

Impact of Education on Antenatal Care among Pregnant Women in a Tertiary Care Hospital of Bareilly District Uttar Pradesh, India

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Abstracts: Background: Every year more than half a million women die and many millions more suffer disabilities from pregnancy and pregnancy related causes in developing countries. India accounts 20 percent of global maternal deaths, in spite of advancement of public health and medical technology. Many of the maternal deaths could be prevented with well-known intervention such as antenatal care and skilled attendant at birth. **Objective:** To determine the effect of education on antenatal care among pregnant women. **Methodology:** A descriptive cross sectional study was conducted among pregnant women who came to antenatal clinic of obstetrics department of Rohilkhand medical college, Bareilly during January-March 2014 by using pre-designed, pretested schedule. A total of 300 pregnant women were clinically examined. Written consent was taken. Statistical analysis was done using Microsoft Excel 2007 and SPSS Version 17. **Result:** In present study 69% women were literate and 88% their husbands were literate. The overall 83.7% antenatal care was found in which 66.3% were regular. 90.8% antenatal care found among literate women while 67.7% among illiterate. Regular antenatal care was more (76.3%) among literate women. **Conclusion:** Low level of awareness and poor interest about antenatal care was found among illiterate women. They were not conscious about regular antenatal care, tetanus toxoid immunization, iron folic acid supplementation and extra diet during pregnancy. [Singh P NJIRM 2015; 6(1):66-71]

Key Words: Education, antenatal care, pregnant women.

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Introduction: Every year more than half a million women die and many millions more suffer disabilities from pregnancy and pregnancy related causes in developing countries ^{1, 2}. India accounts 20 percent of global maternal deaths, in spite of advancement of public health and medical technology ^{2, 3}. Many of the maternal deaths could be prevented with well-known intervention such as antenatal care and skilled attendant at birth ⁴.

The utilization of reproductive health service are depends upon availability and accessibility of these services and socio-demographic, communication factors and quality of care provided to the women ^{5, 6}. The National Family Health Survey-2 (1998-99) data shows only 20 percent of women ⁷ in India utilized the Reproductive and Child Health (RCH) programme recommended antenatal care of three or more antenatal checkups with first check-up within the first trimester of pregnancy ⁸. A detailed study is required to understand the factors that affect the use of antenatal care by pregnant women, though these services are available and accessible.

The purpose of present study was improvement of sanitation, personal hygiene; better education and alleviation of poverty are not easy talks and need political will also. It has been seen that, with higher female literacy rates and proper allocation of resources, Srilanka and Kerala state of India have achieved best rates of life expectancy, infant mortality and maternal mortality among non-industrialized world's despite of their low per capita income. Female education results in improved nutritional status and higher contraceptive acceptance. Therefore the slogan is given as- "If you educate a man, you educate a person, but if you educate a woman, you educate the whole family".

Material and Methods: The present cross sectional study was conducted among pregnant women who attended antenatal clinic of obstetrics & gynaecology department of Rohilkhand Medical College & Hospital, Bareilly. All the pregnant women from second trimester onwards who attended the centre for ANC check-up for the first time during the study period were included. The study was carried out during January to March 2014. Informed consent was obtained from them

after explaining the purpose of the study. Who fail to give consent, were excluded from study.

A detailed demographic profile of the women, that is, age, religion, type of family, education level of women & her husband, occupation of a women & socioeconomic status was collected. All the pregnant women were clinically examined and their weights were recorded. Ethical approval for the study was obtained from the ethical committee at Rohilkhand Medical College & Hospital Bareilly.

Sample Size: Minimum sample required for the study was calculated with the help of Methods in Biostatistics 7th Edition by BK Mahajan⁹ at 12% allowable error and 95% confidence limit, based on the knowledge that about 50% of pregnant women in the country are having knowledge about antenatal care. 22 study participants added for better response (278+22=300). All the pregnant women from second trimester onwards who attended the centre for ANC check-up for the first time during study period were included.

Statistical Analysis: The collected data was compiled & tabulated using Microsoft Excel 2007 and then analyzed using SPSS Version 17. Group comparisons were done by Chi-square test. P values less than 0.05 were considered significant.

Result: Table 1 shows that majority of women were in the age group of 21-25 years (47.3%). It was seen that women having an average age of 24.94±4.19 years. 45% women were residence in rural area. In the present study 56.3% women belong to nuclear family. Majority of women were

Table 1: Socio demographic characteristics of pregnant women

Maternal characteristics	Number of subjects(n=300)	Percentage (%)
Age in years		
< 21	45	15
21-25	142	47.3
26-30	94	31.3
> 30	19	6.4
Range of age 17- 40years, Mean=24.94, SD=±4.19		
Residence		

Rural	135	45
Urban	165	55
Type of Family		
Nuclear	169	56.3
Joint	131	43.7
Education of women		
Illiterate	93	31
Literate	207	69
Primary	97	32.4
High school	45	15
Intermediate	28	9.3
Graduate or above	37	12.3
Education of their husband		
Illiterate	36	12
Literate	264	88
Primary	44	14.7
High school	79	26.3
Intermediate	73	24.3
Graduate or above	68	22.7

primary school education (32.3%) or illiterate (31%).

Table 2 shows that 83.7% women were taking antenatal care in the study but only 66.3% women were regular. 47% women initiate their antenatal visit from second trimester, but 36.3% women initiate antenatal visit during first trimester of pregnancy while significant (16.7%) percentage of women initiate their visit in late pregnancy. 58.3% women having less than 3 antenatal visits till time of examination. 26.7% women does not receive even a single dose of tetanus toxoid immunization till the time of examination.

Table 3 shows that antenatal care was found 90.8% among literate women while 67.7% among illiterate women. It was increases with increasing educational class. The association between antenatal care and education was found to be statistically significant ($p < 0.001$). Educated women were regularly (76.3%) attending ANC clinic while illiterate women were mostly irregular (23.6%). Literate women initiate early antenatal care (44.9%) and complete their ANC visits within time. It was also seen two dose of tetanus toxoid coverage (36.2%) was higher among literate women.

Table 4 shows that antenatal care was higher among those women whose husbands were literate (85.2%) and it were gradually rising with increasing educational level. It was also observed that women whose husbands were literate initiate early antenatal care (37.1%) and regularly (69%) completes their ANC visits as compare to illiterate group. Two dose of tetanus toxoid coverage was also higher (33.7%) among women of literate group. The association between antenatal care and education of husband was found to be statistically significant ($p < 0.001$).

2 nd trimester	141	47
3 rd trimester	50	16.7
No. Of antenatal visit		
<3	175	58.3
3	72	24
>3	53	17.6
Tetanus immunization		
None	80	26.7
One dose	120	40
Two dose	100	33.3

Table 2: Table showing distribution of pregnant women according to antenatal care

Maternal characteristics	Number of subjects(n=300)	Percentage (%)
Antenatal care		
Yes	251	83.7
No	49	16.3
Attending antenatal clinics		
Regular	199	66.3
Irregular	52	17.4
No ANC care	49	16.3
Initiation of antenatal clinics		
1 st trimester	109	36.3

Discussion: In the present study Majority of women were primary school education (32.3%) or illiterate (31%). 15%, 9.3% and 12.3% women were studies up to high school, intermediate and graduate or above respectively. A study conducted in Haryana by Agarwal T¹⁰ et al (2008) report higher percentage (83%) of literate women participated in the study. 45% women residence in rural area while 55% women are belongs to urban area. This result was in contrast to study conducted by Kulkarni MS² et al (2008) at Goa where only 20% were urban while 80% were rural. In our study

Table 3: Table showing antenatal care among different Educational status of pregnant women

Maternal characteristics		Women's Education						Total n=300 (%)
		Illiterate n=93 (%)	Literate n=207 (%)	Primary n=97 (%)	High school n=45 (%)	Intermedia te n=28 (%)	Graduation or above, n=37(%)	
Antenatal Care	Yes	63 (67.7)	188 (90.8)	84(86.6)	42 (93.3)	27 (96.4)	35 (94.6)	251(83.7)
	No	30 (32.3)	19 (9.2)	13 (13.4)	3 (6.7)	1 (3.6)	2 (5.4)	49 (16.3)
Chi-square statistic (χ^2) = 27.516, Degree of freedom (df) = 4, Probability of chance (P) <0.001								
Attending ANC Care	Regular	41 (44.1)	158 (76.3)	60 (61.9)	40 (88.9)	26 (92.8)	32 (86.5)	199 (66.3)
	Irregular	22 (23.6)	30 (14.5)	24 (24.7)	2 (4.4)	1 (3.6)	3 (8.1)	52 (17.4)
	No ANC	30 (32.3)	19 (9.2)	13 (13.4)	3 (6.4)	1 (3.6)	2 (5.4)	49 (16.3)
$\chi^2 = 47.283$, df=4, P <0.001								
Initiation of ANC Clinic	1 st Trimester	16 (17.2)	93 (44.9)	32 (33)	15 (33.3)	18 (64.3)	28 (75.7)	109 (36.3)
	2 nd Trimester	47 (50.5)	94 (45.4)	50 (51.5)	27 (60)	10 (35.7)	7 (18.9)	141 (47)
	3 rd Trimester	30 (32.3)	20 (9.7)	15 (15.5)	3 (6.7)	0 (0)	2 (5.4)	50 (16.7)
$\chi^2 = 85.626$, df=32, P <0.001								
<3		72 (77.4)	103 (49.7)	60 (61.8)	18 (40)	11 (39.3)	14 (37.8)	175 (58.3)

No. of ANC Visits	3	12 (12.9)	60 (29)	21 (21.7)	18 (40)	13 (46.4)	8 (21.7)	72 (24)
	>3	9 (9.7)	44 (21.3)	16 (16.5)	9 (20)	4 (14.3)	15 (40.5)	53 (17.7)
$\chi^2 = 47.283, df=4, P < 0.001$								
Tetanus toxoid immunization	One dose	30 (32.3)	90 (43.5)	41 (42.3)	24 (55.3)	13 (46.4)	12 (32.5)	120 (40)
	Two dose	25 (26.9)	75 (36.2)	31 (32)	18 (40)	10 (35.7)	16 (43.2)	100 (33.3)
	None	38 (40.8)	42 (20.3)	25 (25.7)	3 (6.7)	5 (17.9)	9 (24.3)	80 (26.7)
	$\chi^2 = 21.987, df=8, P = 0.005$							

56.3% women belong to nuclear family and 43.7% belong to joint family. Similar result was reported in a study conducted by Ahmad N¹¹ et al (2010) (Nuclear-56.5% and joint- 43.5%).

Effective and adequate antenatal care is essential for mother and child health. 83.7% women are taking antenatal care in the present study but only 66.3% women are regular while 17.3% women

Table 4: Table showing antenatal care among different Educational status of their husband

Maternal characteristics		Education of their husband						Total n=300 (%)
		Illiterate n=36 (%)	Literate n=264(%)	Primary n=44(%)	High school n=79 (%)	Intermediate n=73 (%)	Graduation or above n=68 (%)	
Antenatal Care	Yes	26 (72.2)	225(85.2)	28(63.6)	63 (79.8)	69 (94.5)	65 (95.6)	251 (83.7)
	No	10 (27.8)	39 (14.8)	16(36.4)	16 (20.2)	4 (5.5)	3 (4.4)	49 (16.3)
$\chi^2 = 30.622, Degree of freedom (df) = 4, Probability of chance (P) < 0.001$								
Attending ANC Care	Regular	17 (47.2)	182 (69)	20 (45.5)	45 (57)	59 (80.8)	58 (85.3)	199 (66.4)
	Irregular	9 (25)	43 (16.3)	8 (18.2)	18 (22.8)	10 (13.7)	7 (10.3)	52 (17.3)
	No ANC	10 (27.8)	39 (14.7)	16 (36.3)	16 (20.2)	4 (5.5)	3 (4.4)	49 (16.3)
$\chi^2 = 35.392, df=4, P < 0.001$								
Initiation of ANC Clinic	1 st Trimester	11 (30.5)	98 (37.1)	14 (31.8)	19 (24)	24 (32.9)	41 (60.3)	109 (36.3)
	2 nd Trimester	18 (50)	123(46.6)	13 (29.6)	41 (52)	45 (61.6)	24 (35.3)	141 (47)
	3 rd Trimester	7 (19.5)	43 (16.3)	17 (38.6)	19 (24)	4 (5.5)	3 (4.4)	50 (16.7)
$\chi^2 = 50.583, df=8, P < 0.001$								
No. of ANC Visits	<3	24 (66.6)	151(57.2)	34 (77.4)	53 (67.1)	40 (54.8)	24 (35.2)	175 (58.3)
	3	6 (16.7)	66 (25)	5 (11.3)	14 (17.7)	25 (34.2)	22 (32.4)	72 (24)
	>3	6 (16.7)	47 (17.8)	5 (11.3)	12 (15.2)	8 (11)	22 (32.4)	53 (17.7)
$\chi^2 = 61.667, df=32, P = 0.001$								
Tetanus toxoid immunization	One dose	8 (22.2)	112(42.4)	15 (34.1)	36 (45.6)	38 (52.1)	23 (33.8)	120 (40)
	Two dose	11(30.6)	89 (33.7)	13 (29.5)	20 (25.3)	24 (32.9)	32 (47.1)	100 (33.3)
	None	17 (47.2)	63 (23.9)	16 (36.4)	23 (29.9)	11 (15)	13 (19.1)	80 (26.7)
	$\chi^2 = 25.354, df=8, P = 0.001$							

We're not taking regular antenatal care. It is comparatively higher than study conducted by Shidhaye PR¹² et al (2012) where antenatal care

but 36.3% women initiate antenatal visit during first trimester of pregnancy while significant (16.7%) percentage of women initiate their visit in late pregnancy . This was similar result with Shidhaye PR¹² et al who found that 43.6% women had their first antenatal visit within the first

69.4% reported. In present study 47% women initiate their antenatal visit from second trimester,

trimester, 50.7% of the women in the second trimester while only 5.7% had registered in the third trimester. Similarly, a study conducted by Kiwuwa MS¹³ (2008) found that 57.7% women visited ANC clinic during second trimester and 33.5% during third trimester. In our study 24% women complete three ANC visits and 17.6% women complete more than three ANC visits. Thus 41.6% pregnant women completed their antenatal visits while 58.3% women having less than 3 antenatal visits till time of examination. It is slightly lower than study of Shidhaye PR¹² et al where 34.6% had three ANC visits and 25.5% had more than three ANC visits during pregnancy. Similarly, according to National Family Health survey (NFHS-3)¹⁴ total number of mothers who had at least three antenatal care visits for their last birth was 75.3% (Maharashtra) and 90.7% (Mumbai). In another study by Singh and Yadav¹⁵ reported that 89% of the pregnant women had antenatal visits, 62% had three or more ANC visits and 11% pregnant women had no ANC visits. Tetanus toxoid immunization in the present study was 33.3% women completed their two dose immunization while 40% women complete only one dose but considerable percentage of women (26.7%) does not receive even single dose of immunization till the time of examination. The observation was comparatively lower than study by Singh and Yadav¹⁵ who report 86% of pregnant women received only one dose of TT while 77.9% receive two dose of TT or a booster but 13.6% did not get any dose of immunization.

Conclusion: In present study only 69% women were literate. Overall 83.7% antenatal care was found in which 66.3% was regular. 90.8% antenatal care found among literate women while 67.7% among illiterate. Regular antenatal care was more (76.3%) among literate women. Therefore, public health education on reproductive health, early registration of pregnancy, monitoring the compliance of women with ante-natal care services, strengthening of their health care seeking behaviour, IFA tablets consumption and institutional deliveries are important health care measures to be undertaken.

Recommendations: Increase the educational status of adolescent girls, implementation of

awareness programme for healthy reproductive life, child birth, birth spacing, antenatal care, small family norm. Counselling to illiterate women require during every antenatal visit about regular antenatal check-up, daily consumption of green leafy vegetables, cheap iron rich food items and fruits. Iron supplements should be given to adolescent girls to prevent future anaemia. More emphasis should be given on IFA supplementation, tetanus toxoid immunization and institutional delivery among illiterate pregnant women. It is time for realization that health system should focus on various factors that contribute to the awareness about child birth and its fatal complications that should be include as important indicators in the National Health Policy.

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