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Utilization of Antenatal Care Services and Associated Factors: A Study on Lodha and Birhor Women of West Bengal, India

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ABSTRACT: *The present research aims to find out the trends of utilization of antenatal care services among Lodha and Birhor women of West Bengal, India. Moreover, it also attempts to explore the association between different factors and utilization of such services. This cross sectional study has been conducted among Lodha and Birhor women residing in the district of Jhargram and Purulia in West Bengal respectively. Participants were married, aged between 15 and 44 years, have experienced at least one pregnancy during the last five year period, prior to the date of study. Pretested structured questionnaires were used to obtain the socio-demographic characteristics and utilization of antenatal care services. Result shows that 76.7% of the participants (both Lodha and Birhor participants) received antenatal care services. Bivariate analysis (chi square test) found significant association between utilization of antenatal care services and socio-demographic factors (such as, age, family type, parity, total number of pregnancy and women autonomy). Apart from these factors, some other factors like, place of residence, availability of transport facility, physical condition of connecting roads and distance to sub centre from place of residence have a significant bearing on the utilization of antenatal care services.*

KEYWORDS: *antenatal care services, socio-demographic factors, Lodha women, Birhor women, West Bengal*

I. INTRODUCTION

The utilization of antenatal care (ANC) is not only for sustaining better maternal health but it can largely help to mitigate the risk of maternal mortality and morbidity (Bloom et al. 1999).

Maternal health is a global issue which oversees the prospects of people in life depending on the wellbeing of mothers and women (WHO 2010). Healthy mothers are attributed to healthy societies which in turn improve the national development and economy. Many women die out of pregnancy related causes and this has led to the governments and various institutions in taking up initiatives to reduce maternal mortality rates. Further, World Health Organization (2012) reported that worldwide, about 287,000 women died during and following pregnancy and childbirth. Although this is a decline of 47% from the 1990 level, yet it is still far from the target set in Millennium Development Goal (MDG) 2015. The fifth MDG calls for a reduction in the maternal mortality ratio by 75% between 1990 and 2015. The key indicators to measure this goal are the proportion of pregnant mothers who received ANC and the proportion of births attended by skilled delivery attendants (WHO 2012).

In India, antenatal care (ANC) services include providing primary health care services for pregnant women and management of the foetus. According to National guidelines, ANC services consist of a set of professional health check-ups including blood pressure, receiving tetanus vaccine, prophylaxis through iron and folic acid tablets, giving advice and providing information on delivery methods and services and nutrition. The main source of ANC is a network of health centres throughout the country, each serving a population of three to five thousand. ANC check-ups are generally done by [auxiliary nurse midwife (ANM). ANMs regularly visit home and check pregnant women, help in child delivery and provide immunization services to the infants (Mavalankar et al. 2009).

A previous literature shows that use of ANC services in India increased by 12% between the period of 1992 and 2006, but only 2% of this increase occurred in the poorest wealth quintile (Pathak et al. 2010). According to National Family Health Survey (NFHS-3) (2005-2006), female literacy is strongly correlated with maternal health outcomes. This survey reveals that only 29% of the non-literate women received at least one antenatal care visit, whereas, receiving at least one ante natal care was found to be quite high among those who were well educated. Mukherjee et al. (2011) shows in his study that in Kerala, scheduled tribe is generally the poorest and most disadvantaged group in terms of health outcomes, although SCs and 'other backward class' (OBCs) also experience greater levels of social exclusion and marginalization compared to members of the other

group. Only 73.9% of the ST women, around 85% of the SC and OBC women received ANC services, while it was 95.3% for women from other community [National Family Health Survey (NFHS-3), 2005-2006].

A study conducted in Gujarat reveals that socio-cultural factors like caste, women's literacy, husband's literacy, occupation of women, socioeconomic class and parity of women affecting the utilization of ANC services (Bhimani et al. 2016). In the same year, another study carried out by Kakati et al. (2016) in the rural areas of Assam reveals that age, religion, caste, socioeconomic status, place of delivery, parity were associated with utilization of antenatal care services. In Bihar the utilization of ANC service was found to be 59.0% (Rawat et al. 2015). The same study also showed that place of residence, along with households' socio-economic status, mother's education, caste and birth order were the most-important determinants associated with the use of ANC.

In the Darjeeling district of West Bengal, the rate of utilization of antenatal care was 48.6%, which was higher than the other districts (Bhattacherjee et al. 2013).

The health and nutritional status of tribal community is closely associated with number of factors, such as, livelihood status, literacy level, housing and sanitary condition, knowledge and attitude. Poverty, widespread illiteracy, poor housing condition, poor sanitation, poor knowledge and attitude towards modern health delivery services are important factors responsible for poor health and nutrition status of tribal (Ghosh 2003).

Kumar and Goel (2016) found in their study that non utilization of antenatal service was found to be high among Baiga tribal women of Madhya Pradesh due to low level of knowledge of ANC services among them. The distance between place of residence and medical facilities; and non-availability of transport system were also some of the factors for not utilization of the health services for delivery and use of ANC services. Taguchi et al. (2003) shows that ANC visits among the indigenous women of Jharkhand were three fold lower than the national average. Dehury (2016) found that the public health facilities and health care providers failed to provide health care services to the tribal pregnant women effectively in Balasore district of Odisha. One of the reasons might be that strategies that follow from health plans are mainly target-driven rather than reinforcing indigenous practices.

Maternal and child health care practices are found to be largely neglected in various tribal groups. The practice of consuming alcohol during pregnancy among the tribal women is quite common. Almost every woman does their regular activity including hard labour work during the advance stage of their pregnancy. From the inception of pregnancy to its termination no specific nutritional diet is consumed by women. The consumption of iron and vitamins was found to be also poor. Many of them even do not receive TT injections during pregnancy. Most of the deliveries are conducted at home attended by elderly ladies, resulted in increased susceptibility to various infections. Under-nutrition as well as anaemia was prevalent among the tribal women (Ghosh 2003).

The utilization of ANC services (receiving ANC especially from doctors) was found to be lowest among scheduled tribe women (IIPS 2007). Interestingly, there was regional disparity in the health indicators and utilization of health care among the tribal population. The utilization was low among the women belonging to tribes of central India as compared to the tribes of eastern and southern India. This may be due to the diversity of socio-economic, demographic and cultural factors (Shah and Belanger 2011).

Under this circumstance, the present study aims to find out the trends of utilization of antenatal care services. Moreover, the present study attempts to explore the association between different factors and utilization of such services among Lodha and Birhor women of West Bengal, India.

II. MATERIALS AND METHODS

Study area

The present study has been conducted among two indigenous ethnic groups known as "Lodha" and "Birhor" of West Bengal, a state located in eastern India. Lodha and Birhor populations have been declared as the "Particularly Vulnerable Tribal Groups" of this country on the basis of certain characteristics like low level of literacy, pre agricultural level of technology, and declining or stagnant population (Ministry of Tribal Affairs, Government of India 2019). In West Bengal, Lodha are mainly concentrated in the districts of Paschim Medinipur and Jhargram. The district of Jhargram has been selected for Lodha population. Lodha population from two CD blocks namely, Jhargram and Binpur of this district have been identified. In the second stage, seventeen villages, such as, Choto Tiyakati, Danmari, Peniabhanga, Jualbhanga, Dhatkidanga, Swabasa, Suknibasa, Ramchandrapur, Jaralota, Salukgeria, Jorakhali, Konyadoba, Tengya, Patharnala, Baghuadam, Bankati and Dubrajpur were chosen from the CD block Jhargram, and Dahijuri village from the CD block Binpur.

On the other hand, in the state of West Bengal, Birhors are mainly concentrated in the district of Purulia. Birhor populations from two villages, namely Bhupatipalli and Bareriya under the CD block namely, Baghmundi of Purulia district has been identified for the present study.

Study participants

Total 292 participants (Lodha women- 248 and Birhor women- 44) have been selected on the basis of the criteria fixed for the study: married women at the time of interview, aged between 15 and 44 years, and had experience of pregnancy during last five years prior to the study.

The objectives and benefits of the study were explained to and written consent was obtained from all the participants who volunteered to participate.

Period of the field work

The data were collected during the period between May 2018 and December 2019.

Ethical issue

The present study was approved by Institutional Ethical Committee, University of Calcutta (approval number: Table Item No. 02, dated 26.12.2018).

Data collection

Structured questionnaires have been administered to collect data.

The questionnaires were developed in English and then translated into local language (Bengali) and further retranslated to English language to check the validity.

Data on socio-demographic characteristics and utilization of antenatal care services were collected using pretested questionnaires.

In order to maintain the quality of data to be collected, a pre-test was performed before the actual data collection and interviews were performed using local language.

Socio-demographic characteristics

It includes age of the participants at the time of interview, type of family, number of family members, monthly household expenditure [Indian National Rupees (INR)], years of education and occupational types of the participants, duration of marriage, mean age at pregnancy, parity, total number of pregnancy and women autonomy based on indicators of women's mobility (decision making ability on ANC and freedom to availed health facility). Data types also include place of residence, physical quality of the road from the place of residence to the public health centers, availability of transport facility in the locality, distance of health sub centre from the place of residence, availability of auxiliary nurse midwifery (ANM) and accredited social health activist (ASHA) in the village.

Utilization of antenatal care (ANC) services

A well tested questionnaire was designed to assess the information on ANC service utilization.

To assess the information on ANC service utilization, participants were asked five questions; e.g., "Did you register your pregnancy at any health facility?", "Did you receive any antenatal care during last pregnancy?", "Have you used IFA tablets during pregnancy?", "Did you complete the full course of IFA tablets?" and "Were you given an injection during last pregnancy to prevent Tetanus?" The response options were 'yes' or 'no'. Other questions like "How many times did you availed health facility during ANC?" the response options were '1-4 times', '5-8 times', '9-12 times' and 'no visit' and "Where did you receive antenatal visit for most of time during pregnancy?" the response options were 'Public Facility' and 'others' were also used.

Operational definitions

ANC: Pregnancy care provided by skilled health professionals (doctor, ANM or nurse) during last pregnancy period of the participant.

Woman's autonomy: An autonomous woman is a woman who can decide on health care spending alone or with her husband.

Data analysis

Descriptive statistics were used to calculate the frequency of socio-demographic characteristics and utilization of antenatal care services among the participants. Bivariate statistics like chi square test was used to assess the association between different socio-demographic characteristics and utilization of antenatal care services (ANC). A minimum cut off point of $p<0.05$ was used to determine the significance level.

III. RESULTS AND DISCUSSION

Socio-demographic characteristics

The mean age of the participants was 24.78 years at the time of interview and most of them live in nuclear family (77.7%) with monthly house hold expenditure less than 5,000 (INR) (56.2%). More than half of the participants and of their husbands has not received any formal education and majority of them were engaged in collection of woods from the forest and in manual labour. The physical quality of the roads and availability of the transports was very poor within all respective villages. Each of the villages is supported by an appreciable number of ANM, ASHA and AWW workers. Majority of the participants (67.5%) got married within the last ten year period prior to the time of study, and the mean age at pregnancy (17.19± 1.75) is well below the statutory age at marriage of India with parity between 2 and 4 (62.0%) (Table 1).

Table: 1 Socio-demographic characteristics of the participants (Lodha and Birhor participants)

Group		**Participants (N=292)/ Mean± SD**	
Mean age of participants during interview (years)		24.78±5.32	
Types of family			
Nuclear		227 (77.7)	
Joint		60 (20.5)	
Extended		5 (1.7)	
Members in a family			
≤ 5		236 (80.8)	
>5		56 (19.2)	
Monthly household expenditure (INR)			
Below 5,000		164 (56.2)	
Above 10,000		128 (43.8)	
Years of education of participants	***Participants(N=292)***	***Years of education of participants' husband***	***Husband (N=292)***
0	191 (65.4)	0	
1-4	57 (19.5)	1-4	213 (72.9)
5-8	37 (12.7)	5-8	47 (16.1)
9-10	7 (2.4)	9-10	28 (9.6)
			4 (1.4)
Occupational types of participants	***Participants(N=292)***	***Occupational types of participants' husband***	***Husband (N=292)***
Wood collection from forest	152 (52.1)	Wood collection from forest	178 (61.0)
Agriculture labour work	8 (2.7)	Agriculture labour work	14 (4.8)
Other labour work	67 (22.9)	Other labour work	87 (29.8)
Home maker	28 (9.6)	Driver	6 (2.1)
Make *saalthala*	8 (2.7)	Dead	4 (1.4)
Rope and broom making	29 (9.9)	Vegetable seller	1 (0.3)
		Business	2 (0.7)
Duration of marriage (in years)		***Participants (N=292)/ Mean± SD***	
1-10		197 (67.5)	
11-20		88 (30.1)	
21-30		7 (2.4)	
Mean age at pregnancy		17.19±1.75	
Parity			
1		101 (34.6)	
2-4		181 (62.0)	
≥5		10 (3.4)	
Total number of pregnancy			
1-2		163 (55.8)	
3-4		115 (39.4)	
>5		14 (4.8)	
Place of residence			
Remote village		113 (38.7)	
Forest		101 (34.6)	
Road side		78 (26.7)	
Physical quality of the roads			
Good		87 (29.8)	

Poor	205 (70.2)
Transport availability	
Available	87 (29.8)
Not available	205 (70.2)
Distance of sub centre from residence	
Near to residence	92 (31.5)
Far from residence	200 (68.5)
Availability of first ANM in attached Sub Centre	
Yes	280 (95.9)
No	12 (4.1)
Availability of second ANM in attached Sub Centre	
Yes	292 (100.0)
No	-
Availability of ASHA in attached Sub Centre	
Yes	200 (68.5)
No	92 (31.5)
Availability of AWW in attached Sub Centre	
Yes	273 (93.5)
No	19 (6.5)

Figures in the parenthesis indicate percentages

Utilization of antenatal care services

Present study shows that an overwhelming majority of the participants (76.7%) received at least one ANC during their last pregnancy. Most of them (71.9%) walked to health facility for antenatal check-up/test. More than half of the participants (67.1%) regularly availed public health facility (1-4 times) at the time of pregnancy. Majority of the participants received tetanus toxoid (TT) injection (77.1%) and the frequency was twice during pregnancy. Most of the participants (72.6%) received iron tablets but very few of them (20.9%) completed the course of this drug. During antenatal care, about 63.4 % of the participants received supplementary nutrition from *Anganwadi* Centre. ANC related decision was taken by both participants and their husbands (29.8%), whereas, 44.5% of them did not even discuss on this topic. They preferred to visit health institution by their own choice (42.1%) (Table 2).

Table: 2 The trend in utilization of antenatal care among the participants (Lodha and Birhor participants)

Utilization of maternal health care	**Participants (N=292)**
Registration for antenatal check-ups at any Health Facility	
Yes	227 (77.7)
No	65 (22.3)
Women received antenatal check-ups	
Yes	224 (76.7)
No	68 (23.3)
Number of visiting at any Health Facility for antenatal check-ups	
1-4 times	196 (67.1)
5-8 times	25 (8.6)
9-12 times	5 (1.7)
No visit	66 (22.6)
Place of antenatal check-ups (n=225)	
Public facility	225 (100.0)
Others	-
Travel to health facility for antenatal check-ups by	
Walking	210 (71.9)
Bus	14 (4.8)
Two wheeler/bicycle	2 (0.7)
Not applicable	66 (22.6)
Use of IFA tablet	
Yes	212 (72.6)
No	80 (27.4)
Complete course of IFA tablet	

Yes	61 (20.9)
No	152 (52.1)
Not applicable	79 (27.1)
Receive of TT Injection during antenatal care	
Yes	225 (77.1)
No	67 (23.0)
Receive of health related information from Angawadi Centre during antenatal care	
Yes	100 (34.2)
No	192 (65.8)
Receive of supplementary nutrition from Angawadi Centre during antenatal care	
Yes	185 (63.4)
No	107 (36.6)
ANC related decision	
Participant	2 (0.7)
Participant's husband	4 (1.4)
Participant and participant's husband both	87 (29.8)
With other members	69 (23.6)
No discussion	130 (44.5)
Freedom to avail health facility	
Alone	123 (42.1)
With someone	119 (40.8)
Not all to go	50 (17.1)

Figures in the parenthesis indicate percentages

Table 3 explains the reasons for non-utilization of antenatal care among the participants (Lodha and Birhor participants). More than three-fifth of the participants reported that they did not have enough time to go for antenatal check-up, whereas, about 54.4% of the participants reported that they did not avail antenatal care due to their family decision.

Table: 3 Reasons for non-utilization of antenatal care among the participants (Lodha and Birhor participants)

Non utilization of antenatal care	**Participants**
Reasons for not availing antenatal care	
Not required	30 (44.1)
Not customary	6 (8.8)
Involve high cost	1 (1.5)
Too far/no transport facility	10 (14.7)
Poor quality service	3 (4.4)
Family decision	37 (54.4)
No time to go	47 (69.1)
Unawareness	7 (10.3)
Better care at home	3 (4.4)
Poor economic condition	24 (35.3)
Reasons for not availing supplementary nutrition from anganwadi centre during pregnancy	
Anganwadi centre is too far	33 (30.8)
Poor quality of foods	15 (14.0)
Behaviour of *Anganwadi* worker was not well	1 (0.9)
Unaware about *Anganwadi* centre	1 (0.9)
No time to go	57 (53.3)

Figures in the parenthesis indicate percentages

Utilization of antenatal care and associated factors

Present study shows that the use of ANC services depended on age, family type, total number of pregnancy and number of parity of the participants ($p \leq 0.05$). The results of our study corroborate with the findings of the other studies (Shariff and Singh 2002, Mekonnen and Mekonnen 2002, Gubhaju et al. 2003, Islam and Odland 2011 and Singh and Yadav 2002). In addition, there was significant association of use of ANC services with place of residence, availability of transport, physical condition of connecting roads, distance of health sub centre from

those villages ($p \leq 0.05$) (Table 4). Similar trend has been found in other studies also (Islam and Odland 2011, Lodhiya et al. 2012, Rashmi et al. 2013).

Table 4 also reveals that freedom of the participants to avail health facility was also significantly associated with utilization of ANC services ($p \leq 0.05$). Women's autonomy is a very important factor which significantly influences utilization of maternal health care services, as found in the present study. A previous study showed a significant association between women's autonomy and antenatal health care services (Adjiwanou and Le Grand 2014). Bloom et al. (2001) demonstrated that women with greater freedom of movement obtained higher levels of antenatal care and were more likely to use safe delivery care. The study further concluded that the influence of women's autonomy on the use of health care appears to be as important as other known determinants such as education.

Furthermore, the receiving of antenatal care (ANC) by socio-demographic characteristics between Lodha and Birhor participants shows that age, family type, education level, total number of pregnancy, parity and women autonomy (freedom to availed health facility) were significantly associated with use of ANC services among Lodha participants ($p \leq 0.05$), whereas, in case of Birhor participants, no significant association has been observed between any of the socio-demographic characteristics and use of ANC services (Table 5).

Table: 4 Percentage distributions of the participants who received antenatal care (ANC) by socio-demographic characteristics

Background characteristics	**Participants who received ANC**		
	Yes	**No**	**χ^2 p**
Age groups (in years)			
15-22	99 (44.2)	6 (8.8)	χ^2= 28.78
23-30	107 (47.8)	51 (75.0)	p = 0.001**
>30	18 (8.0)	11 (16.2)	
Family types			
Nuclear	165 (73.7)	62 (91.2)	χ^2=9.60
Joint	55 (24.6)	5 (7.4)	p =0.05*
Extended	4 (1.8)	1 (1.5)	
Education levels			
Non literate	129 (57.6)	62 (91.2)	
Up to upper primary	88 (39.3)	6 (8.8)	NA
Above upper primary	7 (3.1)	-	
Occupational types			
Working	196 (87.5)	68 (100.0)	NA
Non working	28 (12.5)	-	
Monthly household expenditure (INR)	127 (56.7)	37 (54.4)	χ^2= 0.11
Below 5,000	97 (43.3)	31 (45.6)	p = 0.73
5,000 and above			
Total number of pregnancy			
1-2	149 (66.5)	14 (20.6)	χ^2= 45.20
3-4	68 (30.4)	47 (69.1)	p = 0.001**
Above 5	7 (3.1)	7 (10.3)	
Parity			
1	95 (42.4)	6 (8.8)	χ^2= 30.48
2-4	125 (55.8)	56 (82.4)	p =0.001**
Equal and above 5	4 (1.8)	6 (8.8)	
Place of residence			
Forest	71 (31.7)	30 (44.1)	χ^2= 7.25
Remote village	85 (37.9)	28 (41.2)	p =0.02*
Road side	68 (30.4)	10 (14.7)	
Transport availability			
Yes	73 (32.6)	14 (20.6)	χ^2= 3.59
No	151 (67.4)	54 (79.4)	p =0.05*
Road condition			
Good	73 (32.6)	14 (20.6)	χ^2= 3.59
Poor	151 (67.4)	54 (79.4)	p = 0.05*
Distance from sub centre			
Near	78 (34.8)	14 (20.6)	χ^2= 4.89

Far	146 (65.2)	54 (79.4)	p = 0.02*
Availability of 1st ANM			
Yes	212 (94.6)	68 (100.0)	NA
No	12 (5.4)	-	
Availability of ASHA			
Yes	157 (70.1)	43 (63.2)	χ^2= 1.13
No	67 (29.9)	25 (36.8)	p =0.28
Availability of AWW			
Yes	212 (94.6)	61 (89.7)	χ^2= 2.09
No	12 (5.4)	7 (10.3)	p =0.14
Freedom to availed health facility			
Alone	112 (50.0)	11 (16.2)	χ^2= 25.03
With someone	77 (34.4)	42 (61.8)	p =0.001**
Not at all	35 (15.6)	15 (22.1)	

Figures in the parenthesis indicate percentages,*p≤0.05, *p≤0.01

Table: 5 Receive of antenatal care (ANC) by socio-demographic characteristics between Lodha and Birhor participants

Background characteristics	Lodha			Birhor		
	Yes	No	χ^2 p	Yes	No	χ^2 p
Age groups (in years)						
15-22	93 (47.9)	4 (7.4)	χ^2= 29.43	6 (20.0)	2 (14.3)	χ^2= 4.24
23-30	86 (44.3)	44(81.5)	p = 0.001**	21 (70.0)	7 (50.0)	p = 0.12
>30	15 (7.7)	6 (11.1)		3 (10.0)	5 (35.7)	
Family types						
Nuclear	144 (74.2)	49 (90.7)	χ^2=7.05	21 (70.0)	13 (92.9)	χ^2=2.84
Joint	46 (23.7)	4 (7.4)	p =0.02*	9 (30.0)	1 (7.1)	p =0.09
Extended	4 (2.1)	1 (1.9)				
Education levels						
Non literate	110 (56.7)	52 (96.3)	χ^2= 29.26	19 (63.3)	10 (71.4)	χ^2= 0.27
Up to upper primary	77 (39.7)	2 (3.7)	p =0.001**	11 (36.7)	4 (28.6)	p =0.59
Above upper primary	7 (3.6)	-		-	-	
Occupational types						
Working	166 (85.6)	54(100.0)	NA	30 (100.0)	14 (100.0)	NA
Non-working	28 (14.4)	-		-	-	
Monthly household expenditure (INR)	113 (58.2)	34 (63.0)	χ^2= 0.38	14 (46.7)	3 (21.4)	χ^2=2.56
Below 5,000	81 (41.8)	20 (37.0)	p = 0.63	16 (53.3)	11 (78.6)	p = 0.10
5,000 and above						
Total number of pregnancy						
1-2	136 (70.1)	11 (20.4)	χ^2= 43.32	13 (43.3)	3 (21.4)	χ^2= 4.72
3-4	52 (26.8)	39 (72.2)	p = 0.001**	16 (53.3)	8 (57.1)	p = 0.09
Above 5	6 (3.1)	4 (7.4)		1 (3.3)	3 (21.4)	
Parity						
1	87 (44.8)	4 (7.4)	χ^2= 26.00	8 (26.7)	2 (14.3)	NA
2-4	103 (53.1)	47 (87.0)	p =0.001**	22 (73.3)	9 (64.3)	
Equal and above 5	4 (2.1)	3 (5.6)		-	3 (21.4)	
Place of residence						
Forest	71 (36.6)	30 (55.6)	NA	-	-	χ^2= 0.83
Remote village	80 (41.2)	24 (44.4)		5 (16.7)	4 (28.6)	p =0.36
Road side	43 (22.2)	-		25 (83.3)	10 (71.4)	
Transport availability						
Yes	43 (22.2)	-	NA	30 (100.0)	14 (100.0)	NA
No	151 (77.8)	54(100.0)		-	-	
Road condition						
Good	43 (22.2)	-	NA	30 (100.0)	14 (100.0)	NA
Poor	151 (77.8)	54(100.0)		-	-	
Distance from sub centre						
Near	48 (24.7)	-		30 (100.0)	14 (100.0)	NA

Far	146 (75.3)	54(100.0)	NA	-	-	
Availability of first ANM						
Yes	182 (93.8)	54(100.0)	NA	30 (100.0)	14 (100.0)	NA
No	12 (6.2)	-		-	-	
Availability of ASHA						
Yes	152 (78.4)	39 (72.2)	χ^2= 0.89	5 (16.7)	4 (28.6)	χ^2= 0.83
No	42 (21.6)	15 (27.8)	p =0.34	25 (83.3)	10 (71.4)	p =0.36
Availability of AWW						
Yes	182 (93.8)	47 (87.0)	χ^2= 2.74	30 (100.0)	14 (100.0)	NA
No	12 (6.2)	7 (13.0)	p =0.09	-	-	
F*reedom to availed health facility*						χ^2= 2.51
Alone	88 (45.4)	3 (5.6)	χ^2= 29.07	24 (80.0)	8 (57.1)	p =0.11
With someone	71 (36.6)	36 (66.7)	p =0.001**	6 (20.0)	6 (42.9)	
Not at all	35 (18.0)	15 (27.8)		-	-	

Figures in the parenthesis indicate percentages,*p≤0.05, *p≤0.01

IV. Conclusion

An appreciable number of study participants were noticeably utilizing ANC. The factors identified for utilization of antenatal care include age, family type, number of pregnancy, parity and women autonomy. Apart from these factors, supply-side/ contextual level factors [such as physical condition of connecting roads, availability of transport facility, place of residence and distance to sub centre from place of residence] are likely to play an important role in the utilization of antenatal care services among the study participants (both Lodha and Birhor).

Limitations of the study

The present study has certain limitation. First, cross-sectional data are not suitable for finding out cause-effect relationship. Second, there was limited sample size. Finally, participants were asked for events (using structured questionnaire) within the last five years, this could have introduced recall bias.

V. Recommendations

Policy makers and health planners need to recognize the determinants of maternal health care service use. More efforts should be given to educate mothers, to improve husbands' involvement, to strengthen community participation, to increase political commitment and to boost accessibility to antenatal care services.

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Conflict of Interests

The authors declare that there is no conflict of interests regarding the publication of this paper.

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