



Inequities in the Utilization of Obstetric Care Services among Women in Urban Slums: A Cross-Sectional Study from Central Karnataka, India

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ABSTRACT

Background: Utilization of obstetric services is a concept of expressing the extent of interaction between the service and the beneficiaries for whom it is intended. It depicts the health infrastructure and services given.

Objective: To know the obstetric services utilized by the women in reproductive age group during antenatal, natal & postnatal period in urban slums and factors influencing the utilization.

Methods: A cross sectional study was conducted in the urban slums of Davangere city among 300 mothers for one year. Data was collected from mothers using a pre-tested, semi-structured questionnaire. Data was analyzed using descriptive statistics, chi square test and logistic regression.

Results: Among the respondents, 46% (138) were in age group 20-24 years, 56% (168) were Hindus, and 74% (222) belonged to lower socio economic class. Majority of the mothers had accessed private hospital (75%), 99.3% had institutional delivery and 73% had at least two post-natal visits. The present study observed education of parents, occupation and type of family affect the utilization of obstetric services.

Conclusion: There was decreased awareness about early registration and postnatal visits. Majority of the mothers had accessed private healthcare services for antenatal care & the utilization of overall obstetric care was poor.

Keywords: Inequity; Obstetric care; urban slums; Karnataka

INTRODUCTION

Mothers and children in any community constitute a vulnerable or special risk group. The risk is connected with child bearing in the case of women; and growth, development and survival in the case of infants and children. Whereas 50% of all deaths in the developed world are occurring among people above the age of 70, the same proportion of deaths are occurring among children during the first five years of life in the developing world. Global observations show that, in developed regions maternal mortality ratio averages at 13 per

100000 live births; in developing regions the figure are 440 for the same number of live births.^{1,2}

This difference is due to the access to special care during pregnancy and child birth in developed countries as compared to developing countries.

About 30 millions of pregnancies per year in India, 27 million deliveries take place per year; in this around 16% are home deliveries and 77,000 maternal deaths per year, due to the development of complications of pregnancy.^{2,3}

The urban population in India is one of the largest in the world. Among the urban poor only 44 % of deliveries are institutional as compared to the urban average of 67.5%. Despite the supposed proximity of the urban poor to urban health facilities their access to them is severely restricted. Ineffective outreach and weak referral system also limits the access of urban poor to health care services. This situation is further worsened by the fact that a large number of urban poor are living in slums that have an "illegal status". Slum populations, obviously, 'face greater health hazards due to overcrowding, poor sanitation, and lack of access to safe drinking water and environmental pollution. In India, the 'urban bias' in public spending on healthcare services has been pointed out by a number of studies. Even within urban areas, especially in the big cities, the slum population is particularly underprivileged.³⁻⁵

In spite of launching new programmes by Government of India, significant reduction in maternal mortality rate and infant mortality rate has not occurred. The reasons are non-utilization of services by the people due to ignorance, illiteracy, customs, lack of transport, hostile behavior of health personnel etc.⁶⁻¹⁰

In fixing the community needs and actions to meet the performance under RCH programme, constant guidelines are required for improvement in the quality of services. These guidelines can be formulated periodically after the assessment of service utilization by beneficiaries. Utilization of MCH services is a concept of expressing the extent of interaction between the service and the beneficiaries for whom it is intended. This is an important determinant of maternal and child morbidity and mortality and also about the awareness of family planning methods among urban slum people. So the present study has been undertaken to know the inequities in access, utilization pattern and the determinants of obstetric care services during antenatal, natal and postnatal period among women in urban slums of Davangere city.

METHODS

A Community based Cross sectional analytical study was carried out in declared slums of Davangere city situated in the central part of Karnataka state. Study population included mothers in 3-4th month of postpartum period residing in the study area. Mothers who were residing in the urban slums and who were in their 3-4th month of postpartum period (maximum 2 months' time was given for completion of at least two postnatal visits) were approached for the study. Exclusion criteria was post-natal mothers not willing to partici-

pate and not available for interview at their home even after three visits. Study period was one year from May 1st 2015 to April 30th 2016.

Sample Size: Based on the previous studies the proportion of women who had utilized obstetric care services during antenatal, natal and postnatal period in urban slums was 40%. At 5% significance with 15% allowable error, sample size was calculated to be of 300 using the formula $n = Z^2 pq / L^2$, where, n is the sample size, Z the point on normal distribution with 95% confidence interval and level of significance 5%, p the proportion of obstetric care utilization in urban slums [based on previous studies]¹¹ is 40%, q is 100-p which comes to 60 and L is permissible error in the estimate of proportion which is taken as 15%. The calculated sample size was 267. However, keeping in mind 10% cases lost [for non-availability, non-response, non-reliability], sample size taken will be $267 + 10\% (267) = 294$, the sample size for study was rounded off to 300.

Method of collection of data: Data collection was started after obtaining clearance from the institutional ethical committee and after taking an informed written consent from the participants. The study was conducted in 4 geographically selected slums of Davangere city. Mothers were enumerated by door to door visit. ANM registers and Anganwadi records were used to identify the mothers missed during enumeration. All selected slums were visited once a month by rotation and mothers who met the inclusion criteria were interviewed using semi-structured pre-tested questionnaire, till the sample size of 300 was reached. At least three visits were made to include all the women who could not be contacted in the first visit.

Data was collected regarding their socio demographic profile, healthcare facilities they accessed & utilization of obstetric care services and reasons for not utilizing services.

Operational definitions:

SLUMS: For the 2011 Census the following criteria were used to designate the area as slum or non-slum¹²:

- (i) All specified areas in a town or city notified as Slum by State/Local Government and UT Administration under any Act including a "Slum Act"
- (ii) All areas recognized as Slum by State/Local Government and UT Administration, Housing and Slum Boards, which may have not been formally notified as slum under any act
- (iii) A compact area of at least 300 populations or about 60-70 households of poorly built congested tenements, in unhygienic environment usually with inadequate infrastructure and lacking in proper sanitary and drinking water facilities.

Complete Utilization of Obstetric Services = Adequate antenatal services + Institutional delivery/Home delivery assisted by health assistant + two postnatal visits (within 2 months of delivery)

Adequate antenatal service defined as minimum 4 ANC (antenatal checkups) with 1st check-up within the 1st trimester of pregnancy, 2 doses or booster dose of injection Tetanus Toxoid and consumption of minimum 100 IFA (Iron & folic acid) tablets.

Modified Kuppuswamy socio-economic classification updated for January 2015¹³ was used (consumer price index (Industrial Workers) for January 2015 = 254).

Data analysis

Data was analyzed using descriptive statistics (means, proportions, percentages), chi square test and logistic regression. The strength of association was estimated by calculating the odds ratios (OR) with 95% confidence intervals (CI). P value of <0.05 was considered statistically significant and results were presented in the form of tables, figures, graphs, diagrams wherever necessary.

RESULTS

Socio-demographic profile of study population - Majority of the mothers in the study population were in the age group of 20-24 years (46%), followed by <19 years (38%). The minimum age of mothers observed was 18years and maximum age 32years. Mean age was 21.6 ± 3.1years. In this study 168 (56%) of the study population were Hindus, 132 (44%) were Muslims. Majority of the mothers (92%) were literate, whereas 34% of the husbands were illiterate. Also, majority of the mothers (74%) were housewives and 23% (77) of them were working either as coolie/maid servants, beedis/agarbathi makers or as a vegetable vendor. According to modified Kuppuswamy socio-economic classification updated for January 2015, majority (74%) of the mothers belonged to lower class and 26% of them belonged to upper lower class.

Teenage marriage (<18years) in our study area was found to be 33% (99). The mean age of marriage observed in our study was 18.2±2.1years.

Access of healthcare services: Majority of the study participants (76.7%) had accessed antenatal care services in private sector but preferred government sector for delivery (96%) & accessed private sector for postnatal care (73%). Majority of women shifted from private to government facilities due to financial problems.

Table 1: Socio-demographic profile of study participants (n=300)

Socio-demographic Variables	Participants (%)
Age (years)	
≤ 19	114 (38)
20-24	139 (46)
25-29	39 (13)
30-34	8 (3)
Education	
Primary	110 (36.6)
Higher Primary	53 (17.7)
High School	36 (12)
No education	101 (33.7)
Occupation	
Homemaker	222 (74)
Working for wages	78 (26)
Religion	
Hindu	168 (56)
Muslim	132 (44)
Socio-economic status	
Lower class	222 (74)
Upper lower class	78 (26)
Type of family	
Joint	153 (51)
Three generation	99 (33)
Nuclear	48 (16)

Table 2: Utilization of obstetric services during antenatal, natal & postnatal period (n=300)

Obstetric services	Participants (%)
Antenatal registration	
Registered	287 (95.7)
Not registered	13 (4.3)
Time of antenatal registration	
1st trimester	267 (93)
2nd trimester	12 (4)
3rd trimester	8 (3)
Place of utilization of antenatal services	
Government hospital	224 (78)
Private hospital	63 (22)
Number of antenatal visits	
≥ 4	267 (89)
1-3	20 (6.7)
Nil	13 (4.3)
Inj. tetanus toxoid	
Had two TT/Booster	287 (95.7)
Nil	13 (4.3)
IFA tablets received	
Received ≥ 100 IFA tablets	247 (82.3)
Received < 100 IFA tablets	40 (13.4)
Nil	13 (4.3)
Place of delivery	
Government hospital	290 (96.7)
Private hospital	8 (2.7)
Home	2 (0.6)
Post-natal check-ups	
3 visits	6 (2)
2 visits	219 (73)
1 visit	73 (24.3)
No post-natal visit	2 (0.7)
Health services utilization	
During antenatal period	225 (75)
Intranatal period	298 (99.3)
Postnatal period	219 (73)
Utilization of complete services*	207 (69)

* during antenatal, natal and postnatal periods

Table 3: Reasons for non-utilization of obstetric services among post-natal mothers

Major reasons*	Percentage
Lack of early registration/No registration (n = 43)	
Financial constraints	26.7
Not aware	24
Felt not needed	23.3
Time constraints	18.7
Objection by family members	7.3
Incomplete/Nil consumption of IFA Tablets (n = 53)	
Side effects [nausea, vomiting, gastritis]	52.9
Felt not needed	38.2
Couldn't go the hospital	8.9
Lack of postnatal visits (n = 75)	
Felt not needed	68.7
Not aware	17.3

* Multiple responses

The study revealed 59% of the mothers in the study area had utilized the obstetric care services during antenatal, natal and postnatal period. Majority (85.7%) of mothers were registered during pregnancy and 14.3% pregnant women did not get registered anytime during their pregnancy. Among the pregnant women who had registered, only 60.3% (155) of them had done it in 1st trimester. Among those who delayed their registration (39.7%), 72% felt it was not needed 15% said because of objection by family members and 11% didn't get time for registration as they were working women. The mean number of antenatal checkups was 5 ± 0.7 visits, majority of mothers (79%) had minimum of 4 antenatal checkups. All the mothers had at least one postnatal checkup, majority (63%) of them had minimum 3 checkups in postnatal period.

DISCUSSION

In our study female literacy status (92%) was better compared to male literacy (82%). The utilization of obstetric services among literate mothers in the study was 64% (192) whereas it was only 5% (15) among illiterate mothers. Female literacy has a major impact on the health of both mother and the baby. As female literacy is better in the study area utilization of mother & child services can still be improved. The utilization of obstetric services by the mothers whose husbands were literate was 48% (143) as compared to only 21% (64) by the mothers whose husbands were illiterate. This observation is noteworthy as DLHS 4¹⁴ report states that proportion of women having background of ten or more years of education (96.8 %) and having one living child (96%) are going for institutional delivery. In our study utilization of obstetric services was poor among working women (15%) which was similar to studies conducted in urban slums of Delhi^{15,16} Utilization was better among

mothers belonging to lower class (52%) compared to upper lower class (17%). Mothers residing in the joint family and three generation family had better utilization of services as 37% and 27% respectively compared to 6% among mothers from nuclear family. This could be attributed to the better support and help given by the family members to the mothers residing in joint and three generation families. Similar observations regarding type of family among study population were made by Dinesh K et al¹⁷.

On logistic regression analysis complete utilization of maternal services was significantly associated with education of mother [OR = 10.14, 95% CI: 17.84-5.76], education of husband [OR = 9.69, 95% CI: 17.04-3.47] and occupation of the mother [OR = 1.89, 95% CI: 3.24-1.10]. In a similar study conducted in urban slums of Bangalore¹¹, stated that complete utilization of maternal services was found to be significantly associated with the literacy of the mothers (OR = 5.01, 95% CI: 2.31-10.89), literacy of husbands (OR = 2.43, 95% CI: 1.31-4.49) and place of service utilization (OR = 0.26, 95% CI: 0.12-0.54).

In a study conducted by Chakraborty N¹⁸, in Bangladesh, found that mothers education is likely to be associated with a net effect on usage of maternal services, with OR = 1.842, 95% CI: 1.115-3.043 and $p = 0.01$. In another study by Hazarika I¹⁹, a study among slum population in India showed that ANC visits depended significantly on the level of education and economic status ($p < 0.05$). Similarly study by Awasthi S²⁰ in urban slums of Agra observed that, the antenatal checkups is influenced by education of mothers ($p < 0.001$).

A study by Vijay MS²¹ in Mumbai observed that the extent of utilization of services pertaining to antenatal period is excellent among literate women.

A study done by Yang Y²², about factors affecting utilization of antenatal care services found that significant predictor of ANC utilization ($p < 0.05$) was the level of education (OR = 6.8, 95% CI: 2.7 - 16.8).

CONCLUSION

The present day has observed that 69% of mothers had completely utilized the services. Awareness about early registration, acceptance of IFA tablets and postnatal visits in the study population are less and needs attention and improvement. The present study observed that socio-cultural and behavioral factors like education of parents, occupation, and number of living children, religion, and type of family affected the utilization of maternal services.

Table 4: Factors affecting utilization of obstetric services

Factors	Utilization of complete P services (%)		Value
	Yes (n=207)	No (n=93)	
Age group (n)			
≤ 19 (114)	91 (79.8)	23 (20.2)	<0.001
20-24 (139)	97 (69.8)	42 (30.2)	
25-29 (39)	17 (43.6)	22 (56.4)	
30-34 (8)	02 (25)	6 (75)	
Educational status			
No education (101)	37 (36.6)	64 (63.4)	<0.001
Primary (110)	94 (85.5)	16 (14.5)	
Higher primary (53)	45 (84.9)	08 (15.1)	
High school (36)	31 (86.1)	05 (13.9)	
Occupation			< 0.05
Housewife (223)	162 (72.6)	61 (27.4)	
Working (77)	45 (58.4)	32 (41.6)	
Religion			
Hindu (168)	140 (83.3)	28 (16.7)	< 0.001
Muslim (132)	67 (50.8)	65 (49.2)	
Type of family			
Three generation (99)	80 (80.8)	19 (19.2)	<0.001
Joint (153)	110 (71.9)	43 (28.1)	
Nuclear (48)	17(35.4)	31 (64.6)	
Socio-economic status			
Lower class (222)	157 (70.7)	65 (29.3)	>0.05
Upper lower class(78)	50 (64.1)	28 (35.9)	
Age at marriage			
≥ 18 years (201)	147 (73.1)	54 (26.9)	< 0.05
< 18 years (99)	60 (60.6)	39 (39.4)	
Duration of marriage			
0 - 5 years (262)	203 (77.5)	59 (22.5)	< 0.001
6 - 10 years (38)	04 (10.5)	34 (89.5)	
No. of living children			
1 (190)	169 (88.9)	21 (11.1)	< 0.001
2 (50)	21 (42)	29 (58)	
≥ 3 (60)	17 (28.3)	43 (71.7)	

Table 5: Multiple logistic regression analysis of complete utilization of services during antenatal, Intranatal and postnatal period

Variable	OR* (95%CI)	'p' value
Duration of marriage 0-5yrs	29.24 (85.76-9.97)	< 0.001
1 -2 living children	15.25 (27.79-8.37)	< 0.001
Literate mother	10.14 (17.84 -5.76)	< 0.001
Literate father	9.69 (17.04 -3.47)	< 0.001
Housewife mother	1.89 (3.24 -1.10)	< 0.05

*Odds' ratio

Utilization of obstetric care services was more among parents who were educated, belonged to Hindu religion, duration of marriage was <5yrs, belonged to three generation family, mother was home-maker, primi-para & married after 18yrs.

RECOMMENDATIONS

There is need to create awareness and counsel the mothers, family members and community as a whole for better utilization of complete obstetric services. Mothers should be addressed on ANC

checkup days, in immunization clinics, mother group meetings in Anganwadi and during home visits by health workers. Adolescent health education conducted in schools and colleges should stress on legal age of marriage. Health education regarding benefits of avoiding teenage pregnancy and use of contraceptives should be given.

Joint effort both by the community as well as the healthcare staff is essential for the achievement of better health of mother & child. The responsibility to reach this goal lies not only on the medical profession alone but also on the social and political leaders and on the policy makers in the government.

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