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 Thiruvur 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 Thiruvarur district of Tamilnadu state in India.

According to 2001 census, Thiruvarur 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

Thiruvarur 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, Thiruvarur from east, Tiruturaiyuntai 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 Thiruvarur 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.
2.8. Ethical Approval

The syndicate review board at Annamalai University, Tamilnadu state, India has approved the research entitled “Reproductive and Sexual Health status of Scheduled Castes Youth in Thiruvarur district, Tamilnadu, India” for the degree of Doctor of Philosophy (Ph D) in Population Studies with effect from July 2012.

2.9. Map of Thiruvarur District (Study Area)

2.10. Study Settings

3. Results

3.1. Place of Delivery

All the women who participated in this research study were asked their place of delivery and the result are tabulated. The (Table 1) reveals that 4.8% of the deliveries took place at home among scheduled castes (SC) communities and the remaining 95.2% of the deliveries were taken place at institutions. Among the institutional deliveries, less than half of deliveries took place at government hospitals (47.6%) and about 28.4% child deliveries took place at primary health centers and another 18.5% of the children were born at the community health centers. The result reveals that only 0.7% of deliveries were took place at Private hospitals.

| Place of delivery | Frequency | Percentage |
|-------------------|-----------|------------|
| Home              | 29        | 4.8        |
| Primary Health Centre | 172   | 28.4       |
| Community Health centre | 112  | 18.5       |
| Government Hospital | 288    | 47.6       |
| Private hospital  | 4         | 0.7        |
| Total             | 605       | 100.0      |

3.2. Assistance while Delivery

The (Table 2) discloses that 69% of home deliveries were monitored by traditional birth attendants (TBAs/Dais) and the remaining deliveries were attended by village health nurse (31%). With regard to primary health centers, more than three-fourth of the child deliveries were conducted by nurses (76.2%) whereas only 23.8% of the child deliveries were attended by doctors. More than half of child deliveries were monitored by doctors (51.8%) at community health centers. Overwhelming majority of the child deliveries were monitored by doctors (90.3%) at Government hospitals.

| Assistance while delivery | Frequency | Percentage |
|---------------------------|-----------|------------|
| At home                   |           |            |
| TBA/Dais                  | 20        | 69.0       |
| Village Health Nurse      | 9         | 31.0       |
| Total                     | 29        | 100.0      |
| Primary Health Centers    |           |            |
| Nurse                     | 131       | 76.2       |
| Doctor                    | 41        | 23.8       |
| Total                     | 172       | 100.0      |
| Community Health Centers  |           |            |
| Nurse                     | 54        | 48.2       |
| Doctor                    | 58        | 51.8       |
| Total                     | 112       | 100.0      |
| Government Hospitals      |           |            |
| Nurse                     | 28        | 9.7        |
| Doctor                    | 260       | 90.3       |
| Total                     | 288       | 100.0      |

3.3. Reasons for not Delivering at Institution

The (Table 3) presents the percentage distribution of women according to main reasons for not delivering at institution. In the study area, around 79.3% of women reported that they had better care at home and another 69% stated that the Traditional Birth Attendants...
(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^2 | P |
|-----------------------------------|-------------------|-----------|---|
|                                   | Home             | Institutional | |
| Age of women                      |                   |           |   |
| 18-20                             | 2 (2.1)           | 92 (97.9) | 94 |
| 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 |
| 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|
| 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|
| 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 |
| 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|
| 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|
| Less frequently                    | 25 (7.1)          | 328 (92.9)| 353|
| Distance of health facility        |                   |           |   |
| Within 1 Km                        | -                 | 78 (100.0)| 78 |
| 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 modern health care services and place more value upon health care services [23,27,28]. It is well recognized that a woman’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 [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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