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Original Research Article

Study of the changing trends in place of delivery in rural women in relation to pre and post NRHM period in Paithan, Aurangabad, Maharashtra

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ABSTRACT

Background: Maternal health reflects the overall effectiveness of the health system of any country. One strategy for reducing maternal mortality and morbidity is ensuring that every baby is delivered in an institution. Government of India has launched various health schemes under the umbrella of National Rural Health Mission (NRHM) to promote institutional deliveries. Thus this study was conducted to study the changing trends in place of delivery in rural women in relation to NRHM.
Methods: A community based cross-sectional study was conducted in the field practice area of rural health training center (RHTC), Paithan, Dist. Aurangabad during the period of 1st October 2015 to 31st March 2016. All the villages under two sub-centers of one PHC under the RHTC were selected for the study. All women above 18 years of age who delivered at least once between 1st January 2001 to 31st December 2015, were interviewed for their place of delivery.
Results: Institutional deliveries increased from 47.06% to 93.65% in 2001 to 2015. The odds for institutional deliveries in the post NRHM period were seen to vary in the 1st 5 years of NRHM and the next 5 years. In 2006-10, odds of institutional deliveries were 2.44 times more, whereas in 2011-15 the odds were 8.99 times more than the pre-NRHM period. The overall odds of institutional delivery in the post-NRHM period were 4.1 times more than the pre-NRHM period.
Conclusions: Increasing trends of institutional deliveries and decreasing trends of home deliveries was observed from 2001 to 2015. Increase in deliveries was seen in both government as well as private hospitals. Institutional deliveries have increased rapidly since the implementation of NRHM with 4.1 times more chance of institutional deliveries in the post-NRHM period.

Keywords: Maternal health, NRHM, Home deliveries

INTRODUCTION

Maternal health reflects the overall effectiveness of the health system of any country, indicated by rate of maternal demise which is an important but not the only indicator. Along with maternal mortality, complications and disability leading to poor maternal and child health are also a matter of concern. Maternal deaths form only the tip of iceberg of the women suffering from poor health and complications during childbirth. Approximately, 8 million women suffer from pregnancy

related complications each year and about 830 women succumb of these complications each day.[1]

One strategy for reducing maternal mortality and morbidity is ensuring that each and every delivery is conducted in a health care institution.[2] Appropriate setup for delivery services is also important where lifesaving equipments and hygienic conditions are practiced, whereby reducing the risk of complications, death or illness to mother or child.[3] Millennium development goals as well as the sustainable development goals emphasized the importance of skilled birth attendant as an important indicator to reduce the maternal mortality ratio and improving overall maternal health status and delivery outcome.[4]

Institutional deliveries with skilled birth attendants has shown to have better health outcome and survival of mothers and neonates. It also provides easy access to skilled assistance, drugs, equipments and referral transport. One of the socio-demographic goals mentioned in the national population policy 2000 of India is to achieve 80% institutional deliveries and 100% deliveries to be assisted by skilled health personnel by 2015.[5]

Proportion of deliveries conducted in government hospitals is still low, while care in private hospitals leads to high out-of-pocket expenditure. Taking this in view, Government of India and Maharashtra have launched various health schemes like the Janani Suraksha Yojana (JSY) and Janani Shishu Suraksha Karyakram (JSSK) under the umbrella of National Rural Health Mission (NRHM) to promote institutional deliveries and reduce the out-of-pocket expenditure of pregnant women and their families.[6–8] NRHM being implemented since 2005, focuses on expanding and strengthening of rural health services which is also a prerequisite for better natal care at government hospitals.[8]

The above mentioned health schemes along with better equipped health infrastructure under NRHM have led to increase in institutional deliveries, ultimately leading to lesser complications and maternal deaths.

There is paucity of work showing the change in trends of choosing place of delivery by pregnant women, especially after the launch of NRHM. Considering the above mentioned facts, this study aims at studying the changing trends in place of delivery especially in the pre-NRHM and post-NRHM period.

Objectives

To study the changing trends in place of delivery in rural women.

METHODS

Present study was conducted in the field practice area of Rural Health and Training Center (RHTC) – Paithan of GMC Aurangabad, to study the changing trends in place of delivery of rural women from January 2001 to December 2015. It was a community based cross-sectional study and the study period was 1st July 2014 to 30st November 2016.

For the calculation of sample size, percentage of home deliveries in rural Maharashtra was taken as 13.3%.[9] Sample size was calculated by OpenEpi Software version 3. Thus the sample size derived was 304. Considering 10% of non-response rate, the sample size came to 334, which were further rounded off to 340.

Inclusion criteria

Inclusion criteria were all women of >18 years of age who had delivered at least once after 1st January 2001 to 31st December 2015; women who delivered at ≥28 weeks of gestation; all presently pregnant women with gestational age ≥28 weeks; women who were permanent resident of that area; women who gave written informed consent.

Exclusion criteria

Exclusion criteria were women who were not permanent resident of that area; women who refused to participate in the study.

Multistage sampling technique was used for the study. Investigator had randomly selected one of the PHC covering population of 45,437 from the 3 PHCs of the field practice area of RHTC. In that PHC there were six sub centers. As, accessibility of health center is considered to be an important determinant in deciding the place of delivery, investigator had purposively selected two sub-centers as per their accessibility to the health facility. One sub-center was located 3 kms away from the PHC and villages under it were comparatively easily accessible to health services. The other sub-center was located 12 kms away from the PHC and accessibility to health center was difficult not only in terms of distance but also in terms of availability of infrastructure like roads and transport facilities. Sub-center A included 3 villages with population of 7438, whereas sub-center B included 6 villages with population of 8197. Thus, a total of 9 villages with a population of 15635 and around 3 thousand households were included in the study. Probability proportionate to size (PPS) sampling was used to identify number of houses to be interviewed from each village. All women of >18 years of age, fulfilling the inclusion criteria were interviewed. Survey was started from one side of the village from any prominent landmark of that village. First house was selected by simple random sampling. Next houses were selected by systematic random sampling. The sampling interval for systematic random sampling was calculated from the total number of households and the desired sample size. Accordingly, every 13th house was included in the study. Information was collected accordingly for each delivery

from respondent women who had delivered for one or multiple times since 1st January 2001to 31st December 2015.

The data was compiled, analyzed and tabulated using the Microsoft Excel 2010 software. Percentages were calculated; the proportions were compared using Chi-square test with and without Yate's correction and Fischer Exact test with respective degrees of freedom. Extended Mantel-Haenszel Chi-square test for linear Trends was used wherever applicable. Further statistical analysis was done by SPSS (Statistical Package for Social Sciences) version 23.0.

RESULTS

Data included a total of 340 respondent women having one or more children constituting a total of 701 births since 1st January 2001 to 31st December 2015. Private institutional deliveries accounted for 313 (44.65%) of the deliveries, 251 (35.80%) were government institutional delivery and 137 (19.54%) were home deliveries. The proportion of home deliveries in sub-center A villages (13.08%) was less than that of sub-center B villages (25.00%). This difference was found to be statistically significant (χ^2_2 =15.71, p=0.0003871).

A trend of increase in institutional deliveries and decrease in home deliveries was observed. This observed trend was found to be of highly statistical significance with the application of Extended Mantel-Haenszel Chi-square test for linear Trends (p<0.0000001) (Graph 1). Similar trends of increase in institutional deliveries and decrease in home deliveries were observed for both Sub-center A and Sub-center B villages but the fall in the proportion of home deliveries is much sharper in sub-center A villages than in sub-center B villages which shows slow descent. Similarly, the rise in private institutional deliveries is more rapid in sub-center A villages than sub-center B villages which show slow rise. However, the rise in government hospital deliveries is slow and gradual in both the sub-center villages (Figure 2).

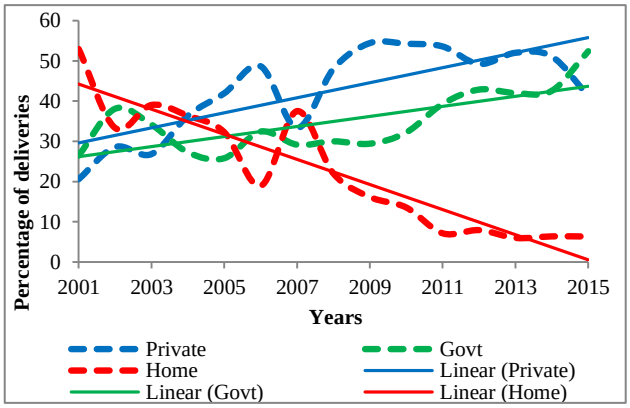

Figure 1: Trends of place of delivery from 2001-2015.

Extended Mantel-Haenszel Chi-square for linear trends =73.34, p<0.0000001.

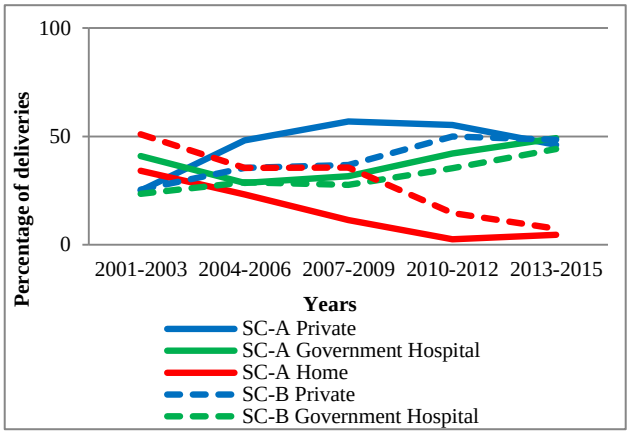

Figure 2: Trends of place of delivery from 2001-2015 in sub-center A and sub-center B villages.

Table 1: Home and institutional deliveries in pre-NRHM and post-NRHM period.

	Years	Home deliveries	Institutional deliveries	Odds ratio
Pre-NRHM	2001-05	63	97	1
Post-NRHM	2006-10	55	207	2.44 (1.58-3.78)
	2011-15	19	260	8.89 (5.06-15.61)

Figures in the parenthesis indicate the 95% Confidence intervals.

The odds for institutional deliveries in the post NRHM period were seen to vary in the 1st 5 years of NRHM and the next 5 years. In 2006-10, odds of institutional deliveries were 2.44 times more, whereas in 2011-15 the odds were 8.99 times more than the pre-NRHM period (Table 1). The overall odds for institutional deliveries in the post NRHM period were 4.1 times more than the pre-NRHM period. But the odds were higher for private institutional deliveries (4.59) than the government institutional deliveries (3.60).

DISCUSSION

In the present study it was observed that 313 (44.65%) deliveries were private institutional deliveries, 251 (35.80%) were government institutional deliveries and 137 (19.54%) were home deliveries.

Our study findings were consistent with findings from other studies by Ansari et al and others, which were also performed in rural areas.[10-12] Our findings were also in agreement with studies performed in urban slums by Das

et al and Dey et al and studies in resettled colonies by Saini et al.[13-15]

Other studies from Maharashtra like that by Thind et al & Khatib et al found proportion of home deliveries higher than that of our study.[16-18] The study performed by Mumbare et al also found more percentage of home delivery as the study was performed in tribal population.[18] Similarly, a study from Kerala by Sumithra et al found much higher percentage of Government institutional deliveries (80.6%) than our study (35.8%).[19] This may be attributed to better status of health infrastructure and better socio-demographic factors.

Some studies from other states observed higher prevalence of home deliveries than our study as in studies by Das et al and others.[2,20–25] The reason for this inconsistency could be the difference in socio-cultural factors, demographic factors and health service status in those states.

It was found that home deliveries steadily decreased from 52.94% to 6.35% during 2001-2015. On the other hand, the private institutional deliveries and Government institutional deliveries increased from 20.59% to 41.27% and 26.47% to 52.38% respectively. Thus, a trend of increase in institutional deliveries and decrease in home deliveries was observed. It was observed that the odds of institutional delivery in the post-NRHM period were 4.1 times more as than that of the pre-NRHM period.

Studies performed by Kotnis et al, Pardeshi et al and Saini showed trends similar to that observed in our study.[15,26,27] Pardeshi et al in their study observed the odds of institutional deliveries in the post-NRHM period to be 1.8 more than the pre-NRHM period.[27] This observed inconsistency with our study findings could be due to the difference in study periods, as that study was conducted in 2004-09 which marked only the early phase of NRHM.

CONCLUSION

The proportion of home deliveries in 2001-15 was 13.08% as against 35.80% of government institutional deliveries and 44.65% of private institutional deliveries.

A trend of increase in institutional deliveries and decrease in home deliveries was observed in 2001-2015. Increase in deliveries was seen in both government as well as private hospitals. Institutional deliveries have increased substantially since the implementation of NRHM with 4.1 times more odds of institutional deliveries in the post-NRHM period.

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