Utilization of Antenatal HealthCare Services among Fishermen Population in Kanchipuram District, Tamil Nadu: A Cross-sectional Study

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Abstract

Background: Considering the global and national level commitments in improving the maternal health as well as reducing the maternal mortality, assessment of factors influencing the delivery of antenatal healthcare services becomes essential. Objectives: The aim is to assess the utilization of antenatal health services and to identify the factors influencing their utilization among women of fishermen population in Kanchipuram district, Tamil Nadu. Materials and Methods: The cross-sectional study was carried out among the mothers in Kovalam area of Kanchipuram district. Details were collected using a pretested questionnaire and analyzed using statistical software. Results: The study included 284 mothers, of which 35% were illiterates. Nearly 60.21% have got registered with the Government sector, 59.51% of the mothers had three or more antenatal visits, 64.08% have received two doses of tetanus toxoid, and 73.24% have taken iron and folic acid tablets. Factors which were identified to have statistically significant association with better utilization of antenatal health services were age >30 years, higher educational status, skilled workers, those having their first child, and higher socioeconomic class. Conclusion: This study has reported the fact that antenatal healthcare services were not utilized fully by the community and the fishermen population being a special group has to be given the needed attention from the healthcare delivery system.

Keywords: Antenatal care, fishermen, healthcare provider, maternal health

Introduction

As per the estimates of the World Health Organization, UNICEF, and World Bank, more than 3.5 lakh maternal deaths are occurring per year globally. Of the total estimated maternal deaths, developing countries accounted for almost 99% of the maternal deaths and India accounts for a maximum number of maternal deaths, more than 45,000 deaths in 2015.[1,2] According to UN estimates maternal mortality ratio (MMR) in India during 1960 was 560 per lakh live births and it has dropped to the current level of 167 in 2011–2013.[3] Moreover, it takes a herculean effort to achieve the Millennium Development Goal 5 regarding maternal deaths, i.e., MMR to be reduced three-quarters between 1960 and 2015. Major reasons being implicated for the high levels of MMR in the country are low literacy levels, inadequate availability of maternal healthcare services, especially emergency obstetric services. Antenatal care (ANC) not only ensures a safer outcome from pregnancy but also provides a platform for improving the health status of mother and baby as both are considered as a single unit. Furthermore, ANC has a positive effect on the utilization of postnatal care services.[4-8]

In India, the total fishermen population was about 4 million living in 8.64 lakh families. Moreover, 61% of the fishermen population was under Below Poverty Line category. Sex ratio among them was 928 females per 1000 males and the family size on an average was 4.63.[9] The fishermen population is being considered a marginalized and special group due to their varied sociocultural practices, low socioeconomic status, low

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Literacy levels, and possibly less awareness about the healthcare services was provided. Furthermore, there were no studies related to maternal health services usage among them. Taking into account of the above details, this study has been planned to identify the utilization of antenatal health care services and the factors influencing the usage among fishermen population in Tamil Nadu.

**Materials and Methods**

This study was a community-based cross-sectional study to assess the utilization of maternal health services among women of fishermen population and it was conducted among women residing in Kovalam (fishermen area) village in Thiruporur Taluk of Kanchipuram district. The study was conducted between April 2015 and September 2015 (6 months). The study was done among married women who have delivered a child in the past 5 years, who were a resident of the study area. Unmarried women, those women who were not residents of the study area and those who were not willing to participate in the study were excluded from the study.

The sample size was calculated on the basis of 46.2% of pregnant women having received full ANC in rural areas of Kanchipuram, district as per District level household and facility survey-4 (DLHS-4) data, with an allowable error (d) as 6 (13% of p) using the formula, \( N = \frac{Z^2 \cdot p \cdot q}{d^2} \). Assuming 10% nonresponsiveness, the sample size comes to 265.\(^{100}\) Assuming 10% nonresponsiveness, the sample size is taken as 290. For the study purpose, Kovalam village in Thiruporur Taluk of Kanchipuram district was chosen since the area is inhabited highly by fishermen population.

From the Maternal and child health registers available from the local health authorities, a complete list of mothers who have delivered in the past 5 years was prepared and the study subjects were selected by a simple random technique using computer-generated random numbers.

The study was done using a pretested, semi-structured questionnaire to collect data from the participants. The study questionnaire was divided into three parts as follows: Part I-sociodemographic details-Basic details such as age at childbirth, education, occupation, and income Part II-Ante Natal Services - Details regarding availed antenatal health services such as confirmation and registration of pregnancy, intake of iron and folic acid (IFA) tablets, getting Tetanus Toxoid (TT) injections, investigations done and details of any antenatal complications; Part III-Preference of Healthcare Service Provider details regarding the preference for government or private healthcare providers were enquired.

Initially, permission to conduct the study was obtained from the Institutional Ethical Committee. With the help of the local health worker, the eligible mothers were identified. Informed and written consent were obtained from the participants. Confidentiality was guaranteed to each participant. Details about the basic sociodemographic profile and utilization of maternal health services were obtained as per the questionnaire. Data collected was entered into MS Excel and then analyzed using SPSS 16.0 software. Categorical data were represented by percentages and proportions. To test the association Chi-square test was used for categorical variables and \( P < 0.05 \) was considered statistically significant.

**Results**

The study included 284 mothers from Kovalam area of Kanchipuram district. Among them, 57% (162) were in the age group of 21–25 years, 22% (63) were <20 years, 19% (54) were 26–30 years and only 2% (5) were >30 years at the time of childbirth.

Among the study participants, 35.21% (100) were illiterates, 34.51% (98) have studied till primary education, 19.37% (55) have done secondary education, 9.86% (28) have done some under graduation, and remaining 1.06% (3) have studied till postgraduation. With regards to their occupation, 37.68% (107) of the mothers were homemakers, 45.42% (129) were unskilled workers, 6.69% (19) were having semi-skilled job, and remaining 10.21% were doing skilled work. Among the mothers enquired 61.27% (174) were having their first child, 27.11% (77) having a second child, 8.45% (24) were having their third and remaining 3.17% (9) were having their fourth child. According to modified B. G. Prasad classification, 45.07% (128) of the study subjects belong to socioeconomic class II, 41.9% (119) belong to class III, 10.56% (30) belong to class I, and only 2.46% (7) belong to class IV.

Among the study population, 50% (142) have confirmed their pregnancy in the Government sector, 20.42% (58) in Private sector and the remaining 29.58% (84) have confirmed by self. Regarding the place of registration, around 60.21% (171) got registered with the government sector, 19.01% (54) with private and 20.77% (59) have not registered themselves.

Of the total mothers, 36.27% (103) had three antenatal visits, 23.24% (66) had more than three visits, 30.99% (88) had only two visits, and 9.51% (27) had only one visit. Nearly 64.08% of the mothers have received two doses of TT, 19.72% (56) have received a single dose, and 16.2% (46) have not received transfusion-transmitted TT.

Regarding the intake of IFA tablets, 13.03% had taken more than 100 tablets, 31.69% had 51–100 tablets, 28.52% had <50 IFA tablets, and 26.76% have not taken any IFA tablet. Among the investigations being done during antenatal period, 59.51% have undergone only basic investigations such as hemoglobin (Hb) and weight measurements, 27.11% have done all the investigations including Hb, serology, and ultrasound. and 13.38% have not undergone any type of investigation.

With respect to the services received from Integrated child development services (ICDS) centers, 59.51% of the mothers had taken supplementary foods from those centers. During the antenatal period, 50.7% of the mothers had some complications. Complications experienced were anemia (34.72%), bleeding (14.58%), abdominal pain (12.5%), diabetes/hypertension (9.03%), fever (6.25%),...
epilepsy (9.72%), etc., Table 1 describes the utilization of antenatal services by the study population.

Among the study population, 53.87% preferred Government sector for any maternal health services and the remaining (46.13%) preferred private sector [Table 1]. The major reasons for preference of Government sector include: Very nearby (11.76%), free treatment (31.37%), experienced health personnel (20.92%) and other benefits like cash benefits (24.19%). Likewise, the reasons for preference of private sector were better care (38.17%), care round the clock (12.98%), better hygiene (29.77%), etc.

Factors in utilization of Antenatal health services

The factors which were identified to be having statistically significant (P < 0.05) association with better utilization of antenatal health services were age at child birth-age >30 years ($\chi^2 = 10.313; P = 0.016$), education-graduate and above ($\chi^2 = 78.897; P = 0.0001$), occupation-skilled work ($\chi^2 = 64.846; P = 0.0001$), birth order of the child first child ($\chi^2 = 13.473; P = 0.001$), and socioeconomic class-class I ($\chi^2 = 60.718; P = 0.0001$) [Table 2].

Discussion

Among the study population, 60.21% have got registered with the Government sector. Only 59.51% of the mothers in the area had three or more antenatal visits, in contrast to 71.2% of mothers as per DLHS-4 data of the district. Furthermore, 64.08% of the mothers only have received two doses of TT in the study population, whereas it is 75.3% in the district as per the National family health survey-4 (NFHS-4) data. Only 13.03% of the mothers have taken >100 IFA tablets, which is very less when compared to 60.4% of mothers being reported in NFHS-4 data. Moreover, only 59.51% of the mothers had undergone basic investigations like Hb, whereas 71.2% mothers had undergone blood test for Hb as per DLHS-4 data.

Nearly 59.51% of the mothers have utilized the services from ICDS centers. Jat et al. have reported a similar finding of 61.7% usage of antenatal services among mothers in Madhya Pradesh. Dairo and Owoyokun have reported 76.8% ANC usage in their study done in Nigeria. Studies done in many other sub-Saharan African countries have reported a wide range (5%-90%) of ANC usage. Very low levels of ANC usage have been attributed to a number of factors such as literacy level, economic status, availability and access to the healthcare system.

The factors which were identified to have statistically significant (P < 0.05) association with better utilization of antenatal health services in our study population were age >30 years, higher educational status-graduates and above, those employed in skilled work, those having their first child, those having their first child (0.016), education-graduate and above (0.0001), occupation-skilled work (0.0001), birth order of the child first child (0.001), and socioeconomic class-class I (0.0001)

Table 1: Utilization of antenatal healthcare services (n=284)

| Variable                          | n (%)      |
|-----------------------------------|------------|
| Place of confirmation of pregnancy|            |
| Government                        | 142 (50)   |
| Private                           | 58 (20.4)  |
| Self                              | 84 (29.6)  |
| Place of registration of pregnancy|            |
| Government                        | 171 (60.21)|
| Private                           | 54 (19.01) |
| Not registered                    | 59 (20.77) |
| Number of antenatal visits        |            |
| 1                                 | 27 (9.51)  |
| 2                                 | 88 (30.99) |
| 3                                 | 103 (36.27)|
| >3                                | 66 (23.24) |
| Number of TT doses received       |            |
| 1                                 | 56 (19.72) |
| 2                                 | 182 (64.08)|
| Not received                      | 46 (16.20) |
| Number of Iron and folic acid tablets taken|        |
| <50                               | 81 (28.52) |
| 51-100                            | 90 (31.69) |
| 100-200                           | 37 (13.03) |
| Not taken                         | 76 (26.76) |
| Investigations done during antenatal period|       |
| Basic investigations like Hb and weight| 169 (59.51)|
| Basic, USG, serology              | 77 (27.11) |
| Not done                          | 38 (13.38) |
| Availed services from ICDS        |            |
| Yes                               | 169 (59.51)|
| No                                | 115 (40.49)|
| Any complications during antenatal period|        |
| Yes                               | 144 (50.70)|
| No                                | 140 (49.30)|
| Health service provider preferred for maternal health services|        |
| Government                        | 153 (53.87)|
| Private                           | 131 (46.13)|

TT: Tetanus toxoid, Hb: Hemoglobin, USG: Ultrasonography, ICDS: Integrated child development services
Table 2: Factors in utilization of antenatal health services ($n=284$)

| Variable                  | $n$ | Received complete antenatal care (%) | Statistical Interpretation | $\chi^2$ | df | $P$ |
|---------------------------|-----|-------------------------------------|----------------------------|---------|----|-----|
| Age at child birth (years)|     |                                     |                            |         |    |     |
| <20                       | 63  | 34.9                                | 10.313                     | 3       | 0.016* |
| 21-25                     | 162 | 33.9                                |                            |         |    |     |
| 26-30                     | 54  | 42.6                                |                            |         |    |     |
| >30                       | 5   | 80                                  |                            |         |    |     |
| Education                 |     |                                     |                            |         |    |     |
| Illiterate                | 100 | 16                                  | 78.897                     | 3       | 0.0001* |
| Primary                   | 98  | 29.6                                |                            |         |    |     |
| Secondary                 | 55  | 50.9                                |                            |         |    |     |
| Graduate and above        | 31  | 100                                 |                            |         |    |     |
| Occupation                |     |                                     |                            |         |    |     |
| Home maker                | 107 | 34.6                                | 64.846                     | 3       | 0.0001* |
| Unskilled work            | 129 | 21.7                                |                            |         |    |     |
| Semi-skilled work         | 19  | 52.6                                |                            |         |    |     |
| Skilled work              | 29  | 100                                 |                            |         |    |     |
| Birth order of child      |     |                                     |                            |         |    |     |
| 1                         | 174 | 42.5                                | 13.473                     | 2       | 0.001* |
| 2                         | 77  | 35.1                                |                            |         |    |     |
| 3 and above               | 33  | 9.1                                 |                            |         |    |     |
| Socioeconomic class       |     |                                     |                            |         |    |     |
| I                         | 30  | 100                                 | 60.718                     | 3       | 0.0001* |
| II                        | 128 | 30.5                                |                            |         |    |     |
| III                       | 119 | 29.4                                |                            |         |    |     |
| IV                        | 7   | 14.3                                |                            |         |    |     |

*Statistically significant

**Conclusion**

Improving maternal health is one among the eight goals in MDG’s and to achieve that, maternal healthcare delivery has to reach every mother in the community. The study being done in a special community, i.e., fisherman population, has revealed the fact that despite of a number of maternal health programs being implemented by the government and the large number of health personnel being employed in our country, antenatal healthcare services have not reached everyone in the community, and there are areas which have been still underserved. The study also proves the fact that improvement of certain factors like the socioeconomic status of the population and level of education of the mother can have a significant impact on the utilization of antenatal healthcare services.

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**Conflicts of interest**

There are no conflicts of interest.

**References**

1. World Health Organization. Health and millennium development goals. Geneva: World Health Organization; 2005. Available from: http://wwwapps.who.int/iris/bitstream/10665/43246/1/9241562986.pdf. [Last accessed on 2015 Nov 10].

2. World Health Organisation, UNFPA and the World Bank. Trends in Maternal Mortality: 1990 to 2015 Estimates Developed by WHO, UNICEF, UNFPA and the World Bank. Geneva: World Health Organization; 2015. Available from: http://wwwapps.who.int/iris/bitstream/10665/194254/1/9789241565141_eng.pdf?ua=1. [Last accessed on 2015 Dec 21].

3. Registrar General of India. Sample Registration System-Special Bulletin on Maternal Mortality in India 2007-2009. Office of Registrar General of India, New Delhi; 2011. Available from: censusindia.gov.in/Vital...Bulletins/Final-MMR20Bulletin-2007-09_070711.pdf. [Last accessed on 2015 Dec 28].

4. Jat TR, Ng N, San Sebastian M. Factors affecting the use of maternal health services in Madhya Pradesh state of India: A multilevel analysis. Int J Equity Health 2011;10:59.

5. Sarin AR. Underutilization of maternal health services. World Health Forum 1997;18:67-8.

6. Kesertjon AJ, Cleland J, Sloggat A, Ronsmans C. Institutional delivery in rural India: The relative importance of accessibility and economic status. BMC Pregnancy Childbirth 2010;10:30.

7. Bhata JC, Cleland J. Determinants of maternal care in a region of South India. Health Transit Rev 1995;5:127-42.

8. Naveenath K, Dharmalingam A. Utilization of maternal health care services in Southern India. Soc Sci Med 2002;55:1849-69.

9. Fisheries and Fishing Communities in India. Available from: http://www.indianfisheries.icsf.net/. [Last accessed on 2016 Jan 10].

10. District Level Household and Facility Survey-4, (2012-13). Ministry of Health and Family Welfare, Government of India, International Institute for Population Sciences. Available from: https://www.nrhm-mis.nic.in/DLHS4/Tamilnadu/District%20Factsheets/Kancheepuram.pdf. [Last accessed on 2015 Mar 20].

11. National Family Health Survey-4, (2015-16). Ministry of Health and Family Welfare, Government of India, International Institute for Population Sciences. Available from: http://www.rchiips.org/nfhs/FCTS/TN/Kancheepuram.pdf. [Last accessed on 2016 Jan 20].

12. Dairo MD, Owoyokun KE. Factors affecting the utilization of antenatal care services in Ibadan, Nigeria. Benin J Postgrad Med 2010;12:3-13.

13. Ali AA, Osman MM, Abbbbaker AO, Adam I. Use of antenatal care services in Kassala, Eastern Sudan. BMC Pregnancy Childbirth 2010;10:67.

14. Alam N, Hajizadeh M, Dumont A, Fournier P. Inequalities in maternal health care utilization in sub-Saharan African countries: A multivariable and multi-country analysis. PLoS One 2015;10:e0209222.

15. Tura G. Antenatal care service utilization and associated factors in Metekel zone, Northwest Ethiopia. Ethiopian Journal of Health Sciences 2009;19:111-8.

16. van Eijk AM, Bles HM, Odihambo F, Ayis JG, Blxkland IE, Rosen DH, et al. Use of antenatal services and delivery care among women in rural Western Kenya: A community based survey. Reprod Health 2006;3:2.

17. Chakraborty N, Islam MA, Chowdhury RI, Bari W, Akhter HH. Determinants of the use of maternal health services in rural Bangladesh. Health Promot Int 2003;18:327-37.

18. Islam MR, Olland JO. Determinants of antenatal and postnatal care visits among Indigenous people in Bangladesh: A study of the Mur community. Rural Remote Health 2011;11:1672.

19. Babalola S, Fatusi A. Determinants of use of maternal health services in Nigeria – Looking beyond individual and household factors. BMC Pregnancy Childbirth 2009;9:43.

20. Magadi MA, Madise NJ, Rodrigues RN. Frequency and timing of antenatal care in Kenya: Explaining the variations between women of different communities. Soc Sci Med 2000;51:551-61.