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A cross-sectional study on utilization of maternal health services and its determinants among rural population of district Sitapur, Uttar Pradesh

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ABSTRACT

Background: In India, despite substantial improvements in maternal health over the last decade or so, still condition is even poor in rural areas. As per National health policy 2017, target is to reduce MMR to 100 by 2020 and sustaining antenatal coverage at 100%, institutional delivery 80% and skilled attendance of birth 100% by 2025. The study is conducted with the objective to assess the pattern of maternal health service utilization and to identify the factors affecting it.

Methods: A community based cross-sectional study was conducted at field practice area of Rural Health Training Centre, Hind Institute Of Medical Sciences, Sitapur with a sample of 208 women selected using systematic random sampling. SPSS Statistics 20.0 was used for data entry and calculation of statistical tests.

Results: ANC utilization was found to be 70.7% whereas minimum recommended ANC visits were 50%. Only 54.8% deliveries were found to be institutional whereas 59.1% women received at least one postnatal check-up in our study. Most common reason for not utilizing ANC, Institutional delivery and PNC services was found to be tradition, availability of trained person and no need respectively. A highly significant association was found between maternal health service utilization and woman's education, partner's education, partner's occupation, birth order and standard of living index (p<0.05).

Conclusions: This study established that educating the population, empowering women, promoting maternal health service utilization in multipara's and improving the socio-economic status of the family would yield greater results in increasing the use of maternal health services.

Keywords: Ante-natalcare, Institutional delivery, Maternal healthcare, Post-natal care

INTRODUCTION

Maternal mortality remains a major public health concern worldwide, especially in developing countries, hence mentioned in the top 5 millennium development goals (MDGs) and sustainable developmental goals (SDGs). SDG 3.1 for maternal health is to reduce global maternal mortality ratio (MMR) to less than 70 per 100,000 live births. At the global level, the MMR decreased from 385 in 1990 to 211 in 2017. Though there has been a

reduction in the absolute number of maternal deaths occurring around the world, still a large number are dying due to causes that are preventable. According to the data compiled by WHO and UNICEF 2,95,000 maternal deaths occurred in the year 2017.²

In India, despite significant improvements in maternal health over the last decade or so, which is evident in the reductions in maternal mortality in the country, an estimated 44,000 mothers continue to die every year due

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to causes related to pregnancy, childbirth and the postpartum period. Furthermore, the National health policy, 2017, envisages reducing MMR to 100 by 2020 and sustaining antenatal coverage at 100%, institutional delivery 80% and skilled attendance of birth 100% by 2025.³ A steady decline in MMR has been recorded from 437 in 1990 to 113 in 2016-18. The state with the highest MMR is Assam (215), followed by Uttar Pradesh (197), and Madhya Pradesh (173).² Uttar Pradesh (U.P) with 197 maternal deaths on every 100,000 live births was among the states with highest MMR in the country.⁴

According to NFHS-4 (2015-16) U.P. factsheet, 68.7% mothers received antenatal care (ANC) for their last birth in rural areas whereas only 22% of mothers of rural areas in Uttar Pradesh received recommended (at least four) antenatal care visits. In rural areas of UP, only 66.8% of births take place in a health facility while 59.6% of mothers had a postnatal check after their last birth.⁵

In Sitapur district, 70% population lives in rural areas. As per NFHS-4 (2015-16) district factsheet Sitapur, only 10.2% mothers had at least 4 antenatal care visits while the percentage is little less in rural areas (9.3%). 67.8% births were institutional in Sitapur and almost equal percentage of institutional deliveries (68%) took place in rural areas. 55.5% mothers received postnatal care while a higher percentage (57.5%) was observed in rural areas.⁶

There is a need of clear understanding of the sociodemographic characteristics affecting the use of maternal health services. However, very little research in this regard is available in the context of Sitapur district of Uttar Pradesh. The objective of this study was to assess the trends regarding maternal health services utilization and to estimate the effects of socio-demographic characteristics on the utilisation of maternal health services with special reference to antenatal care (ANC), institutional delivery and postnatal care (PNC) in rural areas of Sitapur district of Uttar Pradesh.

METHODS

The present study is a community based cross-sectional study which was conducted at Field practice area of Rural Health Training Centre, Hind Institute Of Medical Sciences, Sitapur from February 2021 to March 2021. Systemic random sampling and probability proportionate to size method (PPS) was used. A sample size of 208 approximately was calculated to be studied based on the following factors: an expected 68% prevalence of institutional deliveries in rural areas of district Sitapur⁶; relative precision for the calculated result of 10%; desired confidence level (α) of 0.05; power of the study (1 – β)=0.80; and a non-response rate of 10%.

The sample to be collected from each village was determined applying probability proportionate to size (PPS). Households were taken as sampling units and systematic random sampling technique was used to select

the households. In every village, the 1st house was selected randomly using the lottery method and subsequent houses were determined by adding sampling interval to it. Assistance of MSW's (medico-social worker) and ASHA were taken to identify the household. Married women who had a child less than 2 years of age were included. If woman having a child less than 2 years were not present in the house, the next house was taken up. After obtaining informed verbal consent, they were interviewed using a semi-structured proforma. Data entry and statistical analysis was performed using the SPSS software, version 20.0. Maternal health services utilization with special reference to antenatal care (ANC), institutional delivery and postnatal care (PNC) were determined. Females having a child less than 2 years of age were asked about antenatal services, intra-natal services (institutional delivery) and post-natal care services within 42 days of delivery being utilized in last pregnancy and if not, then reasons for the same were enquired for. Differences in ANC, institutional delivery and PNC with socio-demographic characteristics were assessed using χ 2-test.

RESULTS

Socio-demographic profile of study population

Socio-demographic profile of study population is detailed in (Table 1). Most of the women and their partner were in the age group 25-29 years (37.5% and 40.4% respectively). More than half (56.3%) of the women were illiterate while 44.7% partners were illiterate. All most all the females were homemaker (98.1%). In our study, 57.7% husbands are unskilled worker followed by semi-skilled/skilled worker (24.0%). Majority of the deliveries were of the birth order \geq 3 (41.3%). Regarding 'standard of living index (SLI)', 43.3% families belonged to Medium followed by Low (42.8%) and high standard of living (13.9%).

Maternal health service utilization and factors affecting it

The findings of maternal healthcare service utilization have been further discussed under antenatal care, intranatal care (institutional delivery) and postnatal care. Out of 208 women, we observed ANC utilization to be 70.7% whereas minimum recommended ANC visits (i.e., ≥ 4 ANC) were 50% in our study (Table 2). Most common reason for not taking ANC was found to be tradition (41.0%) followed by financial constraints (24.6%) and accompanying person not available (18%) (Table 3). Only 54.8% deliveries were found to be institutional while 45.2% deliveries were conducted at home (Table 2). Most common reason for not utilizing hospital for deliveries was availability of trained person (37.2%) followed by tradition (26.6%) (Table 3). As shown in the table 2, 59.1% (n=123) women received at least one postnatal check-up in our study and the most common reason for non-utilization of postnatal care was found to

be no need of PNC services as both mother and baby were fine (56.5%) (Table 3).

Table 1: Socio-demographic profile of study population (n=208).

Socio-demogra	phic characteristics	N	%
	<21	24	11.5
Women's age	21-25	63	30.3
(years)	26-30	78	37.5
	>30	43	20.7
	< 21	5	2.4
Partner's age	21-25	36	17.3
(years)	26-30	84	40.4
	>30	83	39.9
	Illiterate	117	56.3
***	Up to primary school	29	13.9
Women's education	Up to high school	41	19.7
education	Intermediate/diploma	15	7.2
	Graduate and above	6	2.9
	Illiterate	93	44.7
.	Up to primary school	33	15.9
Partner's education	Up to high school	58	27.9
	Intermediate/diploma	10	4.8
	Graduate and above	14	6.7
Women's	Working	4	1.9
occupation	Homemaker	204	98.1
	Unemployed/retired	1	0.5
	Unskilled worker	120	57.7
Partner's occupation	Semi-skilled/skilled worker 50		24.0
occupation	Clerical/shop/farm		
	Professional	2	16.8
	1	51	24.5
Birth order	2	71	34.1
	<u>≥</u> 3	86	41.3
	Low	89	42.8
Standard of	Medium	90	43.3
living index	High	29	13.9
	111511	2)	13.7

The association of different socio-demographic factors with maternal healthcare service utilization is shown in (Table 4 and 5). We found that higher level of literacy of the women and their husband had higher maternal healthcare service utilization and this difference was found to be highly significant (p<0.05). In our study, significant association was found between maternal health care utilization and husband's occupation (p<0.05) whereas maternal health care service utilization of the working women was more than the homemaker but this difference was not found to be significant. The association between maternal health service utilization and age group of women and their partner was found to

be non-significant (Table 4). It was observed that higher levels of SLI and decreasing birth order led to increased utilization of maternal health care services in a significant manner (p<0.05) (Table 5).

Table 2: Pattern of maternal healthcare services utilization.

Maternal healt	N	%		
ANC received	No		61	29.3
	Yes	< 4 ANC	43	20.7
		≥ 4 ANC	104	50.0
		Total	147	70.7
Institutional	No (l	nome delivery)	94	45.2
delivery	Yes ((hospital delivery)	114	54.8
PNC received	No		85	40.9
rnc received	Yes		123	59.1

DISCUSSION

Maternal health is the condition of women's health during pregnancy, childbirth and the postpartum period as the health of the mother being directly associated with the health of the newborn, utmost care to the mother is essential during all the three phases.⁷ This study examined the strength of association of the use of maternal health care services namely ANC services, institutional delivery and PNC services with selected socio-demographic and economic characteristics at grass root level in rural areas of Sitapur. ANC utilization was found to be 70.7% whereas minimum recommended ANC visits were 50% in our study. These proportions are similar when compared to the overall figure of UP.5 Similar figures were found by Chandhiok et al in their studies which was carried out in the sampled rural areas of 28 districts in 14 states.8 A higher percentage of at least any ANC utilization was observed by many authors⁹ ¹¹ in rural areas whereas lower percentage was reported in rural areas of district Attock of the province of Punjab, Pakistan.¹² As for as recommended ANC is concerned, 61% ANC utilization was reported by Singh et al which was higher than our findings.9 In contrast to our finding, only 38.9% recommended ANC utilization was reported by Nzioki et al. 10 According to National family health survey- 4 (NFHS-4), about 22% of mothers had at least four ANC visits in the rural area of U.P whereas in rural population of Sitapur, only 9.3% mothers had recommended ANC visits. 5,6 Most common reason for not taking antenatal services was found to be tradition. Institutional delivery in the survey area was 54.8% which is lower to reports from rural areas of U.P (66.8%) as well as rural areas of Sitapur district (68%).^{5,6} Similar findings were also observed in other studies. 10,13 High rate of institutional delivery were found in the studies conducted by Singh et al and Shah et al.^{9,11} In contrast to our findings, lower rate (39.3%) of institutional delivery was seen in rural areas of Pakistan. 12 Most common reason for not taking institutional deliveries was availability of trained person.

Table 3: Reason for non-utilization of maternal healthcare services.

Maternal healthcare services	Reason	N	%
	Tradition	25	41.0
	Hospital services not acceptable	8	13.1
Reason for not taking ANC	Financial	15	24.6
	No body to accompany	11	18.0
	Others	2	3.2
	Tradition	25	26.6
	Trained persons available	35	37.2
Reason for not taking institutional	Hospital services not acceptable	8	8.5
delivery	Financial	9	9.6
	No body to accompany	12	12.8
	Others	5	5.3
Reason for not taking PNC	Was not told/did not know	7	8.2
	No need, both mother&baby were fine	48	56.5
	Financial	13	15.3
	Nobody to accompany	13	15.3
	Others	4	4.8

Table 4: Association of maternal healthcare services with age, education and occupation of the women and their partner's.

Socio-demographic factors	ANC received N (%)	d	Institutional oreceived N (%)	delivery	PNC received N (%)	
Women's age (years)						
<21	13 (54.2)	_	8 (33.3)	_	10 (41.7)	
21-25	51 (81.0)	$\chi^2 = 7.008$	38 (60.3)	$\chi^2 = 5.436$	40 (63.5)	$\chi^2 = 3.598$
26-30	55 (70.5)	p=0.072	43 (55.1)	p=0.142	47 (60.3)	p=0.308
>30	28 (65.1)		25 (58.1)		26 (60.5)	
Partner's age (years)						
<21	3 (60.0)		2 (40.0)		4 (80.0)	
21-25	23 (63.9)	$\chi^2 = 3.309$	14 (38.9)	$\chi^2 = 6.467 p$	15 (41.7)	$\chi^2 = 6.845$
26-30	65 (77.4)	p=0.346	53 (63.1)	=0.091	55 (65.5)	p=0.077
>30	56 (67.5)	_	45 (54.2)		49 (59.0)	
Women's education						
Illiterate	71 (60.7)	_	56 (47.9)	$\chi^2=15.77p$ =0.003	61 (52.1)	$\chi^2=19.611$ $p=0.001$
Upto primary	18 (62.1)		12 (41.4)		12 (41.4)	
Upto high school	37 (90.2)	$\chi^2 = 22.96p$	30 (73.2)		31 (75.6)	
Intermediate/ diploma	15 (100)	=0.000	10 (66.7)		13 (86.7)	
Graduate and above	6 (100)	_	6 (100.0)		6 (100.0)	
Partner's education						
Illiterate	56 (60.2)	_	39 (41.9)	_	45 (48.4)	
Upto primary	18 (54.5)	$\chi^2 = 24.34p$	12 (36.4)	$\chi^2 = 28.618p$	13 (39.4)	$\chi^2 = 26.646$ p=0.000
Upto high school	49 (84.5)	$\chi = 24.34p$ = =0.000	43 (74.1)	$\chi^{-2} = 28.018$ p = =0.000	43 (74.1)	
Intermediate/diploma	10 (100)	-0.000	7 (70.0)	_0.000	8 (80.0)	
Graduate and above	14 (100)		13 (92.9)		14 (100)	
Women's occupation						
Working	4 (100)	$\chi^2 = 1.692$	4 (100.0)	$\chi^2 = 3.363$	4 (100.0)	$\chi^2 = 2.818$
Homemaker	143 (70.1)	p=0.193	110 (53.9)	p=0.067	119 (58.3)	p=0.093

Continued.

Socio-demographic factors	ANC receive N (%)	ed	Institutional received N (%)	l delivery	PNC received N (%)	d
Partners occupation						
Unemployed/retired	1(100)		1 (100)		1 (100)	
Unskilled worker	73 (60.8)	$\chi^2 = 15.42$	53 (44.2)		59 (49.2)	
Semi-skilled/skilled worker	39 (78.0)	p=0.004	30 (60.0)	$\chi^2 = 17.47$ p=0.002	31 (62.0)	$\chi^2 = 17.409$ p=0.002
Clerical/shop/farm	32 (91.4)		28 (80.0)		30 (85.7)	
Professional	2 (100)		2 (100)		2 (100)	_

Table 5: Association of maternal healthcare services with SLI and birth order.

Socio-demographic factors	ANC received N (%)		Institutional delivery received N (%)		PNC received N (%)	
Birth order						
1	41 (80.4)	2 11 146	31 (60.8)	2 14 620	33 (64.7)	2 16 064
2	56 (78.9)	$\chi^2=11.146$ p=0.004	49 (69.0)	$\chi^2=14.620$ p=0.001	53 (74.6)	χ ² =16.964 p=0.000
≥ 3	50 (58.1)		34 (39.5)		37 (43.0)	
Standard of living index (SLI)						
Low	52 (58.4)	2 16 429	33 (37.1)	2 10 754	37 (41.6)	2 20 640
Medium	67 (74.4)	$\begin{array}{c} \chi^2 = 16.428 \\ p = 0.000 \end{array}$	61 (67.8)	$\chi^2 = 19.754$ p=0.000	63 (70.0)	$\chi^2 = 20.640$ p=0.000
High	28 (96.6)		20 (69.0)		23 (79.3)	

At least one postnatal check-up was received by 59.1% women in our study. In contrast to our findings, lower utilization of PNC services in rural areas were reported by various researchers nationally as well as internationally which was in the range of 26-46%. 9,10,12 Most common reason for non-utilization of postnatal services was no need of PNC services as both mother and baby were fine.

Women and their partner's literacy were found to have significant association with all the indicators of maternal health care services and the findings are consistent with the results of previous studies. 13-15 Similarly, mother's education was found to be strong predictors for the utilization of maternal health care services by various authors. 10,13,16 This clearly indicates that education directly translates into better maternal health service utilization. The findings of our study regarding influence of husband's occupation was found to be significantly associated (p<0.05) with maternal health care service utilization which is in agreement a study conducted in rural areas of Bareilly. 13 A higher birth order of the women were significantly associated with lower utilization of maternal health care services (p<0.05) and is supported by other studies. 10,13,15 In contrast to our study, no significant association was found between birth order of the women and maternal health care service utilization.14

The result of the study are in congruence with the notion that higher SLI increased the utilization of all three indicators of maternal health services in a significant manner, which is in tune with other findings. 13-15

However couple's age showed no significant association with utilization of maternal health care services. In contrast to our findings, various author shave been observed that mother's age was negatively associated with utilization of maternal health care services. ^{10,14} Our analysis also suggested that there were no considerable differences between maternal health care services and women's occupation as almost all the females were homemaker in our study whereas significant association was found in a study conducted in Mwingi, a rural district in Kenya. ¹⁰

CONCLUSION

The study indicates that utilization of maternal health services was undoubtedly a reflection of their demographic and socio-economic characteristics. This study established that the main socio-demographic factors which influenced utilization of maternal health services in rural areas of Sitapur district are a couple's level of education, partner's occupation, birth order and economic status of the family, therefore educating the population, empowering women, promoting maternal health service utilization in multipara's and improving the socioeconomic status of the family would yield greater results in increasing the use of maternal health services. Utilization of maternal health care services is of vital importance as it affects the well being of the mother as well as the baby. Thus government and other agencies should also make efforts to develop better awareness program so that women can have better understanding about the importance of maternal health care services.

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