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Child Delivery Management And Its Determinants Among Indian Muslim

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Abstract: In India, even though the progress is notable, the annual rate of MMR decline is less than half of what is needed to achieve the MDG5 target. A little bit of care and awareness is sufficient to prevent this tragedy. Place of delivery and person who conducted child delivery are an important indicator in monitoring progress towards MDG5. With this perspective, present study with an objective to find out delivery practices among Indian Muslims. Data were drawn from 30944 Muslim women who reported information about their last delivery at DLHS-3. Though a considerable proportion of Muslim women received the ANC care (any ANC- 60percent, 71.7percent made 3 ANC visits and 61percent consumed 90IFA tablets), around sixty percent of them preferred home deliveries and two-third of these deliveries were attended by DAI and 24percent of deliveries were managed by friends/relatives. Proportions of home deliveries were higher among rural women (67.9percent), illiterates (75.8percent), lowest WI quintile (86.2 percent), and higher birth order babies (80.7 percent). Around 37 percent reported, visiting health facilities is not necessary and only 12 percent reported health facilities are far way. Logistic regression result found hospital deliveries increase sharply with socio-economic status of the women especially higher educated mother (4.7 times) and richest women (5.1 times). In the light of above results, greater availability of MCH services will not alone solve problem of low institutional delivery rates. Therefore, the implementing agencies should focus on the religious constraints which prevent the institutional deliveries and that need to be addressed urgently.

Improving maternal health and reducing maternal mortality have been main concerns of several international summits and conferences. It began with the International conference on safe motherhood held in 1987 and continued through International conference on Population and Development (ICPD) 1994 and again through ICPD+5 (five-year review of the 1994 ICPD) and the Millennium Development Goals. The Millennium Summit in 2000 calls for a 75 percent reduction by 2015 in the maternal mortality ratio from 1990 levels (UN, 2008).

The National Population Policy of India (NPP 2000) also reiterates the government's commitment to the safe motherhood programmes within the wider context of reproductive health. Among the national socio-demographic goals for 2010 specified by the policy, several goals pertain to safe motherhood, namely that 80 percent of all deliveries should take place in institutions by 2010, 100 percent of deliveries should be attended by trained personnel, and the maternal mortality ratio should be reduced to a level below 100 per 100,000 live births. However as the deadline approached, these hopes had not been met yet, the world was nowhere near achieving this objective, and it was not even certain that global maternal mortality levels had declined in the past decade to any significant degree (Shiffman, 2003).

WHO has summarized that lack of access and utilization of essential obstetric services is one of the crucial factors underlying maternal deaths. Unlike the use of antenatal care, the place of delivery, if adequate facilities are provided effectively, has consistently been found to be associated to reduce maternal mortality (Thaddeus and Maine, 1994). Further, De Brouwere and Lerberghe (2001) found that a professional delivery care, such as assistance by a skilled health worker (doctor, nurse or midwife) at delivery is a key to reduce maternal mortality.

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The conditions for facilities at child delivery to be effective are: first, delivery should be assisted by trained health workers who are able to identify the signs of complications and act appropriately when a problem occurs. Second, Referral facilities should be available to deal with obstetric emergencies once they have been identified, and on arrival at the referral facility patients should be observed promptly and appropriate decisions made to avoid further complications or even death. Moreover, there needs to be a transport system to get women to the facility quickly in order for the service to be effective. However in developing countries, there are a number of factors that can restrain the positive effect of delivery (Griffiths and Stephenson, 2001).

The majority of maternal deaths occur due to unexpected complications, which would require the availability of emergency obstetric care. The presence of skilled birth attendant for all births is the only way to ensure all those with pregnancy complication to be referred to emergency obstetric care. Skilled birth attendants during labour, delivery and early post partum period could reduce an estimated 16 to 33 percent of deaths due to obstructed labour, hemorrhage, sepsis and eclampsia (UNFPA, 2004). A skilled birth attendant is a professionally trained health worker, usually a doctor, midwife or nurse, with the skill to manage a normal labour and delivery, recognize complications early on and perform any essential interventions, start treatment and supervise the referral of mother and baby to the next level of care if necessary (UNFPA, 2004).

In developing countries, many women are still assisted in delivery either by traditional births attendants, relatives or their deliver by themselves. According to a recent report of UNFPA in 2004, only slightly more than half of all deliveries are assisted by skilled personnel. The lowest levels skilled birth attendants at delivery in developing countries are in South Asia (29 percent) and sub-Saharan Africa (37 percent)(AbouZahr and Wardlaw, 2001). In view of the above, an attempt has been made to study the Child delivery management and its determinants among Muslim women in Indian.

DATA SOURCE AND METHODS

This paper utilizes the District Level Household Survey (DLHS)-III data among 30742 Muslim women who reported the information about their last delivery. By using SPSS (Statistical Package for Social Science), bivariate analysis techniques has been used to understand the variations in socio-economic and demographic parameters of child delivery management. A logistic regression model also used to assess the determinants such as socio-economic, demographic and maternal and child health care indicators on utilization of delivery care services.

RESULTS

Appropriate delivery care is crucial for both maternal and perinatal health and increasing skilled attendance at birth is a central goal of the safe motherhood and child survival movements. Skilled attendance at delivery is an important indicator in monitoring progress towards Millennium Development Goal 5 to reduce the maternal mortality ratio by three quarters between 1990 and 2015 (United Nations, Millennium Development Goals). In addition to professional attention, it is important that mothers deliver their babies in an appropriate setting, where life saving equipment and hygienic conditions can also help reduce the risk of complications that may cause death or illness to mother and child (Campbell OM, and Graham WJ, 2006).

MUSLIM MARRIED WOMEN – PROFILE

In this paper totally 32,437 Muslim women were considered for the analysis (15-49 years). Table 1 shows the socio-economic and demographic characteristics of Muslim women in India. Of the total 32437 Muslim women interviewed, more than one-third was fall in the young age groups (15-24; 37.0 percent) and almost half of the respondents were fall in the 25-34 age group (49.9 percent). The mean age of the study population was 27.4 years it indicates that the majority of the Muslim women were young. With regard to place of residence nearly three-fourth were residing in the rural area. More than half of the Muslims were fall in the OBC category (51.9 percent),

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however, five percent of them were belongs to ST and another three percent of them were SC.

While looking to the educational level of the Muslim women, more than half of the women were illiterates (53.6 percent) and only seven percent of them had more than 10 years of schooling. It is also observed from the table that nearly one-fourth were completed 6-10 years of schooling. Majority of the Muslim women were not working and only 15 percent of them working in the non-agricultural sector.

Combining household amenities, assets and durables, a wealth index is computed at the national level and divided into quintiles. The principle of factor loading to amenities, assets and durables derived by factor analysis is used for the computation of the wealth index. Households are categorized from the poorest to the richest groups corresponding to the lowest to the highest quintiles at the national level. Based on these classifications, around 36 percent of the study population was fall under the lowest wealth quintile (15.2 percent in poorest and 20.3 percent in poorer WI) and more than two-fifth of them fall in the highest wealth quintile (19.8 percent in richest and 23.4 percent in richer WI).

It is found that nearly half of the Muslim women were married before they attained the legal marriageable age (47.9 percent). Of the total 32,437 women, only 13.5 percent of them married after the age of 20 years. This clearly indicates that probably more number of respondents was married before they attained the age of 18 years leading to the conclusion that child marriages were substantial. Further, the table shows that the mean year of age at marriage for Muslim women was 17.62 years. With regard to age at first birth, more than one-fifth of the Muslim women delivered their first child before the age of 18 years (22.1 percent) and between 18-20 years forty-four percent of the respondents given their first child. The mean age at first birth for the Muslim women was 19.00 years.

Table 1 Percentage of Muslim married women aged 15-49 years, according to selected background characteristics, India, 2007-08

SED Characteristics	Muslim women	
	Percentage	Number
Age		
15-19	6.6	2139
20-24	30.4	9860
25-29	31.0	10059
30-34	18.9	6120
35-39	9.3	3012
40-44	3.0	974
45-49	0.8	273
Mean age		**27.14**
Place of Residence		
Rural	72.5	23521
Urban	27.5	8916
Caste		
ST	5.2	1514
SC	3.2	952
OBC	51.9	15234
Others	39.7	11677
Level of Schooling		
No schooling	53.6	17379
1-5 years	15.0	4858
6-10 years	24.9	8062
11-12 years	4.0	1309
Above 12 years	2.6	829
Occupation		
Not working	72.0	23345
Agricultural sector	13.7	4434
Non-Agricultural sector	14.4	4658
Wealth index quintiles		
Poorest	15.2	4926
Poorer	20.3	6600
Middle	21.2	6891
Richer	23.4	7579
Richest	19.8	6438

The table also discloses the percentage of women by their total live births. It is evident from the table that just little less than one-fourth of the Muslim women (24.2 percent) had given more than five live births and another thirty percent of them were given 3-4 live births. The table further reveals that the mean number of live birth was 3.26 children for the Muslim women and the mean number of pregnancy was 3.54. This clearly indicates that the Muslim had higher fertility level. Among Muslim community, a significant proportion woman had experienced the spontaneous

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abortion (13.5 percent) and also observed that the incidence of still birth in this community was about six percent. However, the proportion of induced abortion was not at significant level (3.1 percent).

Table 2 Percentage of Muslim married women aged 15-49 years, according to selected Demographic characteristics, India, 2007-08

Demographic characteristics	Muslim women	
	Percentage	Number
Age at Marriage		
less than 15	12.8	4157
15-17	35.1	11400
18-20	38.5	12487
Above 20	13.5	4393
Mean age at marriage	**17.62** years	
Age at first birth		
less than 17	22.1	7074
18-20	43.6	13952
Above 20	34.3	10960
Mean age at 1st birth	**19.00** years	
Total live birth		
No live birth	1.5	477
1-2 births	45.2	14648
3-4 births	29.1	9451
More than 5 live births	24.2	7861
Mean number live births	**3.26**	
Mean number of pregnancies	**3.54**	
Birth Order		
First order	30.8	9378
Second order	20.5	6244
Third order	14.8	4504
Fourth order	11.2	3424
Above 5th order	22.7	6908
Number of Still birth		
No still birth	93.8	30424
Had still births	6.2	2013
Spontaneous abortion		
No Spontaneous Abortions	86.5	28073
Had Spontaneous Abortion	13.5	4364
Induced Abortion		
No Induced Abortions	96.9	31444
Had Induced Abortion	3.1	993
Registered last pregnancy		
Yes	62.8	19337
No	37.2	11452
Mother received any ANC		
Yes	72.6	**22350**
No	27.4	8454
Delivery advice given		
Yes	46.8	10469
No	53.2	11886
Total		**22357**
During ANC received advice-need for institutional delivery		
Yes	41.3	9228
No	58.7	13116
Total		22347
Received full ANC		
Yes	16.4	5046
No	83.6	25750
Safe delivery		
Yes	44.6	13743
No	55.4	17039

With response to ANC practices, about 73 percent of the Muslim women received any one of ANC package services, and at the same time only 16 percent of the Muslim women received full ANC coverage. Of the total 22350 Muslim women who received any ANC, 47 percent of them received the delivery advice from the health professionals and forty-two percent received information on institutional delivery.

MANAGEMENT OF CHILD DELIVERY

Table 3 shows the overall practices of child delivery among Muslim community in India. It reveals from the table that among Muslim society six out of ten child deliveries were managed at the home itself. Out of the 30,942 women, 59.8 percent of the women had delivered their babies in the home and the remaining forty percent of them children were born at the hospitals. Of the total 12437 institutional deliveries, 22 percent of the deliveries were undertaken at the public sectors and the remaining 18 percent were at the private sectors. A similar result was found by Padam Singh and R.J. Yadav (2009) that the proportion of institutional deliveries managed by hospitals and health centers was 41 percent and the remaining births was at respondents' home.

Skilled attendance at delivery is an important indicator in monitoring progress towards Millennium Development Goal 5 to reduce the maternal mortality ratio by three quarters between 1990 and 2015 (United Nations, Millennium Development Goals). However in the Muslim community, among the home deliveries, more than one quarter of the deliveries were supervised/monitored by the friends, relatives and other persons (27.2 percent). This finding is supported by Salil Basu (2000) that more than 90 per cent of deliveries were conducted at home attended by elderly ladies

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of the household and no specific precautions were observed at the time of conducting deliveries. Nearly two-third of the deliveries was undertaken with the help of DAI and only eight percent of the Muslim women delivered their babies with the help of health professionals. Of the total 18498 home deliveries, just 12 percent of the women reported that the delivery kit was used during their child delivery by the delivery attendant. However, 89 percent of them women stated that the new blade was used to cut the umbilical cord.

Table 3 Percentage of Muslim married women aged 15-49 years, according to child delivery management, India, 2007-08

Delivery details	Muslim women	
	Percentage	Number
Place of delivery		
Home	59.8	18505
Institute	40.2	12437
Public sector	21.7	6726
Private sector	18.5	5711
Others	0.7	202
Total	**100.0**	**30942**
Delivery Conducted by		
Health professionals	.8	439
DAIs	5.0	2029
Friends and Others	7.2	030
Total	**00.0**	**8498**
Disposable delivery kit used - last delivery (Home)		
Yes	12.0	2223
No	73.8	13643
DK	14.2	2627
Total	100.0	**18494**
baby immediately wiped dry and then water		
Yes	50.1	9268
No	44.4	8206
DK	5.5	1019
New/sterilized blade used		
Yes	89.4	16531
No	5.7	1059
DK	4.9	905
Reason for not going to health facility for delivery		18485
Not necessary	36.4	6722
Cost too much	25.6	4730
No time to go	19.0	3505
Better care at home	17.0	3146
Not customary	9.5	1762
Family did not allow	8.5	1578
Too far/no transportation	7.3	1349
Lack of knowledge	6.8	1264
Poor quality service	4.5	838
Other	2.7	496
Cost paid for delivery		
No cost paid	14.0	4322
Up to 1000	48.9	15045
1001-3000	13.9	4292
3001-10000	9.1	2803
Above 10000	3.5	1075
DK	10.6	3249
Total		30786
check up within 48 hours after delivery		
Yes	44.7	13787
No	55.2	17021

With regard to reason for not delivering the babies at the institutions, more than one-third of the respondents stated that it is not necessary (36.4 percent) and another one-fourth of the women reported that the cost is too high (25.6 percent). It is also observed that about one-fifth of the Muslim women declared that they did not have time to visit the health facilities (19.0 percent) and another seventeen percent of the women believed that better care can get from the home itself. About nine percent of the Muslims stated that their family did not allow them to go health facility for child delivery and another ten percent replied that delivery at the institutions was not customary.

With regard to the amount spent for their child delivery, only about fourteen percent of them did not spend any amount for their child delivery, and around half of the respondents reported that they spend up to Rs.1000/- for their child deliveries and another fourteen percent of the Muslims spend around Rs.3000/-.

DETERMINANTS OF PLACE OF DELIVERY

The provision of delivery services in the government health institutions is one of the components of the maternal care. One of the important thrusts of the National Rural Health Mission is to encourage delivery under proper hygienic condition and under the supervision of skilled health professionals. With this backdrop, during the DLHS III women were asked where (place) their children were born, who assisted during the deliveries, characteristics of delivery, and any problems that they had faced during the

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deliveries for the last two live/still births born during three years preceding the survey.

The table 4 presents the place of delivery according to background characteristics or the determinants of home/institutional delivery are assessed in Table 4. The

Table 4 Percentage of Muslim married women aged 15-49 years, according to Place of child delivery with selected background characteristics, India, 2007-08

Background	Place of delivery		
	Home	Institute	No. of Muslim women
Age group* **			**369.243**
15-19	60.5	39.5	1999
20-24	55.6	44.4	9405
25-29	57.4	42.6	9583
30-34	63.5	36.5	5814
35-39	70.0	30.0	2836
40-44	74.5	25.5	919
45-49	79.4	20.6	243
Place of Residence* **			**2323.611**
Rural	68.3	31.7	22393
Urban	38.1	61.9	8406
Caste* **			**97.368**
ST	48.2	51.8	1472
SC	66.7	33.3	910
OBC	59.7	40.3	14493
Others	58.3	41.7	11047
Educational Level * **			**5350.770**
No schooling	76.1	23.9	16576
1-5 years	62.4	37.6	4576
6-10 years	35.1	64.9	7628
11-12 years	21.1	78.9	1244
Above 12 years	10.5	89.5	775
Occupation* **			**621.944**
Not working	58.6	41.4	22212
Agricultural sector	76.5	23.5	4192
Non-Agricultural sector	51.6	48.4	4395
Wealth index quintiles* **			**6279.977**
Poorest	86.5	13.5	4768
Poorer	80.7	19.3	6321
Middle	67.1	32.9	6544
Richer	47.5	52.5	7141
Richest	24.5	75.5	6022
TOTAL	**18486**	**12310**	**30796**

***, **&, * refers to significant at 0.1%, 1% and 5% level (chi-square results – Place of delivery and SED characteristics). NS- Not significant

institutional birth among Muslim community in India is extremely low among rural Muslim women (31.7 percent), illiterate Muslims (23.9 percent), and Muslims living in poorest (13.5 percent), and poorer (19.3 percent) standard of living condition.

Since older and younger women have different experience and influence, their behavior on seeking health care are also vary. Commonly, younger women are more likely to utilize modern health care facilities than older women, as they are likely to have greater exposure and knowledge to modern health care, also more access to education. Older women, on the other hand, have accumulated knowledge on maternal health care and therefore likely to have more confidence about pregnancy and childbirth or they may be less comfortable with modern medicine and more reluctant to take advantage of available services; consequently, they may give less importance to obtain institutional care (Raghupathy, 1996). In this study a similar observation is noticed that the proportion of an institutional delivery raises from 21 among the old age women (45-49 years) to 42 percent among young mothers (15-24 years). It indicate from the table that the percentage of births in homes were higher among older generation than the younger generation. The bi-variant analysis shows that child delivery management has a strong and statistically significant association with the age of women. When the place of child delivery is cross classified by the women's age, the interaction between these variables is significant, with values of the Chi-square of 369.243 (p =.000).

Place of residence can also be an important determinant of the use of modern health care resources for childbirth. A higher proportion of births in urban areas occur in modern health care facilities compared to rural areas (Paul & Rumsey 2002). It is evident from the table that less than one-third of the rural deliveries were undertaken in the health institution among the Muslim community (31.7 percent), on the other hand, nearly two thirds (61.9 percent)of the urban Muslims delivered their babies at hospitals. Therefore, this study also indicated that residence

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was the strongest predictor of use of institution for delivery care, with rural Muslim women, the urban women two times more likely to use health facilities for child delivery. The table reveals that the use of health facilities for child birth was significantly associated with women's place of residence with a Chi-square of 2323.611(and p=. 000).

Amongst the maternal characteristics, education of women has been found to have the strongest association with the use of maternal health care services. As education empowers women, they have greater confidence and capability to make decision to use modern health care services for themselves and for the children (Caldwell 1979, Schultz 1984). This study also indicated a similar result that the percentage of child delivery at health facilities was quite high among the women who had more than 12 years of education (89.5 percent) when compare to illiterates Muslims (23.9 percent). The relationship between place of delivery and women's education also shows that the use of health facilities increases with an increase in the educational level of women. It is noticed from the table that the primary education increase the chance of institutional deliveries by 63 percent relative to a women with no education. The effects were even higher for women who had above 12 years of education (more than 250 percent). It is also observed that the association between women's education and utilization of health facility for child delivery was very strong and highly significant with a Chi-square of 5350.770 (p = .000).

Employment can increase women's economic autonomy and reproductive health status because it raises awareness and provides new ideas, behavior and opportunities through interaction with other people outside the home and community (Sharma et.al 2007). This study also shows a strong association between place of delivery and the respondents' occupational status. The percentage of births in health institutions is higher for women working in Non-agricultural sectors (48.4 percent) than for women engaged with agricultural sectors (23.5 percent). The strong association between women's occupation and the use of health facility for child birth (p =.000) shows that women engaged in non-agricultural sector, the greater were their use of health facility for child delivery.

The results of this analysis show that institutional care seeking for child birth among Muslims is currently influenced by wealth quintiles. It is observed from the table that there is a consistent increase in proportion of institutional deliveries from 13.5 percent among poorest women to 32.9 percent among women living at middle WI then to 75.5 percent among richest women. The bivariate analysis shows that the women's standard of living condition (WI) was significantly associated with the management of child delivery ($\chi 2 = 6279.977$, p =.000).

Age at marriage and the place of child delivery analysis also shows the strong association that when the age at marriage increases the institutional deliveries were also increases. Evidence suggests that delivering in a medical institution was influenced by use of antenatal care services in India (Sugathan KS, Mishra V, Retherford RD, 1991). It is corroborated with the present study results that the proportion of institutional deliveries was high among women who availed full ANC package (79.7 percent) than the counterpart (32.2 percent). The association between women's education and utilization of health facility for child delivery was very strong and highly significant with a Chi-square of 3974.240 (p = .000).

Results in the above table show that birth order of the babies increases the chances of institution deliveries. With regard to child birth order, only nineteen percent of the deliveries were undertaken at the institution for the five and above birth order babies, where as this proportion for first order child was 57.4 percent. It again proved that the older generation preferred home deliveries than the institutional deliveries. The incidence of still births high among the women who had given birth at the home (62.1 percent) than at the health facilities (37.9 percent).

Table 5 Percentage of Muslim married women aged 15-49 years, according to Place of child delivery with selected demographic characteristics, India, 2007-08

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Demographic characteristics	Place of delivery		
	Home	Institute	No. of Muslim women
Mother received any ANC ***			**3944.47**
Yes	49.2	50.8	22342
No	88.5	11.5	8449
Received full ANC ***			**3974.240**
Yes	20.3	79.7	5045
No	67.8	32.2	25737
Age at Marriage ***			**2079.19**
less than 15	79.2	20.8	3958
15-17	68.4	31.6	10813
18-20	54.3	45.7	11905
Above 20	36.0	64.0	4123
Age at first birth ***			**1024.74**
less than 17	73.9	26.1	6774
18-20	61.3	38.7	13379
Above 20	49.6	50.4	10523
Birth Order ***			**2720.50**
1	42.6	57.4	9326
2	54.9	45.1	6237
3	63.6	36.4	4497
4	71.3	28.7	3421
Above 5	81.0	19.0	6904
Number of Still birth			**NS**
No still birth	59.9	40.1	28884
Had still births	62.1	37.9	1915
Spontaneous abortion			**NS**
No Spontaneous Abortions	60.2	39.8	27587
Had Spontaneous Abortion	58.9	41.1	3212
Induced Abortion			**39.012**
No Induced Abortions	60.3	39.7	30264
Had Induced Abortion	46.9	53.1	535
Registered last pregnancy ***			**3660.29**
Yes	47.0	53.0	19329
No	82.0	18.0	11446
Delivery advice given ***			**2473.91**
Yes	31.5	68.5	10465
No	64.9	35.1	11882
Total	11007	11341	22348
During ANC received advice-need for institutional delivery			**1672.72**
Yes	32.9	67.1	9226
No	60.7	39.3	13110
Total	10998	11340	22338
Safe delivery ***			**25439.29**
Yes	10.4	89.6	13742
No	100.0	0.0	17039

***, **&, * refers to significant at 0.1%, 1% and 5% level (chi-square results – Place of delivery and SED characteristics). NS- Not significant

However the magnitude and significance of these associations could change when such a simple relationships are control by other factors. For example that the social and economic variables might be interrelated: education leads to lower parity. Therefore, in order to investigate the effects of a number of variables simultaneously, a multivariate analysis is attempted. The most suitable analytical technique is multivariate analysis which allows the exploration of the effect of different independent variables on a dependent variable corrected for other independent variables (Tabachnick & Fidell, 2007). The multiple regression analysis method adopted in the present study is multiple logistic regression, which would allow the identification of the effect of each of the selected independent variables on maternal health are utilization controlling for the effects of

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other independent variables.

This analysis aims to investigate on how the differentials in the utilization of health facilities for child birth when its relationships with the independent variable adjusted for the simultaneous effects of the different characteristics of the women and their household related variables. Given the interest in the dichotomous use of modern maternal health care utilization, namely whether a woman utilized health facility or not, a dichotomous logistic regression was employed to determine which factors best explain and predict the outcome of the use of health facility during child delivery.

In order to determine the association between each independent variable and the use of antenatal care, place of delivery and assistance during delivery, two statistics of the model are used. These are the logistic regression coefficient and the odds ratio. The Levels of significance (p-values) of each statistics are also presented. The logistic regression coefficients indicate the direction of the relationship: which factors increase the likelihood of maternal health care or which factors reduce it (Pallant, 2007). The odds ratios (OR) represents the change in odds of being in one of the categories of outcome when the value of a predictor increases by one unit (Tabachnick & Fidell, 2007).

In addition, a positive logistic regression coefficient for any category of an independent variable is associated with an odds ratio greater than one, which indicates that this category has a greater likelihood of experiencing the event relative to the reference category. Parameter estimates with negative signs indicate the opposite relationship.

Table 6 Odds ratios from logistic regression examining the effect of selected background variables on the place of delivery

Background variables	β	S.E.	p-value	Exp (B)	95.0% C.I.for EXP(B)	
					Lower	Upper
Age *** 15-19 (ref)			.000	1.000		
20-24	.121	.065	.064	1.128	.993	1.282
25-29	.34	.0	.000	1.40	1.2	1.60
	0	68		5	28	6
30-34	.428	.075	.000	1.534	1.325	1.776
35-39	.407	.086	.000	1.502	1.268	1.779
40-44	.525	.115	.000	1.690	1.349	2.116
45-49	.297	.204	.145	1.346	.903	2.006
Place of Residence ***						
Rural (ref)				1.000		
Urban	.484	.037	.000	1.623	1.509	1.744
Caste NS						
ST (ref)			.171	1.000		
SC	-.008	.107	.943	.992	.805	1.223
OBC	.116	.069	.091	1.124	.981	1.286
Others	.077	.069	.264	1.080	.943	1.237
Level of Schooling ***						
No schooling (ref)			.000	1.000		
1-5 years	.396	.043	.000	1.485	1.366	1.615
6-10 years	1.000	.039	.000	2.718	2.517	2.935
11-12 years	1.191	.087	.000	3.292	2.775	3.905
Above 12 years	1.538	.134	.000	4.657	3.579	6.059
Occupation ***						
Not working (ref)			.000	1.000		
Agricultural sector	.054	.048	.267	1.055	.960	1.160
Non-Agricultural sector	.284	.043	.000	1.328	1.221	1.445
Wealth index quintiles ***						
Poorest (ref)			.000	1.000		
Poorer	.260	.061	.000	1.297	1.150	1.463
Middle	.695	.059	.000	2.003	1.786	2.247
Richer	1.143	.059	.000	3.138	2.795	3.522
Richest	1.669	.066	.000	5.307	4.659	6.044
Received Full ANC ***						

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No (ref)				1.000		
Yes	1.389	.045	.000	4.010	3.671	4.380
Birth Order *** 1 (ref)			.000	1.000		
2	-.605	.043	.000	.546	.502	.594
3	-.863	.050	.000	.422	.383	.465
4	-1.034	.056	.000	.356	.318	.397
Above 5	-1.310	.054	.000	.270	.243	.300
Constant	-1.769	.101	.000	.170		
-2 Log likelihood	27156.165					

***, ** and * denotes significant at .1%, 1% and 5% probability level respectively. NS- Not Significant

The result of multivariate analysis of factors affecting the use or non-use of health facilities by Muslim women for their most recent child delivery in the three years preceding the survey are shown in Table. The results of the logistic regression model comparing institutional deliveries with those of home deliveries (Home=0; Institute=1). The number of cases included in the analysis was 32,437 and the value of -2 log likelihood was 27156.165.

The results of the logistic regression analysis on institutional deliveries with those of home deliveries show that institutional deliveries is positively and significantly associated with all the socio-economic, demographic variables (except Caste). All the variables the odds increase with the categories of a variable when compared to the respective variable's reference category, indicating an increase in institutional deliveries when improving the background conditions of women. This model shows that the residence, educational status, occupation, wealth index and birth order were more significantly determining the institutional deliveries among the Muslim communities in India. A significant effect of place of residence on institutional delivery was found in this study. The odds ratio suggests that compared to women who lived in rural areas, women who resided in urban areas were about 1.62 times more likely to have birth at the health facility.

In this model, as in the bivariate analysis, women's education continued to be positively influence the use of heath facility for child delivery. The effect is found to be statistically highly significantly at p=.000. The odds of using heath facility suggests that compared to non-educated women, women with primary educational level were about 1.48 times more likely to given births at health facility. Furthermore, if the non-educated women are compared with women of educational levels higher than primary, the odds are even higher. Women with secondary educational level being 3.29 times more likely to use heath facility for child delivery compared to uneducated women, and women with academy and above education were 4.65 times more likely to use heath facility for child delivery compared to uneducated women.

The wealth index shows the well established link between the variables, when compared the poorest, the prevalence of institutional deliveries on richest women 5.3 times higher. Birth order also acted in the expected direction and was a statistically significant predictor of institutional deliveries. Birth order (OR=0.170) had a significant negative effect on the institutional deliveries. The present regressions model shows that the impact of birth order on use of health facility for child birth was in a negative direction. It indicates that with each additional birth, the probability of institutional delivery is decreased by a multiplicative factor of 0.17.

CONCLUSION

Despite the progress that has been made in India in recent decades to enhance the institutional deliveries, home deliveries still remain high among the Muslim community. Friends, relatives and other persons (TBAs) still play a major role in assisting the delivery among the Muslim society.

Accessibility, acceptability and affordability of women are related to their attitudes, social influence and their self efficacy towards delivery care usage. The attitudes, social influence and self efficacy of a woman depend on her social

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environment, economic condition and demographic characteristics.

The bivariate analysis results suggest that use of health facility for child birth show a statistically significant relationship with socio-economic and demographic factors. As in the bivariate analysis, in the multivariate regression analysis, women's education, wealth index, women's age, birth order and place of residence continued to be strong predictors of the use of maternal health care services. Hence, particular attention should be paid to women living in rural areas, women with low education, women living in low standard of living condition.

The underutilization of formal facilities as the place of delivery and professional skilled birth attendants during delivery is a matter of concern for policy makers and program managers. The question of relatively high proportion of Muslim women in India using home as a place of delivery may be addressed by placing health centers in every village, with volunteers and outreach services to the village will make the modern health care services facilities more accessible.

In the light of the above discussion it can be inferred that government should implement specific natal care programmes which should consider the religious and cultural practices of the Muslim communities.

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