checked for any inconsistency. The dichotomous/categorical variables were analyzed by using Chi-square statistics. The p-value<0.05 was considered as significant. All the analysis was carried out by using SPSS 15.0 version.

Ethical consideration

The ethical clearance was taken from the Ethical Committee of the College and consent was taken from each pregnant women.

Results

Table-1 shows the distribution of pregnant women according to their family profile. More than half (65.9%) belonged to Hindu community and nuclear family type (68.1%). More than one

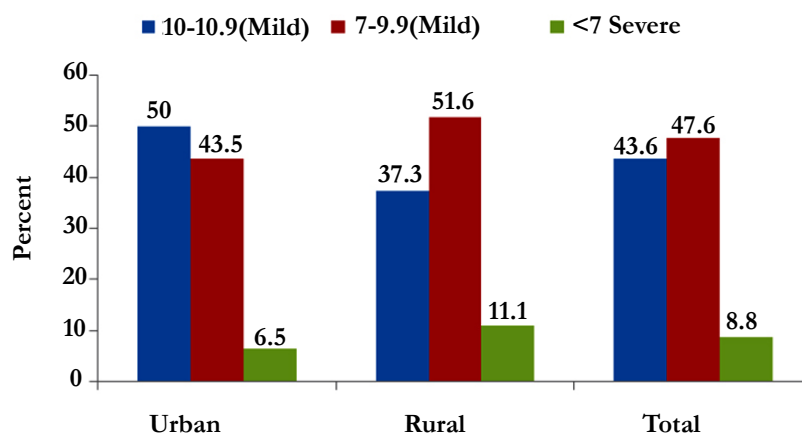**Figure 1. Severity of nutritional anemia among pregnant women**

Table 1. Distribution of pregnant women according to their family profile

Family structure	Place of residence				Total (n=455)	
	Urban (n=210)		Rural (n=245)			
	No.	%	No.	%	No.	%
Religion						
Hindu	128	61	172	70.2	300	65.9
Muslim	82	39	73	29.8	155	34.1
Type of family						
Nuclear	140	66.7	170	69.4	310	68.1
Joint	70	33.3	75	30.6	145	31.9
Family size						
2-Jan	50	23.8	16	6.5	66	14.5
4-Mar	96	45.7	70	28.6	166	36.5
>4	64	30.5	159	64.9	223	49
Average	5.0±2.4		5.6±3.0		5.2±2.7	
SES*						
I	15	7.1	7	2.9	22	4.8
II	12	5.7	10	4.1	22	4.8
III	15	7.1	7	2.9	22	4.8
IV	92	43.8	96	39.2	188	41.3
V	76	36.2	125	51	201	44.2

*Modified B G Prasad classification

Table 2. Distribution of pregnant women according to Ante Natal Care services received

Components	Place of residence				Total (n=455)	
	Urban (n=210)		Rural (n=245)			
	No.	%	No.	%	No.	%
ANC services received						
Yes	149	71.0	134	54.7	283	62.2
No	81	38.6	91	37.1	172	37.8
X2, p-value	3.44, p=0.09					
No. of visits	**n=149**		**n=134**		**n=283**	
>=3	62	41.6	21	15.7	83	29.3
2	67	45.0	101	75.4	168	59.4
1	20	13.4	12	9.0	32	11.3
X2, p-value	28.42, p<0.0001*					
ANC Provided by						
Doctor	90	60.4	0	0.0	90	31.8
Nurse/ ANM/Female health worker	59	39.6	134	100.0	193	68.2
X2, p-value	57.0, p<0.0001*					

*Significant

third (49%) of the pregnant women had family size >4. Most of the pregnant women belonged to SES group IV (41.3%) and V (44.2%).

Table-2 shows the distribution of pregnant women according to Ante Natal Care services received. More than half (62.2%) of the pregnant women received ANC services, however, no significant difference was seen among urban (71%) and rural (54.7%) women. The number of ANC visits was two in 59.4% pregnant

women followed by three or more visits (29.3%). The Nurse/ ANM/Female health worker (68.2%) were the main health personnel in providing ANC services.

The overall prevalence of anemia among the pregnant women was 67.5% (Table not shown). Mild and moderate anemia was 43.6% and 47.6%. However, severe anemia was only in 8.8% pregnant women (Fig.1)

Table 3: Association between anemia & demographic profile of pregnant women

Background characteristics	No. of pregnant women (n=420)	Prevalence		X², p-value
		No.(n=307)	%	
Residence				
Urban	210	154	73.3	0.12, p=0.92
Rural	245	153	62.4	
Religion				
Hindu	300	192	64	0.18, p=0.71
Muslim	155	115	74.2	
Marital status				
Married	450	302	67.1	0.58, p=0.86
Widow	4	3	75	
Separate/divorced	1	1	100	
Age at marriage				
<18	40	35	87.5	5.68, p=0.11
18-30	405	265	65.4	
31-40	10	7	70	
Education				
Illiterate	195	158	81	35.16, p<0.0001*
Primary	108	78	72.2	
Eighth	57	44	77.2	
High school	44	16	36.4	
Intermediate	26	7	26.9	
Graduate	25	4	16	
Occupation				
Housewife	438	296	67.6	16.20, p=0.008*
Unskilled	5	5	100	
Semi-skilled	4	4	100	
Skilled	4	2	50	
Semi-profession	2	0	0	
Profession	2	0	0	

*Significant

Table-3 shows the association between anemia& demographic profile of pregnant women. The prevalence was almost similar in urban (73.3%) and rural (62.4%) pregnant women as well as in Hindu (64%) and Muslim (74.2%) women. Age at marriage did not affect in the prevalence of anemia among pregnant women. The education of women had significant association with the prevalence of anemia as the anemia was significantly (p<0.0001) higher in illiterate (81%) women than literates. The occupation of women was also significantly (p<0.05) associated with the prevalence of anemia among pregnant women.

Discussion

The present study indicates that 65.9% pregnant women were Hindu while 34.1% were Muslims. As per NFHS-3, 82.6% of households in Uttar Pradesh were Hindus and 16.3% Muslims. The reason for high Muslims representation in the study is because the catchment areas of urban and rural centre are Muslims predominate. In our study, 68.1% pregnant women belonged to nuclear family and 31.9% belonged to joint family. However, in urban area, 66.7% pregnant women belonged to nuclear family while 33.3% belonged to joint family and in rural area, 69.4% pregnant women belonged to nuclear family while 30.6% belonged to joint family. However, as per NFHS-3, 55.9% population had nuclear family and 44.1% had joint type of family. In urban area, 59.1% had nuclear family and 40.9% had joint family. In rural area, 54.8% had nuclear family and 45.2% had joint family. The percentage of type of nuclear and joint families was higher in our study as compared to the NFHS-3 findings. This may be due to small sample size in our study as compared to the NFHS-3 study.

According to our study, 44.2% pregnant women belonged to social class V. However, NFHS-3 (UP) reported that 27.8% of the population belonged to social class V. The reason behind higher percentage of the population belonged to social class V is because the catchment area of the urban and rural health training centre belongs to low socio-economic group in our study.

Antenatal care services

According to our study, 62.2% of the women received ANC services. In urban area, 71% of the women received ANC services and in rural area, 54.7% received ANC services. The findings of the present study matched with the DLHS-III findings in which 64.4% women received ANC services (Urban-73.6% and Rural-62.8%). However, more than three-quarters of women in India received antenatal care for their most recent birth during the five years preceding the survey (NFHS-3).

Prevalence of anemia

Anemia in pregnancy is an important and preventable cause of maternal and fetal morbidity and mortality. In the present study, the overall prevalence of anemia was 67.5%. Somewhat similar results have been reported where anemia in pregnant women were 96.5%, 85.6% and 74.8% (Virender et al, 2002, Toteja et al, 2006 and Ahmad et al, 2010). The World Health Organization also estimated that 58% of pregnant women in developing countries were anemic (Galloway et al, 2002).

In our study, more than one third of the pregnant women had mild anemia (47.6%) & 43.6% were moderate anemia and 8.8% of pregnant women were severely anemic. Somewhat similar results have been reported in a study conducted in a rural Indian population. In which severe anemia was observed to be 18%, mild anemia in 43.6% and moderate anemia in 47.6% of patients (Ahmad et al, 2010). In another study (Farzana et al, 2010)[31] observed in study amongst pregnant women, 52% moderate, 36% were mildly anemic and 12% severe anemic. In which low percentage of mild anemia has been reported as compare with the finding of my study. In India, 55% of women were found to be anaemic. Thirty-nine percent of women are mildly anaemic, 16 percent are

moderately anaemic, and 2 percent are severely anaemic (NFHS-3). The severity of anemia in our study and other studies in India and abroad are almost similar.

Conclusions

The ANC service is still not at par, it is to be promoted that every pregnant woman should get ANC services in time. This will decrease the anaemia prevalence.

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