

# Does Socio-demographic Factors Influence Women's Choice of Place of Delivery in Rural Areas of Tamilnadu State in India

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**Abstract** Every day, approximately 1000 women die from preventable causes related to pregnancy and childbirth. Of which, 99% of all maternal deaths occur in developing countries. The aim of this study was to assess the socio-demographic factors influence women's choice of place of delivery in rural areas of Thiruvavur district of Tamilnadu state in India. A community based cross-sectional study was conducted in 28 villages selected using multistage sampling technique for selecting 605 women in the age group of 15-24 years during July 2010-April 2011. Data analysis was by use of Statistical Package for Social Sciences version-17, with statistical significance set at p-value of 0.05. The study reveals that education, age at marriage, birth order, standard of living index and exposure to mass media appeared strong influencing factors for the choice of place of delivery among women in rural areas. The result shows that 69% of home deliveries were monitored by Traditional Birth Attendants (TBAs/Dais). Bivariate analysis indicates that all women who had completed higher secondary education were preferred the health institution for their delivery whereas 18.8% of home deliveries have been taken place among illiterates. The proportion of home deliveries (7.3%) was higher among women in households in the less standard of living index. Home deliveries were higher among women who were less exposed to mass media (7.1%) than more exposed to mass media (1.6%). Birth order was significantly influence on the place of delivery among women. First birth order deliveries were less likely to take place at home (2.5%) than second (8.2%) and third birth order deliveries (9.1%). It concludes that family tradition and poor socioeconomic condition of the family appear to be the main reasons for choosing to deliver at home. It recommends that Government should be taken a comprehensive strategy to increase the availability, accessibility and affordability of delivery care services in rural areas. Public health strategies involving traditional birth attendants will be beneficial particularly rural/remote areas where their services are highly utilized.

**Keywords:** home delivery, institutional delivery, scheduled castes, standard of living index, young women

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## 1. Introduction

Home deliveries by traditional birth attendants (TBAs/Dais) are a cultural norm in rural areas of India. This is true both for rural areas as well as the urban slums. It's a common traditional belief that childbirth is a natural process which does not require any medical attention and should be conducted at home by the family 'Dai' who is a well-known and trusted figure for the family, is easily available and is not very expensive [1]. This attitude coupled with poverty, illiteracy and ignorance regarding complications of delivery, is responsible for the majority of women preferring to deliver at home in India.

The place of delivery is an important determinant for reducing the risk of infant and maternal death. Every day, approximately 1000 women die from preventable causes related to pregnancy and childbirth. Of which, 99% of all

maternal deaths occur in developing countries. Maternal mortality is higher in rural areas and among poorer and less educated communities [2]. A significant proportion of mothers in developing countries still deliver at home unattended by skilled health workers [3,4]. In diverse contexts, individual factors including maternal age, parity, education and marital status, household factors including family size, household wealth, and community factors including socioeconomic status, community health infrastructure, region, rural/urban residence, available health facilities, and distance to health facilities determine place of delivery and these factors interact in diverse ways in each context to determine place of delivery [5,6].

Maternal deaths are associated with inadequate medical care at the time of delivery. Several factors have been identified as barriers to access to skilled care by women in developing countries; include unavailability of the services, inadequate number of skilled personnel and

geographical inaccessibility [7]. There are a number of socioeconomic and cultural factors that act as barriers to women's use of health services, the high cost of services has been identified as a major barrier facing rural women in seeking and using these life-saving services in many developing countries including China [8,9,10].

In high income countries, 99% of deliveries are conducted by skilled attendants compared to 59% in low income countries where over 90% of maternal death occurs [11]. According to the World Health Organization (WHO), cited by Letamo et al [12], 60 million deliveries take place annually worldwide where the woman is cared for by either a family member, an untrained traditional birth attendant, or no one at all. Increasing the proportion of women cared for in health facilities and by skilled health providers during pregnancy and childbirth is critically important for improving the health of mothers and newborns [13]. The main strategy to achieve the fifth Millennium Development Goal (MDG), which aims to improve maternal health, is to ensure that 90% of all births are attended by a skilled attendant in 2015 [11].

In developing countries, most women deliver at home for some reasons. The identified reasons for non utilization of obstetric services include: financial constraints, lack of awareness of maternity waiting homes, no perceived need for such services, preference for home delivery because it is much less expensive and etc [14]. Recent demographic and health survey (DHS) data from more than 50 developing countries shows that women with the limited education, knowledge of health services are less likely to use basic health services such as immunization, maternal care and family planning [15]. The determinants of maternal mortality includes the health and reproductive behaviour of the women, her health status, access to health services as well as her socio-economic status. It is important to identify the factors which lead to either home or hospital delivery [16].

### 1.1. A Profile of Scheduled Castes Population in India

The Indian caste system is a highly complex institution, though social institutions resembling caste in one respect or another are not difficult to find elsewhere, but caste is an exclusively Indian phenomenon. At presents, the scheduled castes in India constitute around 16.8% of the total population. Almost one-third of them live below poverty line and do not have access even to the basic needs like food, clothing, and shelter and constitute major part of our labour force and are generally engaged in petty occupations like agriculture labour, construction work, hawking and other low grade jobs [17]. There is a general consensus that the health status of the scheduled castes population is very poor and worst [18]. Under this circumstance, the present study made an attempt to assess the socio-demographic factors influence women's choice of place of delivery in rural areas of Thiruvavur district of Tamilnadu state in India.

## 2. Materials and Methods

### 2.1. Study Area

According to 2001 census, Thiruvavur district was the highest Scheduled Castes populated district and also backward district in Tamilnadu state. All women were living with their husbands and had given at least one birth one year prior to the survey.

### 2.2. Study Design

A community based cross-sectional study was conducted in 28 villages selected using multistage sampling technique for selecting 605 women in the age group of 15-24 years during July 2010-April 2011.

### 2.3. Selection of the Blocks

Thiruvavur district had totally ten blocks, which comprise 573 revenue villages. In the first stage, five blocks were selected which represent the geographical distribution of the study district. The selected blocks were Nannilam from north, Thiruvavur from east, Tiruturaipundi from south, Valangaiman from west and Mannargudi from central part of the study district.

### 2.4. Selection of the Villages

There were 352 revenue villages in these selected five blocks. In the second stage, all the villages which had 50 percent of scheduled castes population were selected. I.e. 87 villages were selected. For covering entire block, one third of the villages (5/6 villages) were selected from each block by simple random sampling method. Thus, 28 villages were selected for the research purpose.

### 2.5. Selection of the Respondents

In the third stage, house listing operation was carried out prior to the data collection to provide the necessary frame for selecting the households for the study. Totally 6376 houses were listed in all the five blocks. Identification of eligible young married women (15-24 years) in each household was the next step in the research. There were 1164 households with the target population (39 households had two couples). Totally 1203 women in the age group of 15-24 were identified.

Systematic random sampling technique was applied for selecting 21/22 respondents from each village. In order to take care of non-response due to various reasons, an extra 10% of respondents were included in the sample. i.e. 661 respondents were selected for the interview. Totally, 605 respondents were completed the interview and 32 respondents declined to participate interview. The response rate of the research study was 91.5%.

### 2.6. Data Collection Tools

The respondents were assessed using a structured interviewer administered questionnaire which was pretested in Chidambaram Taluk near Annamalai University, about 102 km away from Thiruvavur district.

### 2.7. Data Analysis

Results were summarized and presented as frequencies and percentages and also Chi-square test was used for assessing the statistical significance at p-value.



(TBAs/Dais) were available in their area. More than half of women reported that their family members did not allow them to visit the health facility for child delivery (55.2%). It is also observed that 31% of women stated that the transportation facility was not available to reach the health centre. More than one-fourth of women stated that they had no time to visit the health institution for delivery (27.6%).

**Table 3. Percentage distribution of women by Reasons for not delivering at institution (Multiple responses)**

Reasons for not delivering at institution	Frequency	Percentage
Family members did not allow	16	55.2
Lack of time to health centre	8	27.6
Transportation was not available	9	31.0
Trained Dai available	20	69.0
Better care at home	23	79.3
Total	29	100.0

### 3.4. Place of Delivery by Socio-demographic Characteristics

**Table 4. Percentage distribution of women by Place of delivery according to their socio-demographic characteristics**

Socio-demographic characteristics	Place of Delivery		Total	X <sup>2</sup>	P
	Home	Institutional			
Age of women					
18- 20	2 (2.1)	92 (97.9)	94	1.74.418	
21- 23	19 (5.2)	345 (94.8)	364		
24 years	8 (5.4)	139 (94.6)	147		
Education of women					
Illiterate	6 (18.8)	26 (81.2)	32	23.46.000	
Primary education	5 (8.9)	51 (91.1)	56		
Secondary education	18 ( 3.9)	449 (96.1)	467		
Higher secondary and above	-	50 (100.0)	50		
Occupation of women					
Non-workers	8 (6.5)	115 (93.5)	123	8.71.013	
Agricultural labourers	21 (6.0)	327 (94.0)	348		
Non-agricultural labourers	-	134 (100.0)	134		
Standard of living index					
Low	17 (7.3)	217 (92.7)	234	21.35.000	
Medium	12 (3.8)	306 (96.2)	318		
High	-	53 (100.0)	53		
Age at marriage					
Less than 18 years	4 (22.2)	14 (77.8)	18	15.54.001	
18-19 years	17 (5.5)	290 (94.5)	307		
20-21 years	8 (3.4)	230 (96.6)	238		
22 -23 years	-	42 (100.0)	42		
Birth order					
First	9 (2.5)	356 (97.5)	365	10.97.004	
Second	17 (8.2)	190 (91.8)	207		
Third	3 (9.1)	30 (90.9)	33		
Exposure to mass media					
More frequently	4 (1.6)	248 (98.4)	252	12.73.001	
Less frequently	25 (7.1)	328 (92.9)	353		
Distance of health facility					
Within 1 Km	-	78 (100.0)	78	1.09 .581	
2- 3 Km	8 (4.7)	163 (95.3)	171		
4 or more Km	21 (5.9)	335 (94.1)	356		
Total	29 (4.8)	576 (95.2)	605		

The (Table 4) shows the percentage distribution of SC women's place of delivery by their socio-demographic characteristics. The result shows that the younger women (18-20 age groups) were less likely than older women given birth at home. The women in the age group 18-20 were less likely to given birth at home (2.1%) than those aged 21-22 (5.2%). The relation between women's education and place of delivery was positively associated. All the women who had completed higher secondary and above level of education were preferred institutions for their delivery but at the same time home deliveries were more common (18.8%) among illiterates ( $X^2 = 23.46$  and  $p = 0.000$ ). Delivery at the health facilities was quite common among women who were working in non-agricultural sector (100%) than non-workers (93.5%).

The proportion (Table 4) of women in households in the medium standard of living index (SLI) was less likely given birth at home (3.8%) than women in low SLI (7.3%) and also all the child deliveries among the women in households in the high SLI took place at institution. It discloses that the place of delivery was significantly associated with the women's SLI ( $X^2 = 21.35$  and  $p = 0.000$ ). It is also observed that the age at marriage and place of deliveries were positively associated. The women who married at later age (22 and above years) were less likely to given birth at home than those who married at an early ages. Birth order was significantly influence on the place of delivery among rural women. First birth order deliveries were less likely to happen at home (2.5%) than higher birth order deliveries (9.1%) ( $X^2 = 10.97$  and  $p = 0.004$ ). The impact of mass media exposure of women on the place of delivery shows a strong positive association. The proportion of home deliveries was less among women who were more exposed to mass media (1.6%) than less exposed women (7.1%). All women who were residing within one Km preferred institutions for delivery whereas this proportion was 94.1% among women who residing four Km away from health centers. It shows that the proportion of home deliveries increased when the distance of health facilities increased.

## 4. Discussion

This study investigated that socio-demographic factor such as education, standard of living index, birth order and mass media have influence on women's choice of place of delivery in rural areas. Bivariate analysis indicates that all the women who had completed higher secondary education were preferred the health institution for their delivery. The proportion of home deliveries was higher among women in households in the less standard of living index. Mass media and birth order were significantly influence on the place of delivery among women in the study population.

This study has provided a snapshot insight into actual reasons of women for not delivering at institution. Around five percent of women were delivered at home in the study area. Majority of the home deliveries were monitored by traditional birth attendants (TBAs/Dais). The main reasons for not delivering at institution included: they had better care at home, TBAs/Dais were available, family members did not allow them, lack of transportation facility and lack of time to visit the health facility for delivery. Births

delivered at home are usually more likely to be delivered without assistance from a health professional, whereas births delivered at health facilities are more likely to be delivered by health professional with at least minimal training in the provision of normal delivery services [19].

Traditional birth attendants (TBAs/Dais) have traditionally been assisting the women during child birth for centuries in India. TBAs provide community members with not only delivery services, but with emotional support and practical assistance both before and after the birth. TBAs are valued members of the community and can be more influential than outside medical personnel in encouraging community members to modify and improve existing practices surrounding pregnancy and childbirth [20]. In spite of the facts that a large proportion of the births in the country are being assisted by the TBAs particularly in the areas where higher order health care is not accessible and the fact that the TBAs are culturally acceptable, the country health programmes have abandoned them since last many years. If we look into the history, globally, the role of the TBA started to be taken seriously in the early 1950s when high maternal mortality rates become a concern in many developing countries. Several countries started training TBAs in clean and safe home delivery and some other health care-related roles [21].

Childbirth in a health facility while attended to by trained health professional has been shown to be associated with lower rates of maternal and neonatal mortality and morbidity compared to home births [22]. In poor settings, non-health facility deliveries are associated with increased maternal morbidity and mortality and increased newborn morbidity and mortality [23,24]. It is well recognized that women's current age plays an important role in the utilization of medical services. The result of the present analysis shows that the younger women (18-20 age groups) were less likely than older women given birth at home. Mothers' age may sometimes serve as a proxy for women's accumulated knowledge of health care services, which may have a positive influence on the use of health services. On the other hand, because of developments in modern medicine and improvements in educational opportunities for women in recent years, younger women might have an enhanced knowledge of modern health care services and place more value upon modern medicine [25,26,27]. Women's literacy is an important predictor for the use of maternal health care services [23,27,28]. It is well recognized that a woman's educational level has a positive impact on health care utilization. Increased education influences service use by increasing female decision-making power, increasing awareness of health services, changing marriage patterns, and creating shifts in household dynamics [23]. Evidence from the present study reveals that the women who had completed higher secondary and above level of education were preferred the health institutions for their delivery but at the same time home deliveries were more common among illiterates.

Socioeconomic factors such as income, household wealth, education, have been shown to be of greater importance in determining health service use than demographic factors [23,30]. Research consistently shows that a low income and the cost of services are important constraints on service utilization: increased income has a

positive effect on the utilization of modern health care services and low income and the cost of services are important constraints on service utilization [26,30]. The present study shows that the proportion of women in households in the higher standard of living index was less likely given birth at home than women in low standard of living index. High birth order was found to be a predisposing factor of home delivery in India [31] as well as 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 [28,31].

Place of residence also plays an important predictor to prefer women's place of delivery. Living in urban areas increases the probability of pregnant women using trained professionals for birth deliveries [12,32]. The present study discloses that all women who were residing within one kilometer (km) of radius preferred institution for delivery whereas this proportion was less among women who residing four km away from institutions. It shows that the proportion of home deliveries increased when the distance of health facilities increased. In southern India, urban residence increased the likelihood of institutional delivery compared to rural residence [28]. In addition to these, lower educational status, marital status and low standard of living index were factors found to be strongly associated with option of home delivery as against hospital delivery. Some studies in developing countries have shown that the decision to deliver at home is related to socio-demographic and economic factors such as income, educational status and marital status [33,34].

## 5. Conclusion

Socio-demographic factors have influence on women's choice of place of delivery in rural areas. Family tradition and poor socio-demographic condition of the family appear to be the main reasons for delivering at home. Majority of the home deliveries were monitored by traditional birth attendants (TBAs/Dais). The study findings show the importance of adopting a comprehensive approach to increase the availability and accessibility of maternal and child health care services in the community. Poverty alleviation strategies will contribute to improve access and utilization of maternal and child health care services. Strengthening the partnership program between village midwives and traditional birth attendants is recommended because of the frequent use of traditional birth attendants in this area. Training of traditional birth attendants would enable them to up-skill their delivery practice under the supervision of health professionals, especially in rural and remote areas. It also recommends that Government should be taken a comprehensive strategy to increase the availability, accessibility and affordability of delivery care services in rural areas. Public health strategies involving traditional birth attendants will be beneficial particularly rural/remote areas where their services are highly utilized.

## Conflict of Interests

The authors declare no conflict of interest.

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## References

- [1] Imogie AO, Agwubike EO, Aluko K. Assessing the role of traditional birth attendants (TBAs) in health care delivery in Edo State, Nigeria. *African Journal of Reproductive Health* 2002; 6: 94-100.
- [2] World Health Organization (WHO), Maternal mortality, Millennium Development Goal (MDG) 5. 2013; 1.
- [3] Gabrysch S, Campbell O. Still too far to walk: literature review of the determinants of delivery service use. *BMC Pregnancy Childbirth* 2009; 9 (34).
- [4] Stephenson R, Baschieri A, Clements S, Hennink M, Madise N. Contextual influences on the use of health facilities for childbirth in Africa. *American Journal of Public Health* 2006; 96 (1): 84-93.
- [5] Say L, Raine R. A systematic review of inequalities in the use of maternal health care in developing countries: examining the scale of the problem and the importance of context. *Bull WHO*. 2007; 85: 812-819.
- [6] Gabrysch S, Cousens S, Cox J, Campbell O. Distance and quality of care strongly influence choice of delivery place in rural Zambia: A study linking national data in a Geographic Information System. *Journal of Epidemiology and Community Health* 2011; 65: A42–A42.
- [7] 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.
- [8] Mills S, Bertrand JT. Use of health professionals for obstetric care in northern Ghana. *Studies in Family Planning* 2005; 36 (1): 45-56.
- [9] Borghi J, Ensor T, Neupane BD, Tiwari S. Financial implications of skilled attendance at delivery in Nepal. *Tropical Medicine and International Health* 2006; 11 (2): 228-237.
- [10] Liu M, Zhang Q, Lu M, Kwon CS, Quan H. Rural and urban disparity in health services utilization in China. *Medical Care* 2007; 45 (8): 767-774.
- [11] Adanu R. The challenge of meeting the Millennium Development Goal for maternal health. *International Journal of Gynaecology and Obstetrics* 2008; 102: 1-2.
- [12] Letamo G, Rakgoasi SD. Factors associated with the non-use of maternal health services in Botswana. *Journal of Health and Population Nutrition* 2003; 21: 40-47.
- [13] Gage AJ, Callixte MG. Effects of physical accessibility of maternal health services on their use in rural Haiti. *Population Studies (Cambridge)* 2006; 60: 271-88.
- [14] Wilson SB, Collison AHK, Richardsom S. The maternity Ghana experience. *International Journal of Gynecology and Obstetrics* 1997; 59 (2): S1650-S172.
- [15] Carr D. Improving the health of the world's poorest people. *Health Bulletin* 2004; 3-12.
- [16] Samai O, Sengeh P. Facilitating emergency care through transportation and communication, Bo, Sierra Leone. *International Journal of Gynecology and Obstetrics* 1997; 59(2): S157- S164.
- [17] Census, Govt of India (Office of the Registrar General and Census Commissioner). 2001.
- [18] Ministry of Health and Family Welfare (MOHFW), Reproductive and Child Health Programme: Schemes for Implementation, Department of Family Welfare, New Delhi. 1997.
- [19] Ministry of Health (MOH). Nepal Demographic and Health Survey 2001. Kathmandu, Nepal: MOHP, New Era and ORC Macro, qsw Calverton, Maryland. 2002.
- [20] Ebrahim GJ. Cross-cultural aspects of pregnancy and breast feeding. *Nutritional Sociology* 1980; 39: 13-15.
- [21] Dadhich JP. The Traditional Birth Attendants- Can we do without them? *Journal of Neonatology* 2009; 23:3.
- [22] Levin A, McEuen M, Dymatraczenko T, Sengooba F, Mangani R, Van Dyck G. Costs of Maternal Health care Services in three Anglophone African Countries. *International Journal of Health Planning and Management* 2003; 18 (1): 3-22.
- [23] Stephenson R, Baschieri A, Clements S, Hennink M, Madise N. Contextual influences on the use of health facilities for childbirth in Africa. *American Journal of Public Health* 2006; 96: 84-93.
- [24] Tuladhar H, Dali SM, Pradhanang V. Complications of home delivery: a retrospective analysis. *Journal of Nepal Medical Association* 2005; 44: 87-91.
- [25] Mpembeni RNM, Killewo JZ, Leshabari MT, Massawe SN, Jahn A, Mushi D. Use pattern of maternal health services and determinants of skilled care during delivery in Southern Tanzania: implications for achievement of MDG-5 targets. *BMC Pregnancy Childbirth* 2007; 7: 29.
- [26] Stanton C, Blanc AK, Croft T, Choi Y. Skilled care at birth in the developing world: Progress to date and strategies for expanding coverage. *Journal of Biosocial Sciences* 2007; 39: 109-120.
- [27] Chakraborty N, Islam MA, Chowdhury RI, Bari W, Akhter HH. Determinants of the use of maternal health services in rural Bangladesh. *Journal of Health Promotion* 2003; 18: 327-37.
- [28] Navaneetham K, Dharmalingamb A. Utilization of maternal health care services in Southern India. *Social Science Medicine* 2002; 55: 1849-1869.
- [29] Mayhew M, Hansen PM, Peters DH, Edward A, Singh LP, Dwivedi V. Determinants of skilled birth attendance in Afghanistan: a Cross-sectional study. *American Journal of Public Health* 2008; 98: 1849-56.
- [30] Houweling TAJ, Ronsmans C, Campbell OMR, Kunst AE. Huge poor-rich inequalities in maternity care: an international comparative study of maternity and child care in developing countries. *Bull World Health Organ* 2007; 85: 745-754.
- [31] 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.
- [32] Celik Y, Hotchkiss DR. The socio-economic determinants of maternal health care utilization in Turkey. *Social Science Medicine* 2000; 50: 1797-806.
- [33] Katung PY. Socio-economic factors responsible for poor utilization of primary health care services in a rural community in Nigeria. *Nigerian Journal of Medicine* 2001; 10: 20-59.
- [34] Satoko Y, Sophal O, Susumu W. Determinants of skilled birth attendance in rural Cambodia. *Tropical Medicine International Health* 2006; 2: 238-251.