

Determinants of Place of Birth in an Urban Resettlement Colony of Delhi

Pragti Chhabra¹, Narinder Kumar Saini¹, Monika Singh¹, Raghavendra A Honnakamble¹, Kapil Sharma²

ABSTRACT

Introduction: Institutional births are advocated as a key strategy to reduce maternal mortality. This study is aimed to identify whether the practice of place of birth is changing over time and to explore the factors contributing to women's decision for choice of place of birth. **Methods:** A community based cross-sectional study was carried out in an urban resettlement colony of Delhi. A semi-structured questionnaire was used to interview the mothers with children less than or equal to 3 years of age. The place of birth was assessed in relation to socio-demographic and obstetric characteristics of the study participants. Reasons for preferring home birth were also analyzed. **Results:** A total of 1293 mothers were included in the study. Of these majority 1068 (82.6%) had institutional births while 225 (17.4%) were home births. A skilled birth attendant was present in only 39 (17.3%) of home births while 17 (7.5%) mothers gave birth with the help of relatives. Higher socio-economic status and higher income of the family; higher educational status of mother and head of the family was associated with institutional birth and the difference was statistically significant. Main reasons cited for preferring home birth were tradition (29.2%), financial constraints (7.3%), no one to look after (16.3%), pressure from family despite of awareness 6.3%, and other reasons. **Conclusions:** Institutional births have shown an increasing trend in India, however a significant proportion of women still prefer home as place of birth. Socio-cultural factors and financial constraints have an important role in MCH service utilization and need to be addressed.

Key words: Institutional birth, Home birth, Skilled birth attendant, Antenatal care

Pragti Chhabra¹,
Narinder Kumar Saini¹,
Monika Singh¹, Raghav-
endra A Honnakamble¹,
Kapil Sharma²

¹Department of Community Medicine, University College of Medical Sciences, Delhi, INDIA.

²Senior Resident, Department of Community Medicine, Shaheed Hasan Khan Mewati Government Medical College, Nalhar, Mewat, Haryana, INDIA.

Correspondence

Dr Pragti Chhabra,

Department of Community Medicine, University College of Medical Sciences, Delhi -110095, INDIA.

Mobile no: 9811687966;

Email: pragschhabra@yahoo.co.in

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INTRODUCTION

Between 1990 and 2010, the global maternal mortality ratio (MMR) i.e. the number of maternal deaths per 100 000 live births declined by only 3.1% per year. This is far from the annual decline of 5.5% which was required to achieve MDG5. In India, though the annual decline rate has been achieved but the MMR is still high at 167, and has not reached the target level of 100 per 100 000 live birth.^{1,2} India still accounts for the largest contribution to maternal deaths worldwide. Early and regular attendance of antenatal care and birth under supervision of skilled attendant is associated with reduction in both maternal and perinatal morbidity and mortality. About 80% of global maternal deaths can be prevented or avoided by increasing institutional births or providing skilled care at birth. The National Population Policy has advocated, institutional births as a key strategy to reduce maternal mortality.³⁻⁵

Tradition and financial constraints are important factors for women preferring home births, though it is associated with adverse outcomes in mother and infant as compared to facility based births.^{6,7}

The Government of India launched Janani Suraksha Yojana (JSY), a cash incentive scheme for mothers to increase the institutional births in the year 2005 under the National Rural Health Mission (NRHM), with the aim to reduce maternal mortality.⁸

Delhi is one of the most densely populated cities in the world, and attracts nearly 500 000 migrants every year with most settling in urban poor habitations. According to the National Family Health Survey 3 (NFHS 3) conducted in 2005–2006, only 44.0% of births were institutional among the urban poor of Delhi.⁹ The District Level Household and Facility Survey (2007–2008) showed that overall 71.0% of pregnant women had at least three antenatal care (ANC) visits. While 68.0% of births were institutional in the city as a whole, only 38.0% births were institutional in the slum areas.¹⁰

This study was conducted with the aim to find the place of birth in an urban resettlement colony of Delhi and to assess the factors which affect the utilization of maternal health services.

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MATERIALS AND METHODS

The present study was carried out in an urban resettlement colony of Delhi with a population of approximately 100,000. It comprises of five blocks and each block is subdivided into five sub-blocks. All the mothers residing in the area for more than six months, with children of less than or equal to 3 years of age were eligible for the study. Mothers with children less than three years were included to study the recent trends and minimise recall bias. Using the prevalence of home birth as 30% as reported by District Level Health Survey (DLHS-3)¹⁰ and an absolute error of 3%, the sample size was calculated as 896 using the Epi Info™ software, with a Confidence Interval of 95%. As per the National Health Profile 2015, the birth rate of Delhi is 17 per 1000 live births, with an approximate population of 4000 in each sub block, it was expected to have about 150 to 200 under three children. Thus to meet the requirement of sample size, from each block, 3 sub-blocks were randomly selected through simple random sampling using lottery method.

From the selected sub blocks, by a house to house visit the eligible women were identified. They were explained the purpose of the study and those who gave their consent were included.

A semi-structured pre tested questionnaire administered in the local language (Hindi) was used to collect data. Respondent mothers were asked about their demographic characteristics such as age, education, occupation, type of household and total family income. Information about number of births, place of birth, birth attendants, antenatal attendance, and reasons for preferring the place of birth was also enquired. The information about the reasons for home births was sought by both open and closed-ended questions.

Data analysis was performed using Statistical Package for Social Sciences (SPSS) version 16. Univariate analysis and logistic regression analysis was done to find association of various variables with respect to place of birth. The odds ratio (OR) and 95% confidence interval (CI) were calculated to measure the strength of the association between place of birth and various factors like socioeconomic factors, demographic factors, availability of antenatal services and provision of cash incentives. Those factors with p value less than or equal to 0.2 in univariate analysis were considered for multivariate analysis. Multivariate logistic regression with enter method was used to find the best combination of factors predicting place of birth. A p value of less than 0.05 was considered significant.

RESULTS

Socio-demographic features of the study population are described in Table 1. The total number of mothers interviewed was 1293. Majority of the study population was in the age group of 20-30 years, 85.5% of the mothers were literate and majority (97.6%) were home makers. Most of the mothers belonged to upper lower or lower middle class of socio economic status according to modified Kuppuswamy scale.¹¹

Among the 1293 mothers surveyed, 1115 (86.2%) had registered themselves in one or the other health facility. Majority (93.5%) of them had registered in a Government Health facility. Among the registered, 581 (52.1%) had registered in first trimester and rest in second trimester. Around 1034 (80%) of mothers had taken Iron Folic acid supplementation; 1089 (97.7%) registered mothers had taken regular ANC services, which included weight and blood pressure measurement and per abdomen examination. Tetanus immunization was done in 1245 (96.3%) while 1073 (96.2%) of registered mothers had undergone ultra-sonography investigation in previous pregnancy.

Majority (82.6%) of the study population had given birth to their last child in hospital. About 899 (69.5%) of births were conducted in Government hospitals, 148 (11.5%) in private hospitals and 21 (1.6%) in maternity home while 225 (17.4%) were delivered at home. On univariate

analysis, it was seen that lower age, higher socio-economic status, educational status and income was associated with the occurrence of birth in a health facility and this was statistically significant (Table 1). The most common reasons for mothers' preference for home birth have been summarized in Table 2. Main reasons cited for preferring home birth were tradition (29.2%), financial constraints (7.3%), no one to look after (16.3%), pressure from family despite of awareness 6.3%, and other reasons like lack of awareness, transportation and inconvenient time of birth (40.9%).

Among the births occurring at home, 39 (17.3%) deliveries were conducted by trained personnel, 29 by doctors and 10 by nurses. The remaining 186 (82.7%) deliveries were conducted by untrained birth attendants. Over all prevalence of normal vaginal birth in the study population was 1036 (80.1%), 43(3.3%) deliveries were assisted and 214 (16.6%) were

Table 1: Socio-demographic characteristics of study participants in relation to place of birth (N=1293).

Variables	Study population n=1293	Home births No.(%) n=225	Institutional births No.(%) n=1068	P value
Age				
<20 years	58	11 (18.9)	47 (81.1)	< 0.01*
20-30	1074	173 (16.1)	901 (83.9)	
>30	161	41 (25.4)	120 (74.6)	
Socio Economic Status				
Lower	67	17 (25.3)	50 (74.7)	
Upper lower	721	144 (19.9)	577 (80.1)	< 0.01*
Middle	407	58 (14.2)	349 (85.8)	
Upper middle and Upper	98	6 (6.1)	92 (93.9)	
Education				
Illiterate	188	61 (32.4)	127 (67.6)	
Primary to middle school	598	104 (17.3)	494 (82.7)	< 0.01*
High school and above	507	60 (11.8)	447 (88.2)	
Occupation				
Not working	1262	216 (17.1)	1046 (82.9)	0.09
Working	31	9 (29.0)	22 (71.0)	
Total Income in Rs.				
<5000	523	117 (22.3)	406 (77.7)	
5000-10,000	573	80 (13.9)	493 (86.1)	< 0.01
>10,0000	197	28 (14.2)	169 (85.8)	

*statistically significant, p<0.05

Table 2: Reasons for preferring home births in the study participants (N=1293).

Reasons for preferring home births (n=225)	No.(%)
Financial problems	17 (7.3)
Tradition	65 (29.2)
No one to look after	37 (16.3)
Others*	106 (47.2)

*Pressure from family, dominance of mother-in-law, inconvenient time of delivery and lack of transport

Table 3: Place of birth in relation to ante natal care factors in the study participants (N=1293).

Variables	Study population N=1293	Home births No.(%) n=225	Institutional births No.(%) n=1068	P
Registration				
Yes	1115	169 (15.1)	946 (84.9)	<0.01
No	178	56 (31.4)	122 (68.6)	
No. of ANC visit				
No visit	178	119 (67)	13 (33)	
≤ Three	173	52 (30.1)	121 (69.9)	<0.01
≥ Four	942	114 (12.1)	828 (87.9)	
Awareness about JSY				
Yes	278	24 (8.6)	254 (91.4)	
No	1015	201 (21.8)	814 (78.2)	<0.01
Cash incentives				
Yes	368	16 (4.3)	352 (95.7)	<0.01
No	925	209 (22.5)	716 (77.5)	

Table 4: Logistic regression analysis for factors associated with place of birth (N=1293).

Variables	Study population N=1293	OR unadjusted (CI 95%)	P value unadjusted	OR Adjusted* (CI 95%)	P value Adjusted
Age					
<20 years	58	1	0.01	1	0.08
20-30	1074	1.21 (0.62-2.39)		1.12 (0.56-2.23)	
>30	161	0.68 (0.32-1.44)		0.06 (0.28 – 1.28)	
SES					
Lower	67	1	p<0.01	1	p<0.01
Upper lower	721	1.36 (0.76-2.43)		1.49 (0.81-2.74)	
Middle	407	2.04 (1.10-3.79)		2.14 (1.12-4.08)	
Upper	98	5.21 (1.93-14.06)		6.39 (2.32-17.60)	
Education					
Illiterate	188	1	0.01	1	<0.01
Primary to middle school	598	2.28 (1.57-3.30)		0.82 (1.22-2.71)	
High school and above	507	3.57 (2.38-5.37)		2.62 (1.69 – 4.07)	
Occupation					
Not working	1262	1	0.09	1	0.13
Working	31	0.50 (0.22-1.11)		0.53 (0.23 – 1.20)	
Antenatal care Registration					
Yes	1115	1	p<0.01	1	<0.01
No	178	0.38 (0.27-0.55)		0.38 (0.26 – 0.54)	
No. of ANC visit					
No visit	178	1	p<0.01	1	<0.01
≤ Three	173	3.62 (2.26-9.45)		4.15 (1.99-8.64)	
≥ Four	942	4.99(7.53-29.83)		12.54 (6.19 – 25.38)	
Awareness about JSY					
Yes	278	1	p<0.01	1	<0.01
No	1015	0.38 (0.24-0.59)		0.47 (0.29 -0.74)	

Cash incentives					
Yes	368	1	p<0.01	1	<0.01
No	925	0.15 (0.09-0.26)		1.69 (0.09 – 0.27)	

*Adjusted For Age, Education, Occupation, SES, Registration, Number of ANC Visits, Awareness About JSY, Cash Incentives

lower segment caesarean section. As seen in Table 3 ANC registration, number of ANC visits, awareness about JSY and receipt of cash incentives were significantly higher among institutional births as compared to home births.

Multivariate regression analysis was used to assess independent predictors of an institutional birth. The variables that were significantly associated with institutional birth were entered into the regression model. On logistic regression analysis, predictors of place of births such as registration, number of ANC visits, and awareness about JSY and cash incentives remained independent predictors after adjusting for potential confounders (Table 4).

DISCUSSION

Increasing the proportion of institutional births has been seen as an important intervention to reduce the maternal mortality ratio. Janani Surksha Yojana (JSY) was started by the Government of India under the broader umbrella of National Rural Health Mission. This program targets to provide cash assistance with antenatal care during pregnancy period, institutional care during delivery and immediate post-partum period to all pregnant women 19 years or above of age belonging to Below Poverty Line (BPL) families. The success of this program depends on increase in the institutional deliveries. The NFHS data in three rounds has shown an increase in institutional deliveries from 26.1% to 33.6% and in 2006 to 40.8%.⁹ An assessment of JSY by National Institute of Health and Family Welfare (NIHFW) and UNFPA indicated a huge increase in institutional deliveries in low-performing states which led to the popularity of the program.¹² In the present study the prevalence of institutional births was observed to be 82.6%. The figures are similar when compared to the high performing states like Goa, Kerala and Tamil Nadu where the prevalence of institutional birth is more than 90%.² There has been a significant increase in the facility based births from 37.5% to 82.5% in 10 years as compared to a study conducted in the same area.¹³ The observed prevalence of institutional birth is much higher than the national average of 67%.¹⁴ The current study has observed that mothers who preferred hospital for births were more likely to be aware about JSY as compared to mothers who preferred to deliver at home. Beneficiaries of cash incentive were also more in institutional births. This reiterates that the awareness and utilisation of cash incentives has contributed to increase in the institutional births in the area. The area is a resettlement colony served by two Mother and Child Health Centres and a Government Dispensary; two Hospitals are within a distance of one Kilometre from the area. Though no health facility has been added in the area, the increase can be attributed to the deployment of Accredited Social Health Activists under the National Health Mission who are also receiving incentives for promoting institutional births.

Previous studies have shown that educational status of woman, socioeconomic status of the family, availability of health services and other factors influence the mother's preference for place of birth. Our study is consistent with available literature that higher the educational status of the mother, higher is the probability of institutional birth. Education leads to better health awareness, and this may sensitize the family to the quality of health care provided at various facilities.¹⁵⁻¹⁷ The present study noted that around 85.5% mothers were literate as compared to 54.0% in a study

conducted in the same area 10 years ago.¹³ This shows that with increase in women's literacy there has been an increase in institutional births, thus educational status is an important determinant of institutional births.

Research consistently shows that high cost is an important constraint to service utilization particularly for the poor. In India studies show a very high out of pocket expenditure on delivery care, and although the private sector is more expensive, the cost of public sector inpatient care services has increased since the 1990s. Hence, income is a major determinant of care seeking.¹⁸⁻²² An analysis of the third National Family Health Survey (2005-6) shows 13% of women in the lowest wealth quintile accessing institutional delivery care compared with 84% in the highest.¹⁷ In this study it was observed that mothers belonging to the family of higher socioeconomic status and higher income preferred institutional births as compared to the lower socioeconomic and lower income group. Unequal distribution of home deliveries with respect to the total family income and socioeconomic status highlights the vulnerability of the poor. The present study highlights that in spite of health services being within reach, some women prefer home births. Financial constraints, lack of transportation, no one to look after them and the household and dominance of mothers-in-law were the main reported reasons for home birth. Two thirds of the home births were assisted by untrained birth attendants. Similar findings have been observed in a study conducted in slums of Chandigarh.²³

The traditional view on birth practice was one of the major contributing factors for home birth. Evidence suggests that tradition and financial constraints are important barriers in utilization of services from institutions, especially in poor and vulnerable groups.^{22,23} In a study on barriers to access of health services in Bangladesh, 45.0% of the women stated financial reasons for not accessing health services.¹⁸ Similarly, an analysis of the national health surveys have shown economic status as a more crucial determinant of institutional delivery than access.²⁴ However, a study in Maharashtra shows that women were able to overcome the economic constraints if they felt that services outweighed the cost.²²

CONCLUSION

Institutional births have shown an increasing trend over the years in India, however a significant proportion of women still prefer home as place of birth. Socio-cultural factors and financial constraints have an important role in utilization of maternal health services and need to be addressed.

CONFLICT OF INTEREST

Nil

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