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RESEARCH ARTICLE

UTILIZATION OF ANTENATAL CARE SERVICES AMONG SCHEDULED CASTE WOMEN IN INDIA

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ABSTRACT

Objective: To assess the utilization of antenatal care services among currently married scheduled caste women in India.

Methods: The data have been extracted from National Family Health Survey -3 (NFHS-3) conducted during 2005-06, all over India. A total of 6212 currently married scheduled caste women in the age group of 15-49 were taken as the sample for the study. Cross tabulation and binary logistic regression method were applied for determining the influencing factors.

Results: Out of 6212 respondents, 19.8 of the scheduled caste women not received even a single antenatal care during their pregnancy period. 15.8 percent of the women not received Tetanus Toxoid injection and one-third (33.3) of the women not received Iron Folic Acid tablets during their pregnancy period. Only one fifth of scheduled caste women (21.4) fulfilled the minimum recommendation with regard antenatal care services.

Conclusion: Age, education and wealth index were significantly associated for getting full antenatal care service among scheduled caste women. However, there is an urgent need for improving the implementation of reproductive health programmes and strengthening health education for scheduled caste married women especially pregnant women.

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INTRODUCTION

An estimated 1,36,000 women die in India every year due to pregnancy related setbacks (Registrar General, India; 2006). Most maternal deaths result from hemorrhage, complication of unsafe abortion, pregnancy-induced hypertension, sepsis and obstructed labour (World Health Organization, 2005). An important proximate determinant of maternal mortality is access to and use of quality health care services (McCarthy, Maine, 1992; Bhatia, 1993). Utilization of reproductive health services is in turn related to their availability and socio-economic, demographic and cultural factors such as women's age, education, employment, caste and autonomy (Obermeyer, 1991; Stewart, Sommerfelt, 1991; Elo, 1992). Tetanus and anemia claim a large number of women because mothers get very little or no care in the post natal period. For each woman who dies, an estimated 20 more suffer from infection, injury and disability connected to pregnancy or childbirth (UNICEF, 2008). From a strictly medical standpoint, the large majority of maternal deaths-about 80%- can be prevented through effective and timely maternal health care (Ram, 1995). The factors that influence the utilization and acceptance of health facilities by an individual or group of people are fairly complex phenomena.

It cannot be explained through a simple matrix of few variables such as the socio-economic characteristics of individuals or his faith in given system of medicine or his positive perception about a given health facility and or his level of satisfaction from the services etc. It involves series of variables which are related to either health systems to community or beneficiary exclusively or jointly. In India the scheduled caste population as strata of social stratification has although suffered discrimination, hatred, indignities, inequalities, humiliation, exploitation etc., due to their low social origin. Post independence efforts to get them off from these disadvantages and integrate them into the overall socio-political scenario of the country have resulted in comprehensive gains particularly in the area of their educational attainments, improvement in socio-political status, etc. There is general consensus that the health status of the scheduled caste population is very poor and worst (MOHFW, 1997). With this backdrop, this paper evaluates the utilization of antenatal care services among currently married scheduled caste women in India and also to assess the socio-economic and demographic condition of respondents.

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MATERIALS AND METHODS

The data has been extracted from National Family Health Survey-3 (NFHS-3) conducted during 2005-06, all over India. The structure of the survey was similar to that of the DHS conducted in various Asian and African countries. A total of 6212 currently married scheduled caste women in the age group 15-49 who had given birth during three years prior to the survey were considered for the study. A logistic regression analysis technique was used for determining the influencing factors on antenatal care practices.

RESULTS

Antenatal Care

In India ANC services consist of a set of professional pregnancy checkups, tetanus and other immunizations, supply iron and folic acid tablets, blood pressure check up and advice and information regarding delivery methods and services, nutrition and postnatal care. Provision of quality antenatal care services means early registration and (to confirm pregnancy) check-up of the woman at least before twenty weeks of gestation followed by a minimum of three visits for antenatal care. Table 1 shows that about one-fifth (19.8) of the scheduled caste women not received any kind of antenatal care during their pregnancy period and another 25.8 of mothers received only one or two antenatal visit. More than half (54.4) of the mothers received antenatal care (at least three) which is recommended by WHO to achieve the essential level of antenatal care. The timing of first antenatal care is imperative for the mother's health and for the foetus. In these scheduled caste communities less than half (45.2) of pregnant women received the antenatal care only after first trimester of their pregnancy period (Table 1).

Table 1. Percentage distribution of Scheduled Caste women by Antenatal Check-ups

Antenatal Check-ups	Respondents	
	Percent	Number
Antenatal visits for pregnancy		
No antenatal visits	19.8	1216
1	6.4	391
2	19.4	1190
3	16.1	989
4+	38.3	2353
Total		6139
Timing of 1st antenatal check (month)		
0	0.1	4
1	5.6	280
2	16.7	837
3	32.4	1620
Before first trimester	54.8	2741
4	11.8	588
5	18.7	933
6+	14.7	737
After first trimester	45.2	2258

Table 2, reveals 45.2 of the mothers not received antenatal check-up in the age group of 45-49 as well as 64.7 were received antenatal check-up only after first trimester of their pregnancy period. One-fourth (25.2) of the rural scheduled caste mothers did not receive even a single antenatal care as

against 10.6 of urban scheduled caste mothers. The proportion of mothers who did not receive antenatal check-up sharply decreases with their increasing educational level. Majority of women living with a richest wealth index had received antenatal check-ups (84.9) conversely this proportion was low among women living with poorest wealth index (28.2). While looking into the recommended minimum number of ANC visits (3 visits), again the educational level and their wealth index were positively correlated. In the rural area nearly half of mothers received the first check-up only after the first trimester 49.9 (Table 2) and this proportion was moderate among the highly literate group (12.1) and women living household with high wealth index 24.5.

TT vaccination: The RCH Programme recommends that as part of antenatal care, a woman should receive two doses of tetanus toxoid vaccine, to prevent nearly all tetanus infections in both mother and her newborn children (MOHFW, 1998b). About 15.8 of the pregnant women did not receive even a single dose of TT injection during their pregnancy period (Table 3). According to the National Immunization Schedule, a pregnant woman should receive two doses of tetanus toxoid injection, the first when she is 16 weeks pregnant and the second when she is 20 weeks pregnant. (Roy, Kulkarni, Vaidehi, 2004). Table 3 reveals that women who had received TT injection were further asked how many times they had received the injection during their pregnancy period. Among them, 91.5 of the women received two or more doses of tetanus toxoid injection and at the same time 8.5 of the mothers were received only a single dose.

Folic acid: The U.S. Public Health Service recommends that women of childbearing age get at least 400 milligrams of folic acid each day, through food sources or supplements. For women who are thinking about getting pregnant, health care providers recommend supplementing the diet with folic acid for three months before pregnancy, and then for at least the first three months of pregnancy. Prenatal vitamins are a good way to get extra folic acid into the diet. Prenatal supplements often contain high amounts of folic acid and other compounds, such as iron and vitamin A. Iron deficiency anemia is the most common micronutrient deficiency in the world. It is a major threat to safe motherhood and to the health and survival of infants. Table 4 shows that around 66.7 scheduled caste mothers received IFA supplements during their pregnancy period. Among women who received IFA supplements during the pregnancy period, only 21.9 women consumed all the tablets that were supplied to them. As compared with TT coverage, IFA coverage was far behind.

Components of Antenatal Check-ups

The test and measurements done during the antenatal check-ups is ensuring the safe motherhood. The mothers who went for antenatal check-ups were asked whether they received each of several components of antenatal check-ups at least once during their ANC period and the results were presented in (Table 5). During the antenatal visit, mothers were advised about their diet, the danger sign of pregnancy, delivery care and newborn care to reduce the risk of pregnancy complications and to help the women prepare for a safe and sound birth. However, most often advice given to the mother was on their diet 65.2 (Table 5). Only 24.2 of the mothers

received advices on danger sign of pregnancy as well as 50.1 of mothers received advices on delivery care. Significant proportion (86.6) of the mothers who belong to the age group of 15-19 years did not received IFA tablets which supplied to them (Table 6). With regard to TT vaccination, 19.8 rural

mothers not received even a single TT injection during their pregnancy period where as looking into urban it was only 9.1. Majority of mothers 85.5 who engaged in agricultural allied activities were not received IFA tablets as well as TT injection

Table 2. Percentage distribution of Scheduled Caste women by Antenatal Check-ups, according to selected background conditions

Background Characteristics	ANC Visits			Total	Timing of 1st antenatal check		
	No antenatal Visits	2 or less visit	3 or more visit		Before 1 st Trimester	After 1 st Trimester	Total
Age of the respondents							
15-19	20.5	31.8	47.7	478	43.9	56.1	378
20-24	15.4	26.3	58.3	2081	55.6	44.4	1764
25-29	17.5	24.7	57.8	1962	59.6	40.4	1621
30-34	24.9	23.6	51.5	1029	55.2	44.8	777
35-39	30.4	25.3	44.3	431	51.5	48.5	303
40-44	41.7	29.9	28.4	127	46.6	53.4	73
45-49	45.2	25.8	29.0	31	35.3	64.7	17
Type of place of residence							
Urban	10.6	17.9	71.5	2269	63.1	36.9	2040
Rural	25.2	30.4	44.4	3870	50.1	49.9	2893
Religion							
Hindu	20.0	26.7	53.3	5503	54.9	45.1	4414
Muslim	36.9	21.2	41.9	179	48.2	51.8	114
Christian	5.3	6.1	88.6	114	73.1	26.9	108
Others	13.4	19.0	67.6	343	59.9	40.1	297
Mother's Educational level							
Illiterate	32.4	31.9	35.7	3007	42.0	58.0	2036
Primary	12.8	26.4	60.8	953	54.5	45.5	828
Secondary	6.1	18.1	75.9	1965	67.0	33.0	1854
Higher	0.5	7.0	92.5	214	87.9	12.1	215
Mother's Occupation							
Not working	16.7	24.3	59.0	3858	58.0	42.0	3225
Skilled Labour	7.0	16.0	144	187	74.9	25.1	175
Agricultural allied activities	31.9	31.1	37.0	1327	44.2	55.8	899
Unskilled labour	17.7	26.2	56.1	767	53.5	46.5	634
Wealth index							
Poorest	38.3	33.5	28.2	1428	40.9	59.1	873
Poorer	25.7	32.4	41.9	1321	45.4	54.6	981
Middle	15.1	24.3	60.6	1327	54.5	45.5	1136
Richer	8.7	19.8	71.5	1271	62.5	37.5	1162
Richest	2.5	12.6	84.8	792	75.5	24.5	781
Total	19.8	25.8	54.4	6139	54.8	45.2	4933

Table 3. Percentage distribution of Scheduled Caste women by TT vaccination

Antenatal Care Services	Respondents	
	Percent	Number
Tetanus injections before birth		
Received no injection	15.8	977
Received injection	84.2	5185
Total	100.0	6162
Number of times given tetanus injections		
1	8.5	443
2+	91.5	4742
Total	100.0	5185

Table 4. Percentage distribution of Scheduled Caste women by distribution of IFA tablets

Antenatal Care Services	Respondents	
	Percent	Number
Given/brought IFA tablets for at least 3 months		
No	33.3	2061
Yes	66.7	4129
Total	100.0	6190
Consumed all tablets given		
No	78.1	2936
Yes	21.9	822
Total	100.0	3758

24.5. Both the TT vaccination and IFA tablets coverage were substantially lower for births to illiterate mothers and mother living with poorest wealth index. The result shows that even among women with richest wealth index, only 38.3 of women received all IFA tablets during their pregnancy period which supplied to them.

Table 5. Percentage distribution of Scheduled Caste women by Components of Antenatal Check-ups

Components of ANC	Respondents	
	Percent	Number
Weight measured	62.1	3104
Blood pressure checked	62.8	3134
Blood test	58.7	2932
Urine test	57.7	2881
Abdomen test	71.7	3583
Antenatal advices		
Diet	65.2	3257
Danger sign of pregnancy	24.2	1208
Delivery care	50.1	1093
New born care	41.0	894

Full Antenatal Care Coverage

The Reproductive and Child health Programme recommends that as part of antenatal care, woman receive two doses of tetanus vaccine, adequate amount of iron folic acid tablets (at

least 90 tablets) to prevent and treat anaemia and at least three antenatal check-ups that included pressure checks and other procedure to detect pregnancy complications (MOHFW, 1998b). This is called full ANC coverage. Only three percent

effect of each of the predictor variables on the maternal health status of women, controlling other variables included in the model. The result of the logistic regression model comparing full ANC package covered with socio-economic and

Table 6. Percentage distribution of Scheduled Caste women by Antenatal Services, according to selected background conditions

Background Characteristics	No injection	TT vaccination		Total	Consumed all IFA tablets		Total
		At least 1 dose	2 or more Dose		No	Yes	
Age of the respondents							
15-19	13.7	6.9	79.4	476	86.6	13.4	290
20-24	12.3	8.1	79.5	2088	79.3	20.7	1345
25-29	13.5	6.4	80.1	1965	75.3	24.7	1221
30-34	19.1	7.7	73.1	1034	76.2	23.8	622
35-39	30.2	5.9	63.8	437	77.3	22.7	211
40-44	35.9	5.3	58.8	131	87.9	12.1	58
45-49	38.7	6.5	54.8	31	90.9	9.1	11
Type of place of residence							
Urban	9.1	6.3	84.6	2286	73.3	26.7	1537
Rural	19.8	7.7	72.5	3876	81.5	18.5	2221
Religion							
Hindu	15.9	7.2	76.9	5533	78.1	21.9	3377
Muslim	26.7	6.1	67.2	180	78.8	21.2	66
Christian	5.4	6.3	88.3	111	70.1	29.9	87
Others	12.7	7.4	79.9	338	82.0	18.0	228
Respondents Educational level							
Illiterate	26.2	7.7	66.1	3024	88.0	12.0	1409
Primary	10.6	5.7	83.7	950	80.8	19.2	671
Secondary	4.2	7.3	88.5	1969	70.4	29.6	1482
Higher	0.9	5.5	93.6	219	56.6	43.4	196
Respondents Occupation							
Not working	13.6	6.8	79.5	3876	76.6	23.4	2421
Skilled Labour	5.9	4.8	89.4	188	61.2	38.8	152
Agricultural allied activities	24.5	8.3	67.2	1330	85.8	14.2	698
Unskilled labour	14.5	7.7	77.9	768	79.9	20.1	487
Wealth index							
Poorest	29.7	8.8	61.6	1428	88.6	11.4	685
Poorer	21.2	7.8	71.1	1323	84.4	15.6	723
Middle	12.8	6.7	80.4	1335	79.6	20.4	849
Richer	6.8	6.6	86.6	1277	75.2	24.8	867
Richest	1.9	5.1	93.0	799	61.7	38.3	634
Total	15.8	7.2	77.0	6162	78.1	21.9	3758

of Scheduled caste mothers not received any kind of ANC service during their pregnancy period (Table 7). Only about one-fifth (21.4) of the scheduled caste mothers received full ANC coverage during their pregnancy period. 16.3 of mothers received only any one kind of service, one-fourth (25.1) of received any two kind of services and also little more than one-third (34.1) of mothers received any three kind of services during their pregnancy period. It concludes that only little above one-fifth of scheduled caste women alone full fill the minimum recommendation with regards to Antenatal Care Services.

Table 7. Percentage distribution of Scheduled Caste women by full ANC coverage

ANC Services	Percent	Number
Not received any service	3.0	113
Any 1 service covered	16.3	610
Any 2 services covered	25.1	939
Any 3 services covered	34.1	1276
Full services covered	21.4	800
Total	100.0	3738

Determinants of Maternal Health status of women:

The influences of socio-economic and demographic variables in determining the maternal health status of women were examined by logistic regression among currently married scheduled caste women. The logistic regression analysis (Table 8) result shows that the odd ratio (Exp (B)) indicate the

Table 8. Logistic regression examining the effect of selected variables on Full ANC Coverage

ANC full coverage	B	Sig.	Exp(B)	95.0% C.I. for EXP(B)	
				Lower	Upper
Age **			1.000		
15-19 (ref)					
20-24	.795	.000	2.215	1.434	3.420
25-29	1.021	.000	2.777	1.795	4.296
30-34	.931	.000	2.537	1.594	4.038
35-39	.837	.003	2.309	1.322	4.035
40-44	1.030	.018	2.802	1.194	6.571
45-49	-1.481	.999	.000	.000	.
Place of delivery					
Urban (ref)					
Rural	-.086	.386	.918	.757	1.114
Religion					
Hindu (ref)		.025			
Muslim	-.899	.031	.407	.180	.920
Christine	.329	.182	1.389	.857	2.250
Others	-.291	.095	.747	.531	1.052
Mother's literacy ***					
Illiteracy (ref)		.000	1.000		
Primary	.579	.000	1.784	1.350	2.359
Secondary	1.127	.000	3.088	2.432	3.921
Higher	1.559	.000	4.755	3.216	7.031
Mother's occupation					
Not working (ref)		.345			
Skilled labour	.285	.134	1.330	.916	1.930
Agricultural allied activities	-.094	.515	.910	.687	1.207
Unskilled labour	.092	.493	1.097	.842	1.428
Wealth Index ***					
Poorest (ref)		.000			
Poorer	.177	.332	1.194	.835	1.708
Middle	.488	.005	1.630	1.163	2.284
Richer	.574	.002	1.776	1.246	2.532
Richest	.999	.000	2.716	1.849	3.989
	-3.352	.000	.035		

demographic characteristic of the mothers (Not fully ANC package covered =0 and fully ANC package covered =1). It shows that age, education and wealth index were found to be highly significant factors for getting full antenatal care service among scheduled caste. It found that higher education mothers had a three times likelihood chance for getting full ANC coverage services illiterate mothers (3.216 <...p value). The women working in the agricultural sector had a less likelihood chances for getting an antenatal care services. The mothers living with richest wealth index had more likelihood chances of increasing to utilize the antenatal care services.

DISCUSSION

The study reveals that, only half (54.4) of the mothers received the minimum number of antenatal visit (three visits) which is recommended by WHO to achieve the essential level of antenatal care. About twenty percent (19.8) of the mothers did not receive any kind of antenatal care during their pregnancy period. Nearly 15.9 and also one-third (33.3) of the mothers not received TT injection and IFA tablets during their pregnancy period respectively. As a whole, it was very clear from the above analysis that the care received at each and every stage of the pregnancy period and at the child birth in the scheduled caste communities were far from the national averages. Therefore, appropriate/alternate strategies should be taken to strengthen the existing maternal care service packages to ensure a healthy mother and healthy baby at the end of each pregnancy in the scheduled caste communities. It is well known that there is multiplicity of factors influencing utilization of health care services including maternal care services. Finding based on National Family Health Survey (I & II) reveal that factors like, mother's age and education, standard of living of household and child's birth order with a strong bearing on the likelihood of institutional delivery (Sugathan *et al.*, 2001). Multivariate analysis of the data from National Sample Survey in the year 1995-96 also displays the importance of mother's education/ knowledge of health production function and physical access to health care services in determining utilization of maternal care services in a population (Sarma, Rempel, 2007). Another study shows that only women's education as the principle socio-economic and demographic (SED) variables influencing attitude towards receiving all three ANC indicators-the probability of receiving full ANC package for higher educated women is 4.3 times higher at low human development index (HDI) states and 3.9 times among high HDI states (Ravishankar, 2011). Another study using a caste and class based framework observes very stark inequities within each caste, between men and women, and across caste in utilization of health care services (Iyer, 2005). There are also evidence to show suggest that differentials between social groups category are partly due to difference in socio-economic conditions but in some states differentials persist even after adjusting the effect of socio-economic factors in other states in the country (Roy, 2004). Hence, there is a need to understand the complexity in possible association between caste background and utilization of health care services, which is explored here.

The health of Indian women is intrinsically linked to their status in society (Central Bureau of Health Intelligence, 1991). Research on women's status has found that the contributions Indian women make to families often are overlooked, and

instead they are viewed as economic burdens. Further, Indian women have low levels of both education and formal labor force participation. They typically have little autonomy, living under the control of first their fathers, then their husbands, and finally their sons (Desai, Sonalde, 1994). All of these factors exert a negative impact on the health status of Indian women. Poor health has repercussions not only for women but also their families. Women in poor health are more likely to give birth to low weight infants. They also are less likely to be able to provide food and adequate care for their children. Finally, a woman's health affects the household economic well-being, as a woman in poor health will be less productive in the labor force (Horowitz, 1994). The foregoing analysis of the scheduled caste population as well as the emerging issues regarding this group highlight that there have been improvements in the socio-economic conditions over the various plan period. Such improvements, however, are not adequate to offset the marginalization of this disadvantaged group, for their assimilation with the community at large.

Consistent with their improvements in overall development, decline in their fertility and mortality have been noted which also show the potential of further decrease in their scheduled caste population growth. However, there is no place for complacency if the country is to continue in its endeavor for the welfare and uplift of this population group. Apart from the provision of the basic needs for their survival, the country needs to make concerted efforts to improve the social and economic conditions of the scheduled caste's population by increasing the level of literacy among them, giving alternative job opportunities and making improved farm technologies accessible to those primarily engaged in agrarian occupations. To further improve the overall well being and quality of life of this disadvantaged group, the reach of the various health services, especially for the women and children, needs to be increased.

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