

## Original Research Article

# Trends and factors determining the place of delivery in a rural setting of Maharashtra

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## ABSTRACT

**Background:** The MMR in India was 212 according to SRS 2009, which translates to about 55,000 women dying annually due to pregnancy and related causes. Very few studies have been done to understand the birthing practices in the rural setup. This study was conducted to estimate the trends of delivery and elucidate the various socio-cultural factors determining the birthing practices in rural India.

**Methods:** A cross sectional study was conducted among married women, aged 18 to 49 years residing in a Gram Panchayat Kasurdi of Daund Taluka in Pune district from March to October 2016. A structured, interview based, pre-tested questionnaire was used for collection of the data.

**Results:** Most of the study subjects were literate (69.5%), housewife (46.2%) and residing in joint family (39.7%). Four fifth (83%) of the women had at least two children. Despite this, it was both the partners (47.8%) who were the most common decision maker for the place of delivery. Though most (81.6%) of women wanted to deliver in an institution but home delivery was found in one fourth cases (26.5%). The most common reason for home delivery was ease, comfort and privacy while the most common reason for institutional delivery was that it was safe.

**Conclusions:** There is a wide gap between where the rural women want to deliver and where they actually do. As the parity rises complacency is seen in utilization of the ANC services and institutional delivery.

**Keywords:** Birthing practices, Rural, India

## INTRODUCTION

*"No country sends its soldiers to war, without seeing to it that they will return safely, and yet mankind for centuries has been sending women to battle to renew the human resource without protecting them."* Fred Sai, former president of the International Planned Parenthood Federation.<sup>1</sup>

Every year, more than 500,000 maternal deaths occur worldwide, 4 million newborns die and another 3 million babies are stillborn.<sup>2-4</sup> Nearly all these deaths take place

in low and middle income countries and most could be prevented with current medical care.<sup>2-5</sup> India alone accounts for nearly 20% of the global burden of both maternal and child deaths.<sup>6</sup> The MMR in India was estimated to be around 212 maternal deaths per one lakh live births which translate to about 55,000 women dying annually due to pregnancy.<sup>7</sup> The figures are though contrasting for the various states and even within the states.

Most obstetric complications occur around the time of delivery and cannot be predicted. Therefore it is important that all pregnant women have access to a

skilled birth attendant. It has been advocated as the single most important factor in preventing both maternal and neonatal deaths, and therefore one of the indicators for Millennium Development Goals.<sup>8</sup>

Despite the uniformity in program design throughout the country, there is considerable regional variation in the proportion of institutional deliveries ranging from 30.4% to 99.9% in different states.<sup>9</sup> Explanations and answers to these variations are complex. Studies have identified various factors associated with the institutional delivery i.e. availability, distance, cost and quality of services in addition to personal health beliefs and other socio-cultural and economic factors.<sup>10,11</sup> But there have been very few studies done to understand the birthing practices in the rural setup in a comprehensive pattern taking in account the various medico-socio-economic factors.

This study was conducted to estimate the trends of delivery and elucidate various socio-cultural factors determining the birthing practices in rural India.

## METHODS

A cross sectional study was conducted from March to October 2016 among married women in the reproductive age group, residing in Kasurdi village Panchayat of Taluka Daund in Pune district. The sample size was calculated based on the national average of home deliveries (27.1%) by proportion method. The sample size was taken as 305 assuming a non response rate of 10% and non eligible as 10%. Simple random sampling without replacement was done after obtaining the details of all women aged 18 to 49 years from the office of Gram Panchayat.

All married women between the age of 18 to 49 years, who had been pregnant at least once and residing in Gram Panchayat were included. If any household had more than one eligible woman, then only the woman with the latest delivery was considered. A structured, interview based, close ended and pre-tested questionnaire was used for collection of the data. Five Interviewers were centrally trained for data collection and feedback from each interviewer was discussed after each session. In addition, random checking of interview sessions was also done. Data was thereafter entered, randomly cross checked by another person and then analyzed using SPSS ver 17.0.

## RESULTS

The socio demographic profile of the study population showed that more than one third of them were educated till middle (standard 8) school (39.6%), while a significant portion (30.5%) was illiterate. Nearly half of the women were working (53.8%), mostly related to agriculture. Most of the women were residing in either joint families or extended families (78.7%). More than one third women (40.6%) had borne more than two children (Table 1).

**Table 1: Socio-demographic parameters (N=305).**

Category	n	%
<b>Education</b>		
Illiterate	93	30.5
Less than 5 years	66	21.6
5 to 10 years	121	39.7
More than 10 years	25	8.2
<b>Occupation</b>		
House wife	141	46.2
Labourer	82	26.9
Farmer	72	23.6
Others	10	3.3
<b>Family type</b>		
3 generation/extended	119	39.0
Nuclear	65	21.3
Joint	121	39.7
<b>Parity</b>		
One child	50	16.4
Two child	131	43.0
Three child	84	27.5
More than three children	40	13.1

**Table 2: Factors which decided the place of delivery.**

Factors	n	%
<b>Source of motivation for institutional delivery</b>		
Peripheral health care worker	105	34.42
MO/specialist	203	66.55
Parents/in laws	155	50.81
Others *	78	25.57
<b>Decision makers for place of delivery</b>		
Self	14	4.59
Husband	21	6.88
Both	146	47.86
In laws or parents	82	26.87
Family as a whole	53	17.37

\*Others: Village elders, Teacher, Mass media, Information brochure.

Peripheral health care workers were instrumental in motivation of nearly one third cases (34.4%) and doctors in two third cases (66.5%) for institutional delivery. This is an interesting finding keeping in view that ASHA, under Janani Suraksha Yojana scheme is entitled for monetary benefits for encouraging institutional delivery. Other sources of information like mass media campaigns had a poor impact (25.5%) in motivating women about the place of delivery. In nearly half of the times, (47.8%) both partners were the decision maker for the place of delivery. But other family members also played a dominant role (44.2%) in the decision making process (Table 2).

This was reflected in the birthing practices, as in most (81.6%) of instances the women wanted to deliver in an institution but could do so in only two thirds (n=202,

65.7%) instances. Home delivery was found in one third of the occasions (n=103, 34.3%).

The most common reason (24.6%) for home delivery was ease, comfort and privacy at home, while inability to pay for the hospital and lack of transport were reflected in 18.2% of answers. The perceived one of the most common reason for home delivery that delivery is conducted by a male doctor was present in only 3.4% of instances. Common reason for delivery at hospital was that it is safe (26.2%), adequate facilities available at hospital (17%) and it was accessible (15.3%). Labour can

be dangerous and hence preference for hospital delivery was cited by 14.1% of respondents (Table 3).

It was observed that with an increase in parity, there was significant ( $p < 0.0001$ ) increase in non-utilization of ANC service and also an increase in the home delivery. (Table 4) Perhaps complacency developed in the study population after a safe and complication free delivery. It is also the reflection of the inherent belief that child birth is regarded as a normal phenomenon without any complications in our country.

**Table 3: Reasons for choice of place of last delivery (n=305).**

	(n=103)	(%)
<b>Reason for delivery at home</b>		
Ease & comfort, privacy	65	63.1
Cannot afford hospital	48	46.6
Hospital is far away	42	40.7
Lack of transport	48	46.6
Decision of family/in laws	9	8.7
Poor facility at hospital	25	24.2
Delivery by a male doctor	5	4.8
Labour had already started	22	21.3
<b>Reason for delivery at hospital (n=202)</b>		
It is safe	180	89.1
Labour can be dangerous	97	48.1
Cleanliness	97	48.1
It was affordable	14	6.9
Incentive	37	18.3
Accessible	105	51.9
Facilities available	117	57.9
Complications started/difficult labour	38	18.8

**Table 4: Association of parity with antenatal care and place of delivery.**

Para status	Parameters		OR	X <sup>2</sup> for linear trend
<b>Antenatal care</b>	<b>Present (%)</b>	<b>Absent (%)</b>		
First child	215 (72.9)	80 (27.1)	1.00	19.24 ( $p < 0.0000$ )
Second child	174 (71.9)	68 (28.1)	0.95	
Third child	66 (58.4)	47 (41.6)	0.52	
Fourth child	11 (34.4)	21 (65.6)	0.19	
	466	216		
<b>Place of delivery</b>	<b>Institution (%)</b>	<b>Home (%)</b>		
First child	214 (72.5)	81 (27.5)	1.00	24.87 ( $p < 0.0000$ )
Second child	163 (67.4)	79 (32.6)	0.81	
Third child	60 (53.1)	53 (46.9)	0.52	
Fourth child	11 (34.4)	21 (65.6)	0.19	
	448	234		

234 deliveries at home /682 total deliveries= 34.3% (prevalence of deliveries at home per 100 deliveries) 466 ANC/682 Preg= 68.3% (prevalence of ANC care provided per 100 pregnancies) not including abortions.

## DISCUSSION

Although the debate on the safety and women's right of choice to a home delivery vs. hospital delivery continues in the developed countries, an undesirable outcome of

home delivery, such as high maternal and perinatal mortality, is documented in developing countries.<sup>12,13</sup> It is found that various socio cultural factors influence the place of delivery.

Our study shows 30.5% illiterates and 69.5% literates which is close to the literacy rate of rural Pune (72.01%), while all India female literacy rate is 65.46% and Maharashtra has got the female literacy rate of 75.48%.<sup>14</sup> Bolam et al. have reported that multiparity and lower maternal education are associated with home delivery.<sup>15</sup> With the mother's education lower than primary, multiparity and no ANC were also associated with a high proportion of home delivery. Multiparity was associated with a double risk of home delivery. Maternal education was strongly and independently associated with the choice of location of delivery. For the choice sets of public facility versus home delivery and private facility versus home delivery, a clear dose-response relationship was apparent-higher maternal education was associated with a higher probability of delivery at a public or private health facility compared to home.<sup>16</sup>

In the above study, 141 (46.2%) were house wives, 82 (53.8%) were working women mostly related to agriculture. In a study by Munjial et al it was reported that men, who were in some kind of service, were more likely to send their wives for institutional deliveries (83%) than non-institutional deliveries (54%). Among the daily wagers, findings were just the reverse. Thirty-nine (39%) and seven(7%) of the non-institutional and institutional deliveries respectively were carried out on the wives of daily wagers.<sup>17</sup> In another study it was found that the women who were farmers, agricultural workers and labourers were less likely to use maternal health services in comparison with professional women which is similar to our finding.<sup>18</sup>

In the present study most of the women were residing in either joint families or extended families 240 (78.7%) while 65 (21.3%) in nuclear family. In the study by Fotso, Ezech and Essendi, it was found that, In communities where cultural norms result in the suppression of women's autonomy, extended families and big numbers of small children, limits access of women to skilled birth attendance.<sup>19</sup>

In the above 16.4% had one child and 83.6% had one or more children, out of which 43% had 2 children. In the study by Kesterton et al the probability of an institutional delivery rises from 9% in high order births to 39% in first births. Huge regional differences are apparent. In the South 59% of births were institutional compared with only 16% in the North.<sup>20</sup> Multiparity was associated with a double risk of home delivery. Unfortunate experiences in hospital, quicker childbirth in the multiparous or having had an uncomplicated first delivery might explain why some of the multiparous deliver at home.<sup>21</sup>

High birth order was found to be a predisposing factor of home delivery by Thind in India as well as by Navaneetham in four states of southern India; after an uneventful birth of the first child at home, subsequent deliveries are perceived to be low risk thus increasing the

likelihood of delivering the subsequent babies at home.<sup>22, 23</sup>

In our study the place of delivery was decided by the pregnant mother independently in 14 (4.59%) cases, while the couple collectively took decision in 146 (47.86%) cases. In a study by Furuta and Salway, it was found that educated mothers will have broader knowledge and different information related to the types and availability of services and will have more access to financial resources; and will be in a position to influence husbands and other family members in terms of demand and decision making.<sup>24</sup>

Common reason for delivery at hospital was it is safe, next to it was adequate facilities at hospital, equal number of participants felt that labour can be dangerous and cleanliness of Hospital as the reason for hospital delivery. But in the study conducted by Monica Munjial et al the main reasons cited by the respondents for delivering at an institution was delivery being easy and convenient (73.7%) followed by faith in the doctor (21.2%).<sup>17</sup>

The most common reason for home delivery in our study was ease and comfort, privacy, while equal number of participants gave the reason of can't afford hospital and lack of transport, and the least common cause was delivery by male doctor at Institutes. These findings are in contrast to the earlier study where the most common reason for delivering the child at home was that it was a cultural practice (68.3%) in the society. Even their older generations had given birth to their children only at home and they believe in the continuation of this practice. In their view, childbirth is a natural phenomenon and there is no need to go to a health facility.<sup>17</sup>

### Limitations

Some of the limitations of our study are that; some factors like medical insurance and distance from healthcare facility were not taken into account, but as the gram panchayat has a fairly even socio-economic status and had a good coverage of both public and private health care institutes, the effect of these factors would be uniform. Second, the factor of previous experience with these facilities and the perception of their quality was not analyzed which could explain why there was a decreases in the institutional care with rise in parity.

### CONCLUSION

Analysis of factors revealed that as the birth order increases the utilization of ANC services is decreased, to enhance the use of ANC services the health care workers at periphery should target women with higher birth order, low education and belonging to weaker section to enhance the utilization of medical services offered under RCH programme, which in turn enhances the institutional deliveries.



Also it is found that as a mother's education, empowering her to decide after analyzing the various options present was one of the major factors associated with the use of ANC and skilled attendance at delivery.

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## REFERENCES

1. Fred Sai spoke about maternal mortality at opening of the conference, "Saving Lives: Skilled Attendance at Childbirth," held in Tunisia, 2000.
2. Lawn JE, Cousens S, Zupan J; Lancet Neonatal Survival Steering Team. 4 million neonatal deaths: When? Where? Why? *Lancet*. 2005;365:891–900.
3. Ronsmans C, Graham WJ. Maternal mortality: who, when, where, and why. *Lancet*. 2006;368(9542):1189-1200.
4. Stanton C, Lawn JE, Rahman H, Wilczynska-Ketende K, Hill K: Stillbirth rates: delivering estimates in 190 countries. *Lancet*. 2006;367(9521):1487-94
5. WHO, UNICEF, UNFPA: Maternal Mortality in 2000: Estimates developed by WHO, UNICEF and UNFPA. Available at: [http://www.who.int/making\\_pregnancy\\_safer/documents/maternal\\_mortality/en/index.html](http://www.who.int/making_pregnancy_safer/documents/maternal_mortality/en/index.html) WHO website Geneva 2004
6. World Health Organization. The World Health Day 2005 – Make every mother and child count. Geneva: WHO; 2005.
7. Sample Registration System 2009. Registrar General India. Available at: [http://censusindia.gov.in/vital\\_statistics/SRS\\_Bulletins/SRS-Bulletin-October-2009.pdf](http://censusindia.gov.in/vital_statistics/SRS_Bulletins/SRS-Bulletin-October-2009.pdf)
8. WHO: Reduction of maternal mortality. A joint WHO/UNFPA/UNICEF/World Bank statement. Available at: [<http://www.who.int/reproductivehealth/publications/monitoring/9789241561952/en/>] website Geneva 1999.
9. National Factsheet. Coverage Evaluation Survey Report 2009. UNICEF India Country Office, Delhi; 2009
10. Khan ME, Gupta RB, Bella C Patel. The quality of coverage of family planning services in Uttar Pradesh: Client perspective. In: Michael A Koenig, Khan ME, editors. Improving quality of care in India's Family Welfare Programme: The challenge ahead. New York: The Population Council; 1999: 49-69.
11. Sugathan KS, Mishra V, Retherford. Promoting institutional deliveries in rural India: The role of antenatal care services. National Family Health Survey Report No. 20. Mumbai: International Institute of Population Sciences; Population and Health Studies, East-West Centre Hawaii; 2001.
12. Ackermann-Liebrich U, Vogeli T, Gunter-Witt K, Kunz I, Zullig M, Schindler C, Maurer M, Zurich Study Team: Home versus-hospital deliveries: follow up study of matched pairs for procedures and outcomes. *BMJ*. 1996;313:1313-8.
13. Sorensen HT, Steffensen FH, Rothman KJ, Gillman MW, Fischer P, Sabroe S, et al. Effect of home and hospital delivery on long term cognitive function. *Epidemiology* 2000;11:706-8.
14. Family Welfare Statistics In India 2011, Statistics Division, Ministry of Health and Family Welfare, Government of India.
15. Bolam A, Manandhar DS, Shrestha P, Ellis M, Malla K, Costello AM: Factors affecting home delivery in the Kathmandu valley. *Health Policy Plann*. 1998;13:152-8.
16. Aggarwal R, Thind A. Effect of maternal education on choice of location for delivery among Indian women. *Natl Med J India*. 2011;24:328–34.
17. Monica M, Poonam K, Agnihotri S. A comparative analysis of institutional and noninstitutional Deliveries in a village of Punjab. *Health and Population Perspectives Issues*. 2009;32(3):131-40.
18. Tej R J, Nawi Ng, Sebastian MS. Factors affecting the use of maternal health services in Madhya Pradesh state of India: a multilevel analysis. *International J Equity Health*. 2011
19. Fotso JC, Ezeh AC, Essendi H. Maternal health in resource-poor urban settings: how does women's autonomy influence the utilization of obstetric care services? *Reproductive Health*. 2009;6(9):9.
20. Amy JK, John C, Andy S, Carine R. Institutional delivery in rural India: the relative importance of accessibility and economic status: *BMC Pregnancy Childbirth*. 2010
21. Wagle RR, Svend S, Birgitte BN. Socioeconomic and physical distance to the maternity hospital as predictors for place of delivery: an observation study from Nepal. *BMC Pregnancy Childbirth*. 2004.
22. 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.
23. Navaneetham K, Dharmalingamb A. Utilization of maternal health care services in Southern India. *Soc Sci Med*. 2002.
24. Furuta BM, Salway S. Women's Position within the Household as a Determinant Of Maternal Health Care Use in Nepal. *International Family Planning Perspectives*. 2001.

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