Utilization of maternal health services among Janani Suraksha Yojana beneficiaries in Puducherry, India

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ABSTRACT

Background: Utilization of maternal health services among Janani Suraksha Yojana (JSY) beneficiaries is an important aspect to improve maternal health. Aims: This study aims to assess the antenatal, intranatal, and postnatal maternal health services received by JSY beneficiaries. Materials and Methods: A community-based cross-sectional study was conducted among 152 JSY beneficiaries in the rural and urban field practice area attached to a tertiary care institution in Puducherry, India. Antenatal, intranatal, and postnatal services received by the mothers were assessed by a pretested structured questionnaire. Results: About 144 subjects participated in the study (response rate - 94.7%). About half (79, 54.9%) of subjects belonged to 19–25 years age group. About 82.6% (119) of subjects were registered in the first trimester. The majority (142, 98.6%) had institutional delivery. All had received tetanus toxoid immunization. About 3.5% (5) of beneficiaries were sent for high-risk referral. About 77.8% (112/144) of beneficiaries had consumed at least 100 iron and folic acid (IFA) tablets. About 98.6% (142) had more than three visits. The majority of them (138, 95.7%) reached hospital within 1 h. Around 62% of women breastfed their child within 1 h after birth. The postnatal visit by health worker was 54.2% (78), and minimum one postnatal visit by postnatal mother was 48.6% (70). Conclusions: Overall maternal health services are good for JSY beneficiaries in this area. Efforts should be made to improve the quality of services for early registration of pregnancies, IFA tablet intake, early breastfeeding after birth and postnatal care services.

Key words: India, Janani Suraksha Yojana, maternal health services

INTRODUCTION

Maternal health services are an important area of concern especially in developing countries including India. This is mainly because of high burden of maternal morbidity and mortality in India. On global level, around 800 women die each day from avoidable causes of pregnancy-related complications and childbirth.[1] In India, based on Sample Registration Survey (SRS) 2013 data, infant mortality rate was 42/1000 live births and maternal mortality rate was 178/lakh live births.[2] The fifth Millennium Development Goal aimed to reduce the

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maternal mortality ratio to 100/lakh live births by 2015.[3]
In view of the above, assessment of all the parameters related to maternal health services is an important prerequisite required.

The services will differ in different geographical locations and depends largely on the health care delivery system of the concerned area. A study showed that the proportional utilization of institutional delivery in 284 districts varied from 16.8% to 92.5%.[4] However, the studies on services received by target groups like Janani Suraksha Yojana (JSY) beneficiaries was comparatively lesser than non-JSY beneficiaries. The variation in utilization pattern of institutional delivery among JSY beneficiaries and nonbeneficiaries was 54.2% and 72.36%, respectively.[5] In this regard, there is a need to explore the services received by JSY beneficiaries to improve the quality of services among this vulnerable group. With this background, this part of the study assessed the maternal health services received by JSY beneficiaries in urban and rural areas of Puducherry, India.

MATERIALS AND METHODS

A community-based cross-sectional study was carried out in the rural and urban field practice area attached to a tertiary care institution from January to February 2015.

All JSY eligible beneficiaries (confirmed with birth and the antenatal register) registered in the rural and urban health center and delivered from September 1, 2013, to August 31, 2014, were included in the study. The migrated subjects from the service area were excluded from the study. It was decided to interview all 152 subjects in rural and urban health center, Puducherry.

The protocol was approved by Scientific Advisory Committee and Institute Ethics Committee. During the first phase of the study, birth register was separated for the period September 1, 2013, to August 31, 2014. The next step was to verify with an antenatal record to identify eligible JSY beneficiaries marked in the register. The eligible list was prepared based on scheduled caste/scheduled tribe/below poverty line register and those who attained 19 years of age. The non-JSY eligible mothers were left out from the study and we thus included only those meet the eligible criteria for JSY scheme. The eligible list contains 152 JSY beneficiaries, 102 mothers from the rural health center and 50 mothers from the urban health center service area.

This part of the study assessed antenatal, intranatal, and postnatal services received by the mother by using a pretested structured questionnaire. Initially, the structured English questionnaire was prepared and then translated into Tamil. The Tamil questionnaire was pretested on ten postnatal mothers from the health center. Based on the information obtained during pretesting, the Tamil questionnaire was modified and rephrased for use in the study.

Before starting data collection, study subjects were clearly explained the procedure and the written informed consent was obtained. The required data were collected in the houses of subjects by interview method. The interview schedule was prepared in the local language and back-translated into English. Pretested, predesigned, and semi-structured interview schedule was used to collect the baseline characteristics such as age, income, education, occupation, caste, religion, residential areas, and details of antenatal, intranatal, and postnatal service utilization.

Statistical analysis
The results were presented as frequencies and percentages for presenting the data. All statistical analyses were done at 5% level of significance, and $P < 0.05$ was considered as significant.

RESULTS

Of 152 eligible JSY beneficiaries, 144 participated in the study with response rate of 94.7%. A total of 98 subjects participated from the rural health center, and 46 subjects participated from the urban health center.

More than half of the beneficiaries (54.9%) belonged to 19–25 years of women. The proportion of scheduled caste mothers was 41% (59), and OBC were 59% (85). Most of the beneficiaries was Hindu 138 (95.8%), and more than half of the JSY beneficiaries (56.2%) had education up to high school level. A significant number of JSY beneficiaries (135 (94%)) were unemployed. The mean age at marriage was 22.77 ± 3.19 years and mean age at first pregnancy was 23.29 ± 3.32 years [Table 1]. About 73 (50.7%) were primi and nearly 83% of beneficiaries were registered in the first trimester. All participants had received the required number of tetanus toxoid (TT) immunizations. About 112 (77.8%) of them had consumed at least 100 IFA tablets [Table 2].

About 98.6% of women arranged their transport on their own, and 95.7% of beneficiaries reached hospital within 1 h. The majority of women (98.6%) had institutional delivery. The median length of stay in hospital after delivery was 3 days (3–7 days) and the median expenses for delivery was Rs. 2000 (2000–4375) [Table 3].

About 87.5% of women gave birth to the child of more than 2.5 kg birth weight. Around 62% of women breastfed their child within 1 h. All children received immunization immediately after birth. The postnatal
DISCUSSION

In this study, the results showed that about 3/4 of women had consumed at least 100 IFA tablets. Almost every woman had three or more antenatal visits, and all women had full TT immunization. About 82.6% of women registered in the first trimester. Various studies have shown different results in a different setting at state and regional levels. A study conducted in West Bengal among eligible beneficiaries found that 97% had full TT immunization, 46% had consumed more than 100 tablets, 91% had at least 3 antenatal care (ANC) check-up, and 40% had registered in the first trimester.[6]

Another study by Vikram et al. in Delhi found that in high performing states about 92% of women had 3 ANC visits, about 70% had registered ANC within 3 months similar to this study.[7] Another study done by Gupta et al. in Jabalpur showed that 29.21% had 3 or more ANC visits. Only 48.31% had more than 100 IFA tablets, and all the women completed full TT immunization. 78.42% of women had registered within their first trimester.[8]

As per Puducherry DLHS-4 (2012–13) data, 52.7% of mothers had consumed at least 100 IFA tablets, and 91% had more than 3 ANC visits. ANC registration within the first trimester was 77.8%, and only 44% had full ANC.[9] In this study, more beneficiaries had consumed at least 100 IFA tablets when compared with DLHS-4 survey. ANC findings from this study could be comparable with the high performing states because Puducherry has a small area with high literacy rate and also better spending on public health facilities as well as private health services. Overall 78.6% had full ANC care that was better than DLHS-4 (Puducherry) where it was only 44%.[9] This observed difference could be because we included only JSY beneficiaries group as study subjects, and there also may be regional variation.

In this study, about 98.6% had institutional delivery (public hospital delivery was 91%, and private hospital delivery was 7.6%) and home delivery was 1.4%. Panja et al. showed that 84% had institutional delivery, and Vikram et al. reported 71% of institutional delivery.[6,7] As per DLHS-4 (2012–13) data, Puducherry had 99.7% institutional delivery.[9]

During delivery, beneficiary commuted to hospital by car (26.4%), bus (18.1%), two wheeler (25%), auto rickshaw (27.8%), ambulance (1.4%), and others (1.4%). Rajasthan study showed that mode of transport was four wheeler (51.20%), tempo (13.96%), foot (4.82%), bullock cart (2.09%), motorcycle (2.89%), cycle (2.09%), and others (22.95%).[10] Average expenditure for transport in

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Table 1: Distribution of sociodemographic variables of beneficiaries (n=144)

| Sociodemographic variables | Number (%) |
|---------------------------|------------|
| Age group (in years)      |            |
| 19-25                     | 79 (54.9)  |
| 26-30                     | 50 (34.7)  |
| >30                       | 15 (10.4)  |
| Service area              |            |
| Rural health center       | 98 (68.1)  |
| Urban health center       | 46 (31.9)  |
| Family type               |            |
| Nuclear                   | 73 (50.7)  |
| Joint/extended            | 71 (49.3)  |
| Religion                  |            |
| Hindu                     | 138 (95.8) |
| Christian                 | 6 (4.2)    |
| Per capita monthly income (in rupees)* | |
| Class 1 (5156 and above)  | 2 (1.4)    |
| Class 2 (2578-5155)       | 12 (8.3)   |
| Class 3 (1547-2577)       | 30 (20.8)  |
| Class 4 (773-1546)        | 71 (49.3)  |
| Class 5 (773 and less)    | 29 (20.1)  |
| BG Prasad scale SES 2013* |            |
| Women educational status  |            |
| Illiterate                | 2 (1.4)    |
| 1st to 10th standard      | 83 (56.2)  |
| 11th to 12th standard     | 32 (22.2)  |
| >12th standard            | 29 (20.1)  |
| Women occupation          |            |
| Profession                | 3 (2.1)    |
| Semiskilled               | 3 (2.1)    |
| Unskilled                 | 3 (2.1)    |
| Unemployed                | 135 (93.8) |

*SES=Socioeconomic status

Table 2: Distribution of utilization of antenatal services (n=144)

| Antenatal services                  | n (%) |
|-------------------------------------|-------|
| ANC registration                    |       |
| First trimester                     | 119 (82.6) |
| Second trimester                    | 25 (17.4) |
| ANC visits                          |       |
| 2 visits                            | 2 (1.4) |
| 3 or more visits                    | 142 (98.6) |
| Number of TT taken                  |       |
| Full 2 dose of TT or booster        | 144 (100) |
| Number of high risk referrals       |       |
| Referred                            | 5 (3.5) |
| Not referred                        | 139 (96.5) |
| Number of IFA tablets consumed      |       |
| ≥100                                | 112 (77.8) |
| <100                                | 32 (22.2) |

ANC=Antenatal care, TT=Tetanus toxoid, IFA=Iron and folic acid
this study was Rs. 618. UNFPA 2009 study in selected states found that transport expenses in Rajasthan, Madhya Pradesh, and Orissa were Rs. 280, Rs. 297, and Rs. 433, respectively.[10] Gupta et al. found that on an average Rs. 200 has been paid for transportation expenses.[8]

Mean stay in hospital was 4.38 days for normal delivery whereas mean stay for LSCS was 8.79 days. A study showed that about 93% of women stayed for <3 days after delivery.[10] In contrast, as per DLHS-4 (2012–13), about 95.6% of women stayed in the hospital after 48 h delivery. Public hospital delivery and stay more than 48 h was comparatively more in this area because of easy access to the tertiary hospital.

Immunization after birth was given to all the children including home deliveries. However, postnatal visit by health worker was only 54.2%. As per DLHS-4 (2012–13), 94.3% of babies received BCG vaccination at birth. Postnatal care within 2 weeks was 74.2%. About 83% of newborns received immunization with BCG whereas oral polio was 84.4%. Postnatal care was comparatively lower than DLHS-4 study, but immunization after birth was good, may be due to the institutional delivery in this study.

The study has got some limitations. The study was cross-sectional, and data were collected from limited geographical area in Puducherry. The study did not include noneligible JSY beneficiaries for comparison of utilization of services. In spite of these limitations, the study gives information on certain aspects of quality of maternal health services in this area. The information can be utilized by concerned health authorities for the improvement of health care to this group.

**CONCLUSION**

It is concluded that overall maternal health services are good for JSY beneficiaries in this area. Efforts should be made to improve the quality of services with respect to certain parameters like early registration of pregnancies, intake of at least 100 IFA tablets for those 22% of beneficiaries not consuming it, 100% institutional deliveries, early breastfeeding after birth and postnatal care services.

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**Conflicts of interest**

There are no conflicts of interest.

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**Table 3: Distribution of intranatal services utilization**

| Intranatal services               | Number (%)       |
|-----------------------------------|------------------|
| **Mode of transport, n (%)**      |                  |
| Auto rickshaw                     | 40 (27.8)        |
| Car                               | 38 (26.4)        |
| Bus                               | 26 (18.1)        |
| Two wheeler                       | 36 (25)          |
| Ambulance                         | 2 (1.4)          |
| Other                             | 2 (1.4)          |
| **Time taken to reach hospital, n (%)** |            |
| Within ½ h                        | 122 (84.6)       |
| ½-1 h                             | 16 (11.1)        |
| >1 h                              | 6 (4.2)          |
| **Location of delivery, n (%)**   |                  |
| Institutional delivery            | 142 (98.6)       |
| Home delivery                     | 2 (1.4)          |
| **Place of delivery, n (%)**      |                  |
| Public tertiary hospital          | 131 (91)         |
| Private hospital                  | 11 (7.6)         |
| Home                              | 2 (1.4)          |
| **Mode of delivery, n (%)**       |                  |
| Normal delivery                   | 102 (70.8)       |
| LSCS                              | 42 (29.2)        |
| **Duration of stay and expenses, median (IQR)** |         |
| Median length of stay             | 3 days (3-7)      |
| Median stay for normal delivery   | 3 days (3-4.25)   |
| Median stay for LSCS              | 8 days (6.75-10)  |
| Expenses for delivery             | 2000 (2000-4375) |
| Expenses for public hospital delivery (Rs.) | 2000 (2000-3500) |
| Expenses for private hospital delivery (Rs.) | 15000 (11000-30000) |
| Expenses for transport during delivery (Rs.) | 500 (250-1000) |

LSCS = Lower segment caesarean section, IQR = Interquartile range
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