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# STUDY THE FACTORS RELATED TO THE PLACE DELIVERY I.E. PUBLIC HEALTH FACILITY, PRIVATE HEALTH FACILITY AND HOME IN URBAN SLUMS

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**Abstract**

**Background:** Childbirth is essentially a healthy and welcome process but is also a moment of great risks.

**Objectives:** To study the factors related to the place delivery i.e. public health facility, private health facility and home in urban slums.

**Method:** The present community based cross sectional descriptive study was carried among women who had delivered in the period from January 2008 - December 2009. The present study was conducted in the urban slums of a city.

**Results:** There was no significant difference between proportions of institutional and home deliveries with respect to respondent's age, their occupational status, religion, family type, caste.

**Conclusion:** The risk factors identified for home deliveries are low educational status of respondents and their husbands and high parity. Respondents with these characteristics should be identified and motivated for institutional delivery.

**Keywords:** Place delivery, public health facility, private health facility, home, urban slums

## Introduction:

The place of delivery is a crucial factor which affects the health and well-being of mother and newborn. One major reason for very high level of maternal mortality levels in India is lack of medical attention at birth. Women need to access basic set of health care interventions before, during and after childbirth in order to have best chances of survival. Institutional deliveries have an advantage that there is greater certainty that pregnant women find skilled assistance at any time and are able to access drugs, equipments and referral transport much easily than if they undergo non-institutional deliveries[1]

Pregnancy and childbirth are in fact leading cause of death and disability for women of 15 to 49 years of age group in developing countries. Direct causes of maternal mortality include hemorrhage, infection, eclampsia, obstructed labour and unsafe abortion. The health of mother and child is important as they are a vulnerable group and constitute a major group of the population. The healthy

future of society depends on the health of the children of today and their mothers, who are guardians of that future[2].
Effective interventions exist to avoid most of the deaths and long-term disabilities attributable to childbirth. The history of success in reducing maternal and newborn mortalities shows that skilled professional care during and after childbirth can make the difference between life and death for both women and their newborn babies. The converse is true as well: a breakdown of access to skilled care may rapidly lead to an increase of unfavorable outcomes[2].

**Materials and Methods:** The present community based cross sectional descriptive study was carried among women who had delivered in the period from January 2008 - December 2009. The present study was conducted in the urban slums of a city. Study area is situated in the perimeter of 8-10 km away from Government Medical College of a city. Information about various delivery care services in a city was obtained from the Assistant Medical Officer of Health of City Municipal Corporation.
This city has Public and Private Health Facilities providing intranatal care services which include one Government Medical College and Teaching Hospital, one Government Ayurvedic College and Teaching Hospital, and one Urban Health Center run by Municipal Corporation, 197 Private Health facilities like nursing homes/maternity clinics or private clinics. Among these 12 Private Hospitals are accredited for delivery care under Janani Suraksha Yojana.

**Inclusion Criteria:**
Women who were residing in the study area and who had delivered in the period from January 2008 to December 2009.

**Exclusion criteria:**
1. Women who had delivered in the period from January 2008 to December 2009 while residing in the study area and have since then migrated.
2. Women who were residents of the study area but who have delivered outside the study area during study period.
3. Women who were not residents but had come for delivery in the study area.

**SAMPLE SIZE:**
According to National Family Health Survey 3 (2005-2006), prevalence of home deliveries in a slum of Maharashtra was 23%[17]. The sample size was calculated with 20% allowable error, 95% of confidence level and observed prevalence of 23%.
Sample Size (N) = 321
To reduce error due to non-compliance, 25% additional sample was taken
$321 + (321 \times 25 / 100) = 400$

Probability Proportional to Size Sampling Technique was used for selecting the sample[3].
Data for the present study was collected by conducting house to house survey. While selecting households the selected PSUs were surveyed to identify any temple, hospital, mosque or restaurant situated approximately at the centre of the slum and a bottle was rotated there. Survey was started from the lane towards which mouth of the bottle was directed. Each house along the lane was visited and at the end of the lane, survey was continued along the lane on left turn to the initial lane till sample size of selected slum was completed. Information as per pretested schedule was collected by interviewing women who had delivered in the period from January 2008 to December 2009. If there was no woman in the house satisfying the inclusion criteria then that house was skipped and next house was visited. If there were more than one woman in the house satisfying the inclusion criteria, then all were selected to participate in the study. This survey method was adopted in all selected PSUs. Thus total 400 women from the selected PSUs were included in the study.

**ETHICAL CONSIDERATION:**

Before starting the study, methodology and procedure was reviewed and approved by teaching staff of Department of Preventive and Social Medicine and the Institutional Ethical Committee.

The respondents were informed about the purpose of study and approximate time required for completion of the interview and if they had any queries, then were solved. Informed consent was obtained from them. They were assured of confidentiality about information obtained from them.

A pre designed and pre tested semi structured proforma was used for the collection of required information from respondents.

Before commencement of the study, community leaders, Anganwadi workers, ANM, link workers in the study area were visited and rapport was developed with them. They were informed regarding the conduct of study. Data was collected by face to face interview of the respondents. It was observed from preliminary survey that most the of women were housewives and were relatively free in afternoon from 1 pm to 4 pm. If the study respondents were not available at the time of first visit, then 2nd and 3rd visits were paid on subsequent days within 2 weeks. If even then study respondents were not available then that house was excluded from study. For subsequent visits, suitable time was considered for the interview as per convenience of the respondents.

**Statistical Analysis:** Analysis was done using appropriate statistical measures like proportions; chi square test was used to assess the difference between various proportions. The cost of delivery care services was assessed using mean, median and range. Mc Nemars chi square test was calculated to compare the place of delivery of recent birth and previous birth. Chi square trend test was used to assess the trend of place of deliveries over the period of time.

**Results:** Out of 400 respondents included in the study, 27 (6.75%) delivered in home. 373 (93.25%) respondents delivered in institutions (95% CI: 95.71% to 90.79%). Out of all, 163 (40.75%) delivered in public health facility and 210 (52.50%) delivered in private health facility.

**Table 1:** Delivery care providers and place of delivery.

| Place of delivery | Delivery care provider | | Total |
|---|---|---|---|
| | Trained birth attendant | Untrained birth attendant | |
| **Public health facility** | 163 (100%) | 0 | 163 (100%) |
| **Private health facility** | 210 (100%) | 0 | 210 (100%) |
| **Home** | 3 (11.11%) | 24 (88.89%) | 27 (100%) |
| **Total** | 376 (94.00%) | 24 (6 %) | 400 (100%) |

Out of 163 deliveries in public health facilities, 163 (100%) i.e. all were conducted by trained birth attendants. Out of 210 deliveries in private health facilities, 210 (100%) i.e. all were conducted by trained birth attendants. Out 27 home deliveries, 24 (88.89%) were conducted by untrained birth attendants and 3 (11.11%) were conducted by trained birth attendants.

**Table 2 :** Distribution of Place of delivery according to Respondent's age (Institutional vs Home).

| Respondent's age in years | Place of Delivery | | Total |
|---|---|---|---|
| | Institutional | Home | |
| **< 24** | 235 (95.53%) | 11 (4.47%) | 246 (100%) |
| **≥ 25** | 138 (89.61%) | 16 (10.39%) | 154 (100%) |
| **Total** | 373 (93.25%) | 27 (6.75%) | 400 (100%) |

**$\chi^2 = 5.270$, df = 1, $p < 0.05$ (significant)**

Out of 246 respondents of less than 24 years age, 235 (95.53%) reported institutional delivery. Out of 154 respondents with the age of 25 years or more, 138 (89.61%) reported institutional delivery. The

differences between proportions of respondents reporting institutional delivery with respect to their age was statistically significant. (p 0.05)

**Table 3:** Distribution of Place of delivery according to Respondent's age (Public Health facility vs Private Health Facility)

| Respondents age in years | Place of Delivery | | Total |
|---|---|---|---|
| | Public Health Facility | Private Health Facility | |
| < 24 | 106 (45.11%) | 129 (54.89%) | 235 (100%) |
| ≥ 25 | 57 (41.30%) | 81 (58.70%) | 138 (100%) |
| Total | 163 (43.70%) | 210 (56.30%) | 373 (100%) |

**$\chi^2$ = 0.5108, df = 1, p > 0.05 (not significant)**

Out of 235 respondents aged less than 24 years, 106 (45.11%) reported delivery in public health facility. Out of 138 respondents more than 24 years age, 57 (41.30%) reported delivery in public health facility. The difference between proportions of respondents reporting deliveries in public health facility or private health facility with respect to their age was not statistically significant. (p >0.05)

Out of 195 respondents who were educated up to middle school, 174 (89.23%) reported institutional delivery. Out of 205 respondents who had an educational status of secondary school and above, 199 (97.07%) reported institutional delivery. There was a significant difference between proportions of respondents reporting institutional delivery according to their educational status. (p < 0.05)

**Table 4:** Distribution of Place of Delivery according to Educational status of respondents (Public health facility vs Private Health Facility)

| Educational status of Respondents | Place of Delivery | | Total |
|---|---|---|---|
| | Public Health Facility | Private Health Facility | |
| Illiterate | 27 (64.29%) | 15 (35.71%) | 42 (100%) |
| Primary | 12 (46.15%) | 14 (53.85%) | 26 (100%) |
| Middle | 54 (50.94%) | 52 (49.06%) | 106 (100%) |
| Secondary | 48 (34.53%) | 91 (65.47%) | 139 (100%) |
| Higher secondary & above | 22 (36.67%) | 38 (63.33%) | 60 (100%) |
| Total | 163 (43.70%) | 210 (56.30%) | 373 (100%) |

**$\chi^2$ = 16.44614, df = 4, p < 0.05 (significant)**

Out of 42 illiterate respondents, 15 (35.71%) reported delivery in private health facility. Out of 60 respondents who had an educational status of higher secondary and above, 38 (63.33%) reported delivery in private health facility. The difference between proportions of respondents reporting delivery in public and private health facility was statistically significant according to educational status of respondents. (p < 0.05)

Out of 365 respondents who were housewives, 341 (93.42%) reported institutional delivery. Out of 35 employed respondents, 32 (91.43%) reported institutional delivery. The difference between proportions of respondents reporting institutional delivery was not statistically significant according to their working status. (p > 0.05)

Out of 131 respondents belonging to socioeconomic class I, II and III, 126 (96.18%) reported institutional deliveries. Out of 269 respondents from socioeconomic status of class IV, 247 (91.82%) reported institutional deliveries. The difference between proportions of respondents reporting institutional delivery was not statistically significant according to the socioeconomic status. (p > 0.05)

Out of 38 respondents from socioeconomic class I and II, 28 (73.68%) reported delivery in private health facility. Out of 88 respondents from socioeconomic class III, 61 (69.31%) reported delivery in

private health facility. Out of 247 respondents from socioeconomic class IV, 121 (48.99%) reported delivery in private health facility. There was a significant difference in the proportion of deliveries in public and private health facilities according to socioeconomic status. ( $p < 0.05$)

Out of 154 respondents whose husbands had an educational status of middle school and below, 137 (88.96%) reported institutional delivery. Out of 120 respondents whose husbands had an educational status of secondary school, 113 (94.17%) reported institutional delivery. Out of 125 respondents whose husbands had educational status of higher secondary school and above , 122 (97.60%) reported institutional delivery. The difference between proportions of institutional deliveries with respect to their husband's educational status was statistically significant. ($p<0.05$).

Out of 45 respondents with illiterate husbands, 26 (57.78%) reported public health facility delivery. Out of 61 respondents whose husbands had education up to middle school, 28 (45.90%) reported public health facility delivery. Out of 113 respondents whose husbands had education upto secondary school, 47 (41.59%) reported public health facility delivery. Out of 122 respondents with husbands educated up to higher secondary and above, 45 (36.89%) reported public health facility delivery of their wives. There was no significant difference between proportions of deliveries in public or private health facility according to their husband's educational status. ($p > 0.05$

Out of 185 respondents with husbands who were either semiskilled or skilled worker or clerk, shop owner or semiprofessional or professional by occupation, 177 (95.68%) reported institutional delivery. Out of 214 respondents whose husbands were either unskilled worker or unemployed, 195 (91.12%) reported institutional delivery. The difference between proportions of institutional deliveries with respect to the husband's occupation was not statistically significant. ($p > 0.05$).

Out of 29 respondents whose husbands had professional or semiprofessional occupation, 22 (75.86%) reported delivery in private health facility. Out of 27 respondents whose husbands were skilled workers, 20 (74.07%) reported delivery in private health facility. Out of 83 respondents whose husbands were semiskilled workers, 53 (63.86%) reported delivery in private health facility. Out of 195 respondents whose husbands were unskilled workers or unemployed, 82 (43.53%) reported delivery in private health facility. The difference between proportions of respondents reporting delivery in private health facility according to their husband's occupation was statistically significant. ($p < 0.05$)

**Discussion:**

In this study conducted in an urban slums, 6.75% respondents delivered in home. 93.25% respondents delivered in an institution out of which 40.75% delivered in public health facility and 52.50% delivered in private health facility.

A high proportion of institutional deliveries have been reported in two studies conducted in Mumbai city. In other studies/reports from urban/ periurban areas of the country the proportion of institutional deliveries varied from 27.2% to 90%.

In the present study, 94% of deliveries were conducted by trained persons out of which 90.75% were conducted by doctors and 3.25% by nurses or ANM. Remaining 6% deliveries were conducted by untrained persons out of which 3.75% were by traditional birth attendant, 0.25% by other health personnel, 1.75% by relatives or friends and 1(0.25%) delivery at home was conducted without any assistance. A total of 88.89% home deliveries were conducted by untrained birth attendants and 11.11% were conducted by trained birth attendants.

Only one study has reported that 98% of all deliveries were conducted by trained birth attendant. In other studies/reports attendance of delivery by trained birth attendants varied from 18.1% to 85.7%.

In the present study 95.53% respondents aged less than 24 years reported institutional delivery compared with 89.61% of respondents more than 24 years age. The differences in the proportion of respondents reporting institutional delivery with respect to their age was statistically significant. (p value<0.05) Difference between proportion of respondents reporting deliveries in public health facility or private health facility with respect to their age was not statistically significant (p value >0.05).

A few studies have reported a significant association between age and place of delivery. Das S et al

(2010)[4] found in their study conducted in 48 slums communities in six wards of Mumbai that women who gave birth at home were older.

Bloom S (1999)[5] conducted a study in November 1995- April 1996 among poor to middle income women living in Varanasi, UP, India which revealed that women who were of younger age were more likely to use safe delivery care.

In present study 89.23% respondents who were educated up to middle school reported institutional delivery and 97.07% respondents who had educational status of secondary level and above reported institutional delivery. The difference between proportions of respondents reporting institutional delivery with respect to their educational status was statistically significant. (p value < 0.05)

Das S et al (2010)[4] found in their study conducted in 48 slums communities in six wards of Mumbai that women who gave births at home were less likely to have gone to school.

In a study conducted by Pandey S et al (2007)[6] in the catchment area of UHTC of a Medical college in Nainital District, mothers educated up to graduation and above (54%) opted for delivering their child at hospital. Deliveries were conducted at home for mothers who were either illiterate (19%) or educated up to 5$^{th}$ standard. The education of mother played a crucial role in making decision about place of delivery ($p<0.001$).

Varma DS (2010)[7] conducted a formative study in rural Uttar Pradesh which showed that women who had a primary education were one and half times more likely to have an institutional delivery (OR=1.68, $p<0.001$) than those with no education. As compared to women with no education, those who had received a secondary education were three and half times (OR=3.49, $p<0.001$) more likely to opt for institutional delivery.

Liabsuetrakul T et al (2011)[8] in their study in Songkhla province of southern Thailand revealed that women who gave birth at home had significantly higher proportion of less educated women.

In this study the respondents who had educational status of secondary school and above were more likely to deliver in private health facility as compared to public health facility. This difference was statistically significant. (p value < 0.05)

The data analyzed by Thind A et al (2008)[9] NFHS-2 revealed that maternal education was statistically significant predictors of the choice of public versus private facility.

In the present study 93.42% respondents who were housewives reported institutional delivery. 91.43% employed respondents reported institutional delivery. The difference between proportion of respondents reporting institutional delivery with respect to their working status was not statistically significant (p value > 0.05).

In the present study 68.75% employed respondents reported delivery in public health facility when compared to 41.35% respondents who were housewives. The difference between proportions of delivery in public and private health facility according to working status of respondents was statistically significant. (p value < 0.05).

Balaji R et al (2003)[10] in their study in Nasik District, Maharashtra revealed that the non-earners (44 percent) were more capable of seeking delivery care from public sector than private sector, than earning women (24 percent).

The difference in our study finding could be probably because majority of working reapondents were employed in unskilled i.e.labourers work

Study showed that 73.68% respondents belonging to socioeconomic class I or II reported private health facility delivery. 48.99% respondents belonging to socioeconomic class IV reported delivery in private health facility. There was a significant difference in the proportion of deliveries in public and private health facilities according to socioeconomic status. (p < 0.05)

No significant difference between proportions of home deliveries and husband's occupation was reported by Wagle RR (2004) in a cross sectional study conducted in Kathmandu municipality area.

## Conclusion:

The major reasons for home delivery were reported as 'no time to reach hospital' (25.93%); `fear of hospital` (18.52%); 'feels comfortable at home' (18.52%), 'decision of family members'

(18.52%), 'economic constraint' (11.11%), 'experience of others' (11.11%) where as reasons for public health facility delivery were stated as it was due to 'economic constrain' (76.07%), 'availability of necessary services' (8.59%) and for the private health facility delivery as 'experience of others' (36.67%), 'good quality services provided there' (14.76%), 'experience of previous delivery' (8.10%), 'same antenatal care provider' (7.14%), 'proximity to home' (6.67%).

**References:**


1. Pardeshi GS, Dalvi SS. Pergulwar CR, Gite RN, Wanje SD. Trends in choosing place of delivery and assistance during delivery in Nanded District, Maharashtra, India. J Health Popul Nutr 2011;29(1):71-76
2. The World Health Report 2005, Make every Mother and Child count. World Health Organization. ( http://www.who.int/whr/2005/whr2005 en. pdf, accessed on 3 June 2011)
3. Probability Proportional To size sampling. (http://www.who.int/tb/ advisory_bodies/ impact_ measurement_taskforce/meetings/ prevalence_survey/ psws_probability_prop_size_ bierrenbach.pdf, accessed on 30 November 2011)
4. Das S, Bapat U, More NS, Chordhekar L, Joshi W, Osrin D. Prospective study of determinants and costs of home births in Mumbai slums. BMC Pregnancy Childbirth 2010;30(10):38
5. Bloom S, Lippeveld T, Wypij D. Does antenatal care make a difference to safe delivery? A study in urban Uttar Pradesh, India. Health Policy Planning 1999:14(1);38-48.
6. Pandey S, Shankar R, Rawat CMS, Gupta VM. Socio-economic factors and delivery practices in an urban slum of district Nainital, Uttaranchal. Indian J Community Med 2007;3, 210-211
7. Varma DS, Khan ME, Hazra A. Increasing institutional delivery and access to emergency obstetric care services in rural Uttar Pradesh. J Family Welfare 2010;56(Special issue):23-30 .
8. Liabsuetrakul T, Oumudee N. Effect of health insurance on delivery care utilization and perceived delays and barriers among southern Thai women. BMC public health 2011;11:510
9. Thind A, Mohani A, Banerjee K, Hagigi F. Where to deliver? Analysis of choice of delivery location from a national survey in India. BMC Public Health 2008;8:29.
10. Balaji R, Dilip TR, Duggal R. Utilization of and expen-diture on delivery care services: some observations from Nashik district, Maharashtra. Regional Health Forum (WHO South-East Asia Region) 2003;7(2);34- 4 1
11. Wagle RR, Sabroe S, Nielsen BB. Socioeconomic and physical distance to the maternity hospital as predictors for place of delivery: an observation study from Nepal. BMC Pregnancy Childbirth 2004;4:8