PRINT: ISSN 0972-0073 ONLINE: 2456-6802
Ethno Med, 5(3): 209-216 (2011)
DOI: 10.31901/24566772.2011/05.03.10

Factors influencing the Utilization of Maternal Health Care Services in Uttarakhand

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KEYWORDS Antenatal Care. Safe Delivery. Postnatal Care. Predictors. Uttarakhand

ABSTRACT The National Family Health Survey (NFHS-III 2005-06) provided a gloomy picture of the status of maternal health indicators of Uttarakhand. The state has witnessed a higher proportion of high risk pregnancies. A large number of births take place outside the health system (67.4 percent), the majority being attended by untrained dais (midwives). These have resulted in higher maternal morbidity and mortality. Therefore, the present paper attempts to find out the possible factors influencing the use of maternal health care services, using the data from NFHS III. Both bi-variate and multivariate analysis have been carried out for the study by taking ante-natal care and delivery care as dependant variables. The result reveals that the educational level of women, birth order and wealth index are significant predictors in explaining ante-natal and delivery care. Controlling the effect of other variables, the predictive power of women's educational level, wealth index have been positively associated with antenatal care and also delivery care.

INTRODUCTION

Maternal mortality reflects one of the shameful failures of human development (Freedman et al. 2003). Approximately 80 percent of the maternal deaths globally occur due to haemorrhage, sepsis, unsafe induced abortion, hypertensive disorder of pregnancy, and obstructed labour (WHO 2005). These deaths are unjust and can be avoided with key health interventions, like provision of antenatal care and medically assisted delivery (Adam et al. 2005; MCcaw-Binns et al. 2007). The emphasis on two out of eight critical United Nations Millennium Development Goals, that is, reducing under five mortality by two-thirds between 1990 and 2015; and reducing maternal mortality ratio by three quarters between 1990 and 2015 epitomise the relevance of these indicators in global efforts towards human development (Freedman et al. 2007; Rosenfield et al. 2006; World Health Organization 2004). A fully functioning, mother-baby package intervention has been estimated to have the potential cumulative effect of averting 75–85% of maternal deaths and disability in developing countries (Graham 2006).

Factors influencing maternal health services utilization operate at various levels-individual, household, community. Depending on the indicator of maternal health services, the relevant determinants vary. Although, in general, women in higher socio-economic groups tend to exhibit patterns of more frequent use of maternal health services than women in the lower socio-economic groups. A number of literatures have highlighted the utilization of maternal health care services varies with the socio-economic characteristics of the population (Kanitkar and Sinha 1989; Govindaswamy 1994; Kavita and Audinarayana 1997; Bloom 2001; Navaneetham and Dharmalingam 2002; Gymiah et al. 2006; Dey 2009). These studies have shown that education of the mother is an important social variable that has a positive effect on the utilization of maternal and child health services. The other socio-economic factors usually found to be important are place of residence, religion and standard of living of the household. The economic status of the household also determines the utilization of antenatal care and delivery care services (Pandey et al. 2002). Kavita and Audinarayana (1997) documented a strong association of the caste system with the utilization of maternal care services. Basu (2009) has made a comparative study on reproductive and child health status of the scheduled castes and scheduled tribes of West Bengal on the basis of National Family Health Survey I and II data. Sunil et al. (2005) made an attempt to examine individual and program factors matter in the utilization of maternal care services in rural India. Some studies on health seeking behaviour have focused on the impor-

tance of availability and accessibility of services (Develay et al. 1996; Becker et al. 1993). The distance of the health care center is quite far from the village and that is why only 46 percent of the women in Uttaranchal receive ante-natal care. The performance of Dehradun district is best in the entire state. Private health facility is highly preferred in Haridwar district but in the rest of the districts is very low without much variation. Institutional deliveries are preferred highest in Dehradun district but rest of the districts it is around 12 percent (Govil 2001).

Addressing health system factors and socio-economic barriers is imperative for increasing women's overall utilization of health services. Reducing maternal mortality through increased service utilization requires more effective public health interventions built on a clear understanding of women's perceptions of maternal care services within their cultural context. Although previous studies have examined factors contributing to poor maternal health outcomes and access to care, gap persists in understanding barriers limiting their utilization of maternal health services. This study examines the complex interaction of socioeconomic factors influencing women's utilization of maternal health services in Uttarakhand. The National Family Health Survey III (2005-06) provided a gloomy picture of the status of maternal health indicators of the state. The state has witnessed a higher proportion of high risk pregnancies. Home delivery constitutes a substantial proportion (67.4 percent) in the state, the majority being attended by untrained dais (midwives). These have resulted in higher maternal morbidity and mortality. In the realm of socio-economic and demographic influence, factors like caste, religion, place of residence, educational level, exposure to mass media, household structure, wealth index, birth order and maternal age have significant influence on the utilization of maternal health care services. Therefore the present paper attempts to find out the possible factors influencing the use of maternal health care services in Uttarakhand.

Study Area

Uttarakhand, known as Uttaranchal from 2000 to 2006, became the 27th state of the Republic of India on November 9, 2000. Uttarakhand borders Tibet to the north, Nepal to the east, and the states of Himachal Pradesh and Uttar Pradesh (of which it formed a part before 2000) in the west and south respectively. The region is traditionally referred to as Uttarakhand in Hindu scriptures and old literature, a term which derives from the Sanskrit for *Northern Country* or *Section*. In January 2007, the name of the state was officially changed from Uttaranchal, its interim name, to Uttarakhand, according to the wishes of a large section of its people. People of Uttarakhand are generally called either Garhwali or Kumaoni depending on their place of origin in either the Garhwal or Kumaon region. Location of the state is in between 77° 34' 27" East to 81° 02' 22" E Longitude and 28° 53' 24" North to 31° 27' 50" N Latitude.

Objectives

This paper makes an attempt to study analytically the socio-economic and demographic determinants of the use of maternal health care services in Uttarakhand. However, the specific objectives are:

1. To study the level and differentials in the use of antenatal, delivery and post-natal care services in Uttarakhand.
2. To identify the major determinants of the utilization of maternal care services.

DATA AND METHODS

The present paper uses the dataset of National Family Health Survey III conducted during 2005-06. The information on the use of maternal health care services during the five years preceding the survey has been utilized. However, the information of delivery care for all births and the information of antenatal and postnatal care for the last birth have been considered for the study. Both bivariate and multivariate analyses have been used in the present paper. The bivariate analysis shows the pattern of the relationship between variables considered in the study and the utilization of different services. The multivariate logistic regression analysis determines the net effect of each variable on the utilization maternal health services after controlling the effect of all the other variables included in the study. Variables used in the present study consists of three dependent variables (full antenatal care, safe delivery and postnatal care; each variable dichotomous in nature) regarding the use of maternal care services and nine explanatory variables (socio-economic and demographic) dealing with the general information of the respon-

dents. Definitions of these three dependent variables are:

1. ***Full Antenatal Care*** indicates whether the mother received all the recommended antenatal care (coded as 1); if care was not received, it is coded as zero (0). Full antenatal care has been defined as at least three antenatal care visits, consumed 90+ Iron and Folic Acid tablets and two or more tetanus toxoid injections taken.
2. ***Safe Delivery*** indicates whether the delivery is assisted by health personnel (coded as 1) if not coded as zero (0). Safe delivery is defined as either institutional delivery or if home delivery assisted by doctor, auxiliary nurse midwife, nurse, midwife, lady health visitor or other health personnel.
3. ***Postnatal Care*** indicates whether the women received check ups of her own health within 42 days of the birth (If yes coded as 1, if not coded as 0).

The explanatory variables included in the analysis are: Caste, religion, place of residence, educational level, and exposure to mass media, household structure, wealth index, birth order and maternal age. Caste is categorized as SC/ST and others. Religion is categorized as Hindu and others. The place of residence variable is categorized as urban and rural. Education of women is used as a categorized variable with four categories; illiterate, primary, secondary and higher. Exposure to mass media is categorized as exposed and not exposed to any means of mass media (newspaper, radio, television and cinema). Household structure have been categorized as nuclear, non-nuclear and not dejure resident. The economic status of the households has been captured in the wealth index which has been categorized into poorest, poorer, middle, richer and richest. In addition, birth order has been included as an explanatory variable because women may have a higher tendency to seek antenatal and delivery care during the first pregnancy or birth but not in the subsequent pregnancies. Categories included for birth order are 1, 2-3 and 3+. Age of the mother has been categorized as less than 24 years, 25-29 years and 30 years and above.

RESULTS AND DISCUSSION

Antenatal Care

The Reproductive and Child Health programme emphasizes that a pregnant woman must have at least three antenatal visits during pregnancy receive at least two tetanus toxoid injections and should take supplementary iron in the form of IFA tablet/syrup at least for three months (Government of India, 1999). Table 1 depicts the various components of maternal health care utilization in Uttarakhand for the most recent birth during the five years preceding the survey. Almost one-third of the women did not undergo any antenatal check up in Uttarakhand. Only 45 percent of women had received at least three antenatal check- up while two- thirds of women had received tetanus toxoid vaccine. It is very alarming that about three-fourth of women did not consume sufficient number of iron and folic acid (IFA) tablets in Uttarakhand. The health impact of antenatal care is dependent on how often women receive antenatal care and at what time during pregnancy women start obtaining antenatal care (Navaneetham and Dharmalingam 2002). It is found that there are substantial differences in the number of antenatal care visits, tetanus toxoid injection taken and IFA tablet/ syrup consumed. The use of antenatal care services in a given population depend not only the availability and accessibility of services but also the socio-economic status of the household (Pandey et al. 2004). Seventy-two percent of mothers in urban areas had at least three antenatal care visits, compared to only 36 percent in rural areas. The availability of health services and higher educational attainment of mothers in urban areas could be important factors in explaining the larger percent of antenatal care visits in urban areas. The proportion of mothers receiving two or more tetanus toxoid injection during pregnancy for the most recent birth is substantially lower than the average among SC/ST mothers, mothers with no education, who do not exposed to any mass media, mothers in households in the lowest wealth quintile, mothers of higher-order births (3+) and older mothers (30+). Similarly, IFA coverage (90+) is well below average for the women who belong to scheduled caste/ scheduled tribe, women with illiterate/primary educational level, who are not exposed to mass media, women with households in the lowest quintiles, higher-order births (3+) and for older women. It is also lower in rural areas (21 percent) than in urban areas (43 percent).

It is found that only one-fifth of women in Uttarakhand have received full antenatal care (three or more antenatal care visits, taken two or more tetanus toxoid injections and consumed

Table 1: Percent distribution of women who had a live birth in the five years preceding the survey by components of antenatal care and by background characteristics, Uttarakhand

Background characteristics	*Number of ANC visit*			*Number of tetanus toxoid*			*IFA taken*		
	No visits	*1-2 visits*	*3+ visits*	*Not taken*	*One taken*	*Two or more*	*Not consumed*	*0-89*	*90+*
Caste									
SC/ST	38.3	27.7	34.1	27.9	9.0	63.2	44.6	37.3	18.2
Others	27.9	23.4	48.7	22.1	7.5	70.4	34.9	35.9	29.2
Religion									
Hindu	30.7	24.8	44.5	24.1	7.9	68.0	36.0	36.6	27.4
Others	29.7	23.2	47.0	20.6	7.9	71.5	45.0	33.9	21.0
Place of Residence									
Urban	14.0	14.0	71.9	10.2	6.0	83.8	23.4	34.0	42.6
Rural	36.0	28.0	36.0	28.0	8.5	63.5	42.0	36.9	21.1
Educational Level									
No education	48.9	28.7	22.3	40.9	8.1	51.0	61.2	29.1	9.7
Primary	38.7	26.9	34.4	22.9	10.0	67.1	40.8	46.2	12.9
Secondary	16.3	25.5	58.3	11.8	8.2	80.0	21.3	44.4	34.3
Higher	3.4	7.0	89.6	1.7	4.2	94.1	2.5	27.4	70.1
Exposure to Mass Media									
Exposed	23.2	23.9	52.9	14.8	7.9	77.3	26.8	40.9	32.3
Not Exposed	55.6	26.8	17.6	53.5	7.7	38.8	73.4	20.5	6.2
Household Structure									
Nuclear	39.2	25.9	34.9	29.8	8.8	61.4	46.3	34.8	18.9
Non-nuclear	26.2	24.1	49.6	20.8	7.6	71.6	33.0	36.5	30.5
Not dejure resident	10.2	18.1	71.7	5.0	2.6	92.4	15.5	45.8	38.8
Wealth Index									
Poorest	55.3	32.5	12.3	56.8	6.2	37.0	73.7	18.5	7.8
Poorer	58.2	22.9	18.9	48.1	8.8	43.2	66.9	24.9	8.1
Middle	38.4	28.4	33.2	26.6	8.7	64.8	44.2	42.2	13.6
Richer	23.0	34.5	42.4	18.2	11.6	70.2	30.9	43.9	25.2
Richest	9.20	12.4	78.5	3.7	4.2	92.1	11.9	36.1	52.0
Birth Order									
1	19.6	21.8	58.5	12.6	5.5	81.8	25.5	34.1	40.5
2-3	23.8	27.6	48.6	19.5	9.6	70.9	32.9	39.6	27.5
3+	53.8	21.6	24.6	41.8	7.0	51.2	57.3	32.2	10.5
Age Group of Women									
15-24	31.2	26.7	42.1	19.4	9.2	71.4	34.6	42.1	23.4
25-29	25.1	26.1	48.8	19.6	8.4	72.1	33.0	37.7	29.3
30+	37.7	20.2	42.2	33.4	5.8	60.8	46.4	28.3	25.3
Total	30.6	24.5	44.9	23.6	7.9	68.5	37.4	36.2	26.4

Source: Computed from NFHS III data file

iron and folic acid tablets/syrup for three or more months) during pregnancy (Table 2). Full ANC is substantially higher for those who belong to other caste (23 percent) compared to SC/ST women (12 percent). Women living in urban areas use full ANC more than their rural counterparts. Educational level of women has positive relationship with the use of full ANC. This may be due to that higher education leads to better awareness about health related matters. A higher proportion of women who were exposed to any mass media (25 percent) used the full ANC compared to who were not exposed (4 percent). Wealth index of the household is positively associated with the full antenatal care. The use of full antenatal care by women of first parity is higher than the women of other parities.

Delivery Care

The differentials in institutional delivery (that is, whether the delivery took place in a health institution) as well as safe delivery (deliveries assisted by health personnel) are presented in Table 2. The percentage of institutional deliveries in Uttarakhand is 33 while the percentage of safe delivery is 39. In Uttarakhand, only 28 percent of SC/ST women had gone for safe delivery as against 43 percent of those who belong to other category. This may be due to general lack of access to health care services for the socially backward communities (Navaneetham and Dharmalingam 2002). This could also be related to residential segregation and availability of health care services (Appasamy et al. 1995;

Table 2: Maternal care indicators by background characteristics in Uttarakhand

Background characteristics	*ANC categories*[1]			*Delivery care*[2]		*Post-natal care*[1]
	No ANC	*Partial ANC*	*Full ANC*	*Institutional*	*Safe delivery*	
Caste						
SC/ST	18.0	70.5	11.6	21.7	27.9	26.8
Others	14.5	62.5	22.9	36.8	42.6	40.5
Religion						
Hindu	15.5	63.9	20.6	31.2	37.2	35.1
Others	15.0	68.5	16.6	40.0	45.5	47.3
Place of Residence						
Urban	6.0	55.3	38.7	57.1	61.0	59.6
Rural	18.6	67.6	13.8	25.1	31.7	29.6
Educational Level						
No education	27.8	67.2	5.0	14.0	18.9	17.7
Primary	16.6	79.6	3.7	22.9	31.9	29.0
Secondary	6.3	67.0	26.7	40.4	47.5	43.1
Higher	-	35.8	64.2	86.1	88.9	88.0
Exposure to Mass Media						
Exposed	9.2	66.0	24.8	40.0	46.7	44.0
Not Exposed	36.6	59.8	3.6	8.9	12.0	13.2
Household Structure						
Nuclear	21.1	65.0	13.9	25.3	31.3	29.1
Non-nuclear	12.5	64.1	23.3	35.8	41.7	40.9
Not dejure resident	2.6	66.5	30.9	58.1	63.6	56.6
Wealth Index						
Poorest	35.2	60.1	4.7	11.5	14.6	9.3
Poorer	36.3	60.7	3.0	8.0	12.0	16.2
Middle	16.4	75.1	8.5	15.9	20.5	20.2
Richer	11.4	73.2	15.4	30.0	38.2	35.8
Richest	1.5	52.7	45.8	69.6	76.5	69.4
Birth Order						
1	9.1	58.2	32.8	49.7	55.2	50.7
2-3	10.0	68.5	21.5	30.9	37.9	37.5
3+	31.7	63.6	4.8	13.3	17.9	22.6
Age Group of Women						
15-24	13.2	71.1	15.8	30.4	35.6	29.3
25-29	10.7	65.3	23.9	36.1	42.1	42.6
30+	24.4	57.0	18.7	29.4	36.1	36.8
ANC Categories[1]						
No	-	-	-	6.1	8.4	10.0
Partial	-	-	-	28.7	35.9	31.7
Full	-	-	-	75.1	82.6	74.8
Delivery[1]						
Unsafe	-	-	-	-	-	11.5
Safe	-	-	-	-	-	73.6
Total	15.4	64.6	20.0	32.6	38.5	37.0

Note: [1] For the last live birth in the five years preceding the survey
[2] For all births during the five years preceding the survey
Source: Computed from NFHS III data file.

Gymiah et al. 2006; Dey 2009). A substantially higher percent of urban women (61 percent) have gone for safe delivery than their rural counterparts (32 percent). As the educational level of women increases, the percentage of women gone for safe delivery also increases. This is mainly due to that an educated mother explores herself through the increasing level of knowledge and as a result she tries to put her decision regarding health related issues in the household. Besides educated mothers also have more confidence in handling the public officials and have the ability and willingness to travel outside the home to seek services (Caldwell 1979; Cleland and Ginneken 1988). Exposure to mass media has had greater impact on the skilled attendance during delivery. In Uttarakhand, 47 percent of women with exposure to any mass media had gone for safe delivery as against only 12 percent who were not exposed to mass media. Higher the economic

status of the household leads to higher the percentage to go for skilled attendance during delivery. Birth order shows the negative relationship with the skilled attendance during delivery. It may be due to time and resource constraints faced by those with larger families and the greater experience of higher parity of women with pregnancy and childbirth (Bhatia and Cleland 1995; Raghupaty 1996). With respect to ANC categories, it is evident that about 83 percent of women had gone for skilled attendance during delivery among women who had gone for full ANC compared to only 8 percent who have not gone for any antenatal care.

Postnatal Care

Postnatal check ups soon after the delivery are particularly important to reduce the maternal and neonatal deaths. To assess the extent of postnatal care check ups, respondents were asked for the last birth in the five years preceding the survey whether they received a health check after the delivery. It is found that only 37 percent of women have received postnatal check ups within the 42 days of the birth. Births to urban mothers are almost twice as likely to be followed by a postnatal check up (60 percent) as births to rural mothers (30 percent). The utilization of postnatal care services substantially increases with the increase of the educational level of women. Exposure to mass media and wealth index of the household have a positive bearing on the postnatal care. Utilization of antenatal and delivery care services has positive impact on the use of postnatal care.

Determinants in the Use of Maternal Health Care Services

It is seen that there exist differences in the utilization of maternal health care services by socioeconomic and demographic variables. But to quantify the net effects of these background factors (controlling the effect of other variables) on each of the dependent variables, logistic regression analysis has been carried out. The results are presented in Table 3.

With respect to full antenatal care, controlling the effect of other variables, the odds of using the full ANC is higher in urban areas compared to rural areas. This may be primarily because of better availability and accessibility of health services in the urban areas. Women's educational level has a large positive effect on the odds of using full ANC. When all the other predictor variables controlled, the odds of using the full ANC are about 3 and 7 times higher for women with secondary and higher secondary educational level than illiterate women. Although there exists differentials in exposure to mass media and wealth index, it is not statistically significant in the use of full ANC. Birth order has a strong negative effect on the use of the full

Table 3: Odds ratio showing the variations in full ANC, safe delivery and post-natal care for the last birth by background characteristics, Uttarakhand

Background characteristics	*Full ANC*	*Safe delivery*	*Post natal care*
Caste			
SC/ST®			
Others	1.033	0.874	0.833
Religion			
Hindu®			
Others	1.006	1.635*	2.381***
Place of Residence			
Urban®			
Rural	0.630*	1.153	0.926
Educational Level			
No education®			
Primary	0.456	1.588*	1.496
Secondary	3.247***	1.697**	1.894**
Higher	7.287***	5.332***	7.432***
Exposure to Mass Media			
Exposed®			
Not Exposed	0.558	0.630	0.698
Household Structure			
Nuclear®			
Non-nuclear	0.857	0.608**	1.242
Not dejure resident	1.173	1.701	1.038
Wealth Index			
Poorest®			
Poorer	0.528	1.503	2.009
Middle	0.819	1.380	1.261
Richer	1.102	2.640**	1.551
Richest	2.218	7.664***	1.627
Birth Order			
1®			
2-3	0.580**	0.372***	0.803
3+	0.275***	0.275***	0.984
Age Group of Women			
15-24®			
25-29	1.528	1.602**	1.953**
30+	1.757*	2.221***	1.835*
ANC Categories			
No®			
Partial	-	2.858***	1.679
Full	-	10.315***	2.945**
Delivery			
Unsafe®			
Safe	-	-	10.858***
Constant	0.147**	0.096***	0.027***

Note: ®Reference Category, *P<=0.1, **P<=0.05, ***P<=0.01
Source: Computed from NFHS III data file

ANC. Mother's age has a positive effect on the odds of using the full ANC when the other variables, including the birth order are controlled.

With respect to deliveries assisted by health personnel, it is found that women's educational level have a positive significant effect. Controlling the effect of other variables, the odds of institutional deliveries were 1.6, 1.7 and 5.3 times higher for mothers of primary, secondary and higher education respectively than for illiterate mothers. Wealth index of the household has a positive effect on the odds of skilled attendance during delivery. The reason is that women from households with higher economic status have power of affordability and have greater exposure to accessing relevant information and knowledge regarding issues related to maternal and child health. Birth order of the child shows a negative effect on the use of safe delivery. This indicates that mothers of higher order births are less likely to deliver with the attendance of skilled personnel. Younger mothers are more likely to go for safe delivery than older mothers. Mothers who received the full ANC are significantly more likely to go for safe delivery than mother who did not go for antenatal care even after controlling the effect of other confounding factors.

The odds ratio of postnatal care shows that, controlling the effect of other variables the odds of going for postnatal care is 2.4 times higher for other religious group than those belonging to Hindu. Educational level and age group of women show positive significant effect on the use of postnatal care services. Women who received partial and full antenatal care are 1.7 and 2.9 times respectively more likely to go for postnatal check up than who received not any antenatal care. The likelihood of going for postnatal care is about 11 times more for women who have gone for safe delivery than who have not gone for safe delivery.

Reasons for not Delivering in a Health Facility

Women who did not deliver their last child in a health facility were asked about the reason for not delivering in a health facility (IIPS and Macro International 2007). There seem to be several reasons. The major reasons given (Table 4) are: it is not necessary (55.3 percent) and costs too much (30.2 percent). In rural Uttarakhand, 57 percent of the mothers who had not gone to health facility for delivery expressed that it was not necessary as against 48 percent in urban areas. The next major reason cited was the costs too much. It costs too much was the reason given by 29 percent of mothers in rural areas where as 37 percent of mothers in urban areas. The belief that going to institutions for delivery is not necessary is strongly prevalent in rural areas. Another obstacle on the way of institutional delivery in rural Uttarakhand is health facility too far/no transport (27 percent).

Table 4: Percentage of women who had a live birth in the five years preceding the survey by reasons for not delivering the most recent live birth in a health facility, according to place of residence, Uttarakhand

Reasons	*Urban*	*Rural*	*Total*
Costs too much	36.5	29.0	30.2
Facility not open	5.2	11.3	10.3
Too far/no transport	8.3	27.1	24.1
Don't trust facility/poor quality service	7.3	3.7	4.2
No female provider at facility	2.1	1.3	1.4
Husband/family did not allow	8.3	5.0	5.5
Not necessary	47.9	56.7	55.3
Not customary	2.1	3.9	3.6
Other	6.3	2.8	3.3

CONCLUSION

The result reveals that the place of residence, educational level of women, exposure to mass media, birth order and wealth index are significant predictors in explaining the use of maternal health care services. Controlling the effect of other variables, the predictive power of women's educational level, wealth index have been positively associated with antenatal care and also delivery care. Although, the utilization of any antenatal care (both partial and full) is high in Uttarakhand, the use of full ANC is still rather low. Though women use antenatal care, many of them do not get professional care at delivery. Only one-third of women deliver in medical institutions. The major obstacles of the institutional delivery are traditional attitudes and cultural beliefs (that is, feeling not necessary) surrounding pregnancy and childbirth. Both awareness of the need for institutional delivery and the ability to go to a medical institutions are important. The socially weaker sections use postnatal care less than the upper social strata. There is need for both systematic study and public discussion

of equity of utilization of maternal health services and how it can be achieved effectively and efficiently. Reliable information from high-quality, policy oriented research and ongoing monitoring is a need to stimulate discussion, develop sound policies and guide implementation.

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