



Utilization of Maternal Health Care Services in an Urban Slum of Bangalore- A Cross-Sectional Study

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ABSTRACT

Background: Pregnancy is golden period in woman's life. They must not face any complications during this period. In spite of the developed health care system in India, it is disgraceful to see many mothers who succumb to pregnancy and child birth. Although there is decline in maternal mortality, still India contributes to lot of maternal deaths. Accessibility and utilization of services are two major issues to be addressed immediately.

Objective: The study was to assess the utilization of maternal health care services in urban slum.

Methods: This was a Cross-sectional study. Study was conducted among the postnatal women of an urban slum area in Bangalore. Sample size was 125. Data was collected using a pre-tested questionnaire by interview method. Data regarding socio-demographic profile, antenatal visits, health services utilized, type of health center and also regarding postnatal visits were obtained.

Results: Registration of pregnancy 124 (99.2%), 4 antenatal visits-123 (98.6%), TT doses-121 (96.4%), Institutional delivery was found to be 100%. IFA tablets consumption was only seen in 86 (68.6%). Minimum 3 postnatal visits in 6 months duration were completed by only 93 (74.5%) subjects. Family planning services was adopted by 57 (45.6%). 98 (78%) of the study participants followed Exclusive breastfeeding.

Conclusion: The insights provide an opportunity to develop strategies to address the inadequacies and inequitable distribution of health care services.

Key Words: Maternal mortality, antenatal, postnatal, Breastfeeding, newborn

INTRODUCTION

Maternal period is one of the most crucial periods in a woman's life. Pregnancy is considered as a physiological condition. It is a disgraceful situation if this physiological condition turns into pathological and a woman succumbs to it. There has been a decline of Maternal Mortality ratio (MMR) by 44% over the last 25 years. It has reduced from 385 maternal deaths per 100,000 live births in 1990 to 113 maternal deaths per 100,000 live births in 2020 (SRS).¹ 99% of the global maternal deaths in 2015 took place in developing regions.¹ Although MMR in India has re-

duced from 212 in 2007–2009 to 167 in 2011–2013, India is still contributed to 15% of global maternal deaths in 2015.² The SDGs is envisioned to reduce MMR to less than 70 per 100,000 live births by the year 2030.³ And it also concentrates on the disparity in the maternal deaths between developed and developing nations.

Complications during pregnancy and childbirth are the leading cause of morbidity and mortality among women of reproductive age in developing countries.⁴ The major causes of maternal mortality in India are hemorrhage, (38%), sepsis (11%) and obstructed

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labor (5%), which are all preventable causes.⁵ Most important strategies to prevent these deaths are by making provision for adequate health services, improving the health seeking behavior of the mothers and the accessibility. In a country like India, with diverse culture and socio-economic status; implementing Health for all is a huge process. It can only be possible by determining the health behavior of this diverse population.⁶ Inadequate accessibility and under-utilization of healthcare services are major reasons for poor maternal health in the developing countries which in turn is due to many factors like low levels of income, illiteracy and ignorance, a bundle of traditional factors on one hand and substandard and inadequate public health services on the other.^{4,7,8,9} This leads to increase in MMR and also child deaths.

Complete utilization of maternal includes early registration (within 1st trimester), minimum 4 ANC (antenatal checkups), injection Tetanus Toxoid (TT) 2 doses/ booster, consumption of minimum 100 IFA (Iron & folic acid) tablets, delivery by institutional delivery and three postnatal check-ups.¹⁰ Antenatal care is basically to monitor the pregnancy for complications, diagnose and treat them and also it provides opportunity to educate the women about the pregnancy, delivery care and postnatal care. ANC acts as a gateway for other healthy behaviors practiced during and after pregnancy, like institutional delivery, newborn care, exclusive breastfeeding and many more.¹¹ But as per NFHS -4 data mothers who had 4 antenatal care visits was only 51.2%.¹²

According to Thaddeus & Maine (1994) the reasons for higher MMR can be grouped into a model called the 'Three Delays' model, according to which the three delays are delay in seeking appropriate medical care, reaching a facility in time and receiving adequate care.¹³ Several factors influence this model and determine the utilization of maternal health care services like socio-economic factors, availability, accessibility, affordability of health care services, women's autonomy in the household, women's knowledge, family attitudes, beliefs & culture.^{4,8,9,14,15}

This study was conducted to assess the utilization of maternal health care services and factors which influence them, in an urban slum; as this is the neglected region in an urban area.

MATERIALS AND METHODS

This was a Cross-sectional descriptive study. It was conducted among the postnatal women of an urban slum in Bangalore, Karnataka, between October 2018 to September 2019.

Inclusion criteria: Postnatal mothers who were residing in the same urban area during their antenatal period and gave written informed consent were included in the study. Those postnatal mothers who had delivered and were within six months of delivery (6 months was given for completion of three postna-

tal visits) were included. Those postnatal mothers who delivered during the study period (1 year) were also included (Time period of maximum 6 months was given for completion of three postnatal visits.)

Exclusion criteria: Postnatal mothers whose babies are sick/ died during delivery were excluded from the study.

Study Sample size and sampling method: Based on DLHS-4¹⁶ data, utilization of government health services for Antenatal Care in Bangalore was 58.6% and also allowable error was considered as 15%. Sample size was calculated as 125 by using the formula $n = 4pq/d^2$. The study participants were selected by purposive sampling method. All mothers who satisfied the eligibility criteria were selected for the study till the sample size of 125 was achieved.

Ethical consideration, data collection method: Data collection was started after obtaining ethical clearance from the Institutional Ethical committee. A written informed consent was obtained from the study participants. Based on eligibility criteria the postnatal mothers who had completed minimum of three postnatal visits were recruited in the study. The study tool was a pre-tested, semi-structured questionnaire which was designed by review of literature and pilot tested before initiating the study. Data was collected utilizing this questionnaire by interview method. Data regarding socio-demographic profile, antenatal visits, health services utilized during antenatal period, type of health center and also regarding postnatal visits were obtained. Those women who delivered during the study period were also included in the study.

Statistical Analysis: Data was entered in Microsoft Excel and analyzed using SPSS software. Frequency and Chi-square test was used for analysis. The operational definition of complete utilization of maternal services was slightly modified and followed in our study. Components of complete utilization of maternal health care services is, women with early registration of pregnancy (within 1st trimester), minimum 4 ANC (antenatal checkups) covering entire period of pregnancy, inj TT 2 doses/ booster, consumption of minimum 100 IFA (Iron & folic acid) tablets, delivery by skilled birth attendant / institutional delivery and 3 postnatal check-ups.¹¹

RESULTS

Socio-demographic profile of postnatal mothers: Table 1 depicts the socio-demographic profile of the study population. Age group was divided as <20 years and above mainly to obtain the number of pregnancy during the teenage. In our study 34 (27.2%) mothers were less than 20 years. Majority of the participants were literates 105 (84%) but were not educated more than higher secondary. Illiterate population was also noted to be quite a number 20 (16%). Majority of the participants (>80%) belonged

Table 1: Socio-demographic profile of the study participants (n=125)

Parameter	Participants (%)
Age	
<20 years	34 (27.2)
20 and above	91(72.8)
Literacy	
Literates	105 (84)
Illiterates	20 (16)
Socio-economic status (Modified Kuppuswamy scale)	
Upper	10 (8)
Upper middle	33 (26.4)
Middle	35 (28)
Lower middle	38 (30.4)
Lower	9 (7.2)
Type of Family	
Nuclear	67 (53.6)
Joint	50 (40)
Three generation	8 (6.4)

Table 2: Marital and conception profile of the study participants (n=125)

Parameter	Participants (%)
Age of marriage	
16-20 years	32 (25.6)
21-25 years	66 (52.8)
26-30 years	25 (20)
31-35 Years	2 (1.6)
Age of 1st conception	
16-20 years	22 (17.6)
21-25 years	64 (51.2)
26-30 years	24 (19.2)
31-35 Years	15 (12)
Duration of spacing between present and previous pregnancy	
<1 year	26 (20.8)
2 years	84 (67.2)
>3 years	15 (12)
Parity	
1	44 (35.2)
2	69 (55.2)
3	11(8.8)
>3	1 (0.8)
Contraceptive methods used	
None	82 (65.6)
Oral contraceptive pills	15(12)
Barrier method-condom	12 (9.6)
Intrauterine Device	16 (12.8)

to middle class family according to modified Kuppuswamy socio-economic scale. Most of them lived in nuclear family 67 (53.6%) followed by joint family 50 (40%).

Marital and conception profile of the study participants: Table 2 shows the marriage and conception profile of the study participants. 66 (52.8%) were married between the age group of 21-25 years and around 25% were married below 20 years of age. The age of first conception also showed similar results with majority 64 (51.2%) in the age group of 21-25 years and 22 (17.6%) below 20 years of age. Most of the study participants 84 (67.2%) had 2 years of spacing between present and previous pregnancy and 26 (20.8%) has < 1 year spacing be

Table 3: Utilization of Antenatal, Natal, postnatal health services among postnatal women (n=125)

Maternal Health Care Services	Utilization (%)
Antenatal Services	
Registration	124 (99.2)
Early registration (1 st trimester)	86 (68.5)
Antenatal visits (Minimum 4 visits)	123 (98.6)
Tetanus Toxoid 2 doses / Booster	121 (96.4)
IFA tablets consumption -Complete*	86 (68.6)
Basic investigations	
Blood grouping and Rh typing	125 (100)
Hemoglobin estimation@	125 (100)
Urine examination@	78 (62.4)
HIV, VDRL and HBsAg test	125 (100)
Blood sugars	93 (74.4)
Natal Services	
Institutional delivery	125(100)
Mode of delivery	
Normal	88 (70.4)
Assisted	15 (12)
Caesarean section	22 (17.6)
Postnatal Services	
Postnatal visits (Minimum 3)#	93 (74.5)
Family planning services adopted#	57 (45.6)
Care of newborn	
Early initiation of Breastfeeding	112 (89.6)
History of pre-lacteal feeds	5(4)
Exclusive breastfeeding	98 (78)
Immunized Upto date	125 (100)

* 100 tablets consumption; @once in all antenatal visit;

#In 6 months, duration postnatally

tween the two pregnancies. 69 (55.2%) of the mothers were second parity. 82(65.6%) did not use any method of contraceptives.

Utilization of Maternal health services among postnatal women: Table 3 depicts the utilization of maternal health services among postnatal women. Registration of pregnancy 124 (99.2%), 4 antenatal visits-123 (98.6%), TT doses-121 (96.4%), basic investigations like blood grouping and Rh typing, hemoglobin estimation and testing for HIV, VDRL and HBsAg test were all more than 98%. Institutional delivery was found to be 100% and majority 88 (70.4%) were delivered by normal vaginal delivery. IFA tablets consumption was only 86 (68.6%). The reasons for incomplete or partial consumption of IFA tablets were the side effects of the tablets, forgetfulness and very few reported limited supply (3.5%).

Table 3 also shows the utilization of postnatal services and care of newborn among study participants. Minimum 3 postnatal visits in 6 months duration was completed by only 93 (74.5%) subjects. Family planning services was adopted by 57 (45.6%). 98 (78%) of the study participants followed Exclusive breastfeeding and 125 (100%) of the children born to the postnatal mothers were immunized up to date.

Factors influencing maternal health care utilization: Among the study participants, 68.7% seek maternal health care services from public health sector. Table 4 shows the relationship of variables with uti-

Table 4: Relationship of variables with Utilization of Maternal health care services among postnatal mothers (n=125)

Variable	Mothers (n=125)	Complete Utilization		P value	Odds ratio (95% CI)
		Yes (%)	No (%)		
Literacy					
Literates	105	76 (72.4)	29 (27.6)	0.27	1.21 (0.83- 1.76)
Illiterates	20	12 (60)	8 (40)		
Socio-economic status					
Middle	78	45 (57.7)	33 (42.3)	<0.05	0.73 (0.58-0.93)
Lower	47	37 (78.72)	10 (21.3)		
Type of Family					
Nuclear	67	50 (74.6)	17 (25.4)	0.087	1.24 (0.96-1.59)
Non-Nuclear	58	35 (60.3)	23 (39.7)		
Parity					
<2	113	100 (88.5)	13 (11.5)	<0.05	1.51 (1.1-2.45)
>3	12	7 (66.6)	5(33.3)		

*Complete utilization of maternal health care services- women with early registration of pregnancy, minimum 4 ANC visits, injection TT 2 doses/ booster, consumption of minimum 100 IFA tablets, institutional delivery and 3 postnatal check-ups

lization of maternal health care services. Statistical significance was found with two variables. i.e socio-economic status and parity. Utilization was more among the postnatal mothers belonging to middle class family when compared to lower class (OR- 0.73, p value < 0.05). Postnatal mothers with parity >3, had lesser utilization of maternal health care services than those with parity <2. (OR-1.51, p value <0.05).

DISCUSSION

Maternal health care includes antenatal, natal and postnatal care given to mothers, so that we can obtain at the end of pregnancy a healthy mother and a healthy baby. It not only improves the maternal condition but also reduces child morbidity and mortality. Universal health coverage envisages that all the people should have accessibility, (both financial and geographical), to quality health care without any discrimination. Public health sector plays a crucial role in Universal Health coverage. The study area selected is an urban slum with many middle and lower class people in it requires high focus to increase the accessibility to health care. The urban health care center located near to the slum area caters to majority of the population in this region. People are well aware of health services provide at the health care center.

The results of the study showed that majority of the postnatal mothers were above 20 years of age with 27% of mothers in the age group below 20 years of age. Majority of them were literates with education completed till higher secondary. Around 16% of them were also illiterates. This information is required to understand the target audience. Majority of the postnatal mothers belonged to upper middle, middle and lower middle group. Most of them lived in nuclear or joint family. This data is required to understand the influence of elders in the house on the major decisions made by the couple. It was found that majority of them got married between the age group of 21-25 years which is a good sign, but this is worth noticing that around 25% were married below 20 years of age. This shows the risk of teenage preg-

nancy among the population as it is also reflected in the age of first conception where 17.6% conceived before 20 years of age. It was found that majority of the postnatal mothers had < 2 years spacing between pregnancies and history of contraceptive usage for spacing was absent.

Utilization of maternal health care services and factors influencing them:

Antenatal Care: Utilization of maternal health services among postnatal women in this study was good. 99.2% registered the pregnancy but only 68.5% registered during the first trimester. This may be because of the late arrival to the first visit. Similar results were found in another study done in Bangalore slum by Ranganath et al. where 99.45% had registered their pregnancy but only 56.90% had registered in the 1st trimester.¹⁰ In our study 98.6% of the study participants completed the recommended minimum of 4 antenatal visits which was similar to the results obtained by Ranganath et al. where about 97.5% had completed 3 antenatal visits.¹⁰ The minimum Antenatal visits varied in both these studies. Our results obtained were quite different from that by Singh et al. where only 61% reported at least three ANCs during pregnancy¹¹; and Khanal et al. where only 33.9% had four ANC visits.¹⁶ Most of the maternal health care utilization rates are better in Southern states of India when compared to that of Northern states.

In this study, 96.4% were immunized with TT injection similar to that done by Ranganath et al. and Singh et al. where more than 96% had taken TT injections.^{10, 11} Around 68.6% had complete consumption of IFA tablets (100 tablets in 3months) in this study which was similar to the finding of Ranganath et al. but in contradiction to the finding of Singh et al. where it was only 7%.¹¹ This huge difference can be because of the awareness given to the mothers regarding anaemia and regular check-up of hemoglobin during each ANC visit. The most common reason stated for incomplete consumption of IFA tablets was due to side effects similar to the finding of Ranganath

et al.¹⁰ Institutional deliveries was 100% in our study, including different modes of deliveries and also in both public and private health care setup. Normal delivery was the most common mode of delivery. Similar results also observed by Ranganath et al (99.4%).¹⁰ This is mainly due to the awareness, hard work of health workers in educating the mothers and also schemes like Janani Suraksha Yojana. But a study done in Uttar Pradesh by Singh et al observed only 68% institutional deliveries.¹¹

Postnatal care: In this study 74.5% of the study participants completed 3 postnatal visits in the duration of 6 months which is better than the study by Ranganath et al where in it was only 59% (only 2 postnatal visits and by Singh et al. where it was only 26%.^{10, 11} In the study by Khanal et al. also only less than half of the mothers received postnatal care.¹⁶ In this study it was found that 90% of the mothers followed early initiation of breastfeeding in contrast to the result of a study conducted in rural Nepal by Khanal et al. where it was only 45%. 78% of the mothers followed exclusive breastfeeding in our study which is better than the findings observed by Khanal et al.¹⁷

Factors Associated with maternal health care services utilization: Statistically significant association was found between Socio-economic status and parity with that of utilization in this study, similar to the study conducted by Dey et al. where wealth, literacy and religion were the major factor influencing utilization.¹⁸ Another study by Singh L et al. found that economic status, education and birth order played an influential role. In our study also although relationship was established for literacy and type of family it was not statistically significant.¹⁹

CONCLUSION

Maternal health care utilization was found to be good among the study participants. This study helped us to understand the attitude and utilization (practice) of the mothers towards the maternal health care services. Most of the indicators seemed better. Improvement is required in postnatal care, exclusive breastfeeding, utilization of family planning practices and consumption of IFA tablets. Socio-economic status and parity were the two factors found to be statistically significant and influence the utilization of health care services. The results of this study served as a tool to appreciate and encourage the health workers of this slum, and also paved way for further improvement. These insights provide an opportunity to develop strategies to address the inadequacies and inequitable distribution of health care services.

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