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ORIGINAL ARTICLE

A Cross-sectional Study on Factors Influencing Utilization of Antenatal Care Services among Rural Women

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ABSTRACT

Background: The essential package of antenatal services needed for averting maternal mortality is well known; the challenge lies in ensuring its delivery and utilization. The community-based monitoring of health services utilization is a key strategy to ensure that these services, has reached all the women, and helps in promoting community led action. **Objectives:** The objectives of the study were **(**1) to assess the pattern of utilization of antenatal services among rural women and (2) to study the factors influencing utilization of antenatal services. **Methodology:** A cross-sectional study was conducted in the 3 Primary Health Centers, namely, Sulikere and Kumbalgodu, which belongs to field practice area of Kempegowda Institute of Medical Sciences (KIMS), Bengaluru. Two hundred and ten women who had delivered a child within past 1 year were selected using cluster sampling technique. Details regarding the utilization of antenatal services and reasons for non-utilization of antenatal services were taken. All the obtained data were analyzed using descriptive statistics. **Results:** Out of 210 mothers, 129 (61.4%) had registered for antenatal care during first trimester. One hundred and sixty-three (77.6%) of them had received at least four antenatal check-ups and 201 (95.7%) have received two doses/booster dose of T.T; whereas only 136 (64.8%) had consumed ≥100 iron-folic acid tablets. The utilization of antenatal services was found to be significantly higher among higher socio-economic class, better literacy status, and among primiparous women. **Conclusions:** The antenatal services were incompletely utilized by the rural women. There is a need for improving community awareness on importance of antenatal care.

Key words: Antenatal services, factors, rural area, utilization, women

INTRODUCTION

Pregnancy and childbirth are physiological events in the life of a woman. Although most pregnancies result in normal birth; it is estimated that about 15% may develop complications, which cannot be predicted.[1] Majority of these complications can be averted by preventive care such as antenatal check-ups, birth preparedness, skilled care at birth, early detection of risk, use of partographs, appropriate and timely management of obstetric complications, and postnatal care. Among them, antenatal care services are the first steps toward ensuring the health of mothers and the new born.[2]

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Utilization of adequate antenatal services influence on the maternal mortality, post-launch of RMNCH+A program, there is decline in maternal mortality ratio of India from 254 (2006) to 130 (2016) per 100,000 live births.[3] This decline was mainly due to the Government of India's Reproductive Maternal, Newborn, Child Health+ Adolescent (RMNCH+A) interventions that include many programs such as antenatal services, promotion of institutional deliveries, essential, and emergency obstetric care and tracking of every pregnant women; antenatal, intra-natal, and postnatal care.[4-6]

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The essential package of antenatal interventions needed for averting maternal mortality is well known. However, the challenge lies in ensuring its delivery and utilization at a sufficient scale and with sufficient quality to have a significant impact. At present, the number of women utilizing the complete antenatal package is quite low.[7] According to Karnataka fact sheet National Family Health Survey (NFHS)-4, 68% of mothers had at least four antenatal visit.[8] As a result, many women reach the healthcare facilities for the first time only during labor and face increased risk of complications during childbirth.[9]

The community-based monitoring of utilization of health services is a key strategy to ensure that these services has reached those for whom they were meant, especially the poor women and children residing in the rural areas. Community monitoring is also seen as an important aspect of promoting community led action in the field of health.[10,11] Therefore, it should receive special attention for understanding utilization of available health services and enhancing the quality of services. There is also difference in antenatal services coverage among rural and urban regions.[2,12] In this background, the present study was done to assess the utilization of antenatal care services and the factors influencing the utilization of these services among the rural women.

Objectives

The objectives are as follows:

1. To assess the pattern of utilization of antenatal services among women in rural area
2. To study the factors influencing utilization of antenatal services among rural women.

MATERIALS AND METHODS

This cross-sectional study was conducted in three Primary Health Centers (PHCs) areas under rural field practice area of Kempegowda Institute of Medical Sciences (KIMS), Bengaluru, after obtaining the KIMS IEC clearance. According to Bengaluru District fact sheet NFHS-4, 48.1% of mothers had at least four antenatal visit.[13] Hence, with a 10% precision, 95% confidence interval and design effect of two, the required sample size was 192 ≈ 210.

$$\text{Sample size} = n = Z_{\alpha/2}{}^2 pq / d^2 = \frac{(1.96)^2 \times 0.481 \times 0.519 = 96}{(0.1)^2}$$

After applying doubling effect, that is, 96 × 2 = 192 ≈ 210

By cluster sampling technique, 30 clusters were chosen from 59 villages in 3 PHC areas namely Sulikere and Kumbalgodu attached to KIMS, Bengaluru. Seven mothers who had delivered within past 1 year were selected randomly in each cluster. A total of 210 mothers were identified and included in the study with their consent.

Collection of Data

The mothers who gave the informed consent were interviewed using pre-designed, semi-structured pro forma consisting of socio-demographic variables, obstetric history, maternal, and neonatal outcome. Details regarding the utilization of health services such as place of utilization, confirmation of pregnancy, antenatal registration, number of antenatal check-ups, tetanus toxoid immunization, iron and folic acid supplementation, type of delivery, place of delivery, and reasons for utilization/non utilization of antenatal services were obtained. Complete antenatal care was considered as those mothers who had >4 antenatal visits with at least one dose of tetanus toxoid injection and consumption of >100 IFA tablets. All the obtained data were analyzed using descriptive statistics for continuous data and Chi-square test was used to find out the association between socio-demographic variables of mothers and utilization of antenatal care services.

RESULTS

The study included 210 mothers with the mean age ± standard deviation of 24.8 ± 3.4 years; majority of them, that is, 112 (53.3%) were between 20 and 24 years, followed by 71 (33.8%) in 25–29 years and others.

Majority (41.4%) of the mothers were educated till high school. Most of them, that is, 137 (65.2%) belong to nuclear family. According to Modified B.G. Prasad Classification, most of them (37.1%) were from upper lower socio-economic class [Table 1].

Among the study subjects, 142 (67.6%) visited government health facility for their antenatal check-ups. One hundred and twenty-nine (61.4%) had registered during first trimester and 69 (32.9%) during second trimester. However, 12 (5.7%) women had registered only during their third trimester.

Only 163 (77.6%) mothers had ≥4 ante natal visits; whereas, majority of them (95.7%) were immunized with two doses/ booster of tetanus toxoid (TT) injection. On the contrary, only 136 (64.8%) mothers had consumed ≥100 iron and folic acid tablets. Complete antenatal care was utilized by only 112 (53.3%) of mothers [Table 2].

Out of 210 study subjects, 125 (59.5%) women delivered at government health facility, 82 (39.1%) delivered at private hospital, and 3 (1.4%) of them delivered at home. The modes of delivery included normal vaginal delivery in 119 (56.7%) and 91 (43.3%) had caesarean section.

The present study showed that, there was a statistically significant association between religion, education of

Table 1: Socio-demographic profile of the study subjects (*n*=210)

Socio-demographic profile	*n* (%)
Age	
≤19	2 (0.9)
20–24	112 (53.3)
25–29	71 (33.8)
30–34	22 (10.6)
≥35	3 (1.4)
Literacy status	
Graduate	6 (2.8)
PUC	13 (6.2)
High school	87 (41.4)
Middle school	34 (16.2)
Primary school	24 (11.5)
Illiterate	46 (21.9)
Occupation	
House wife	154 (73.3)
Unskilled worker	18 (8.6)
Skilled worker	23 (10.9)
Clerical/shop	11 (5.3)
Professional	4 (1.9)
Religion	
Hindu	194 (92.4)
Muslim	13 (6.2)
Christian	3 (1.4)
Type of family	
Nuclear	137 (65.2)
3 – Generation	51 (24.3)
Joint	22 (10.5)
Socio-economic status	
Upper class	4 (1.9)
Upper middle class	33 (15.7)
Lower middle class	69 (32.9)
Upper lower class	78 (37.1)
Lower class	26 (12.4)

Table 2: Utilization of ANC services among rural women (*n* = 210)

Utilisation of ANC services	*n* (%)
Place of ANC visit	
Government hospital	142 (67.6)
Private hospital	68 (32.4)
ANC registration	
1st trimester	129 (61.4)
2nd trimester	69 (32.9)
3rd trimester	12 (5.7)
Frequency of ANC visit	
≥4	163 (77.6)
<4	47 (22.4)
No. of TT injection taken	
Two doses	108 (51.4)
Booster dose	93 (44.3)
None	9 (4.3)
Total no. of IFA tablets taken	
≥100	136 (64.8)
<100	74 (35.2)
Complete ANC services received*	
Yes	112 (53.3)
No	98 (46.7)

*≥ 4 ANC Visit + At least one TT/Booster + ≥100 IFA tablets. TT: Tetanus toxoid, ANC: Antenatal care

mother, parity, and socio-economic status with the utilization of antenatal care services ($P \leq 0.05$) [Table 3].

The reason for inadequate utilization of Antenatal care (ANC) services was lack of awareness, financial problems, long distance of the health care facility, fear of side effects of injections and tablets, family member's refusal, and negligence [Table 4].

DISCUSSION

Antenatal care play an important role in preparing the woman and her family for birth and also a provision for the management of pregnancy, detection, and treatment of complications and promotion of good health along with establishing confidence with the health-care provider. However, women rarely perceive childbearing as problematic and therefore many times do not seek care; which affects the utilization of ANC services in different regions of the country where poverty and illiteracy are widespread, especially in rural areas.[14]

In the present study majority (67.6%) visited government health facility and 61.4% had registered their pregnancy during first trimester. The study also showed that, 77.6% of the mothers had ≥ 4 ante natal visits, 95.7% were immunized against tetanus, and only 64.8% mothers had consumed ≥100 iron and folic acid tablets. This showed that, only 53.3% mothers received complete ANC services. Likewise, a cross-sectional study done in Aligarh on utilization of antenatal services among 200 recently delivered women showed that, 97% of the women had registered for antenatal care; 62% of whom had registered during first trimester. About 73% mothers had ≥4 ante natal visits, 85.5% received TT Injection, and 58.5% mothers had consumed ≥100 iron and folic acid tablets; overall only 59% women received full ANC services.[15]

Another study conducted on socio demographic factors influencing utilization of ANC services in rural area of Belgaum involving 497 mothers showed that, the antenatal registration was 100% with 50.3% registered at government

Table 3: Factors influencing utilization of complete antenatal care services (*n*=210)

Factors	Category	Complete ANC services utilized		χ^2 value, *P* value
		Yes	No	
Age of mother (in years)	19–24	63	51	1.6, 0.43
	25–30	40	34	
	>31	9	13	
Religion	Hindu	107	87	3.4, 0.03
	Others	5	11	
Education of mother	High school and above	68	38	10.1, 0.006
	Middle school and below	25	33	
	Illiterate	19	27	
Occupation of mother	House wife	80	74	0.4, 0.2
	Working	32	24	
Type of family	Nuclear	75	62	2.9, 0.2
	3- Generation	29	22	
	Joint	8	14	
Parity	Primipara	54	35	3.4, 0.03
	Multipara	58	63	
Socio economic status	Upper class/Upper middle class	25	12	8.1, 0.04
	Lower middle class	41	28	
	Upper lower class	36	42	
	Lower class	10	16	

ANC: Antenatal care

Table 4: Reasons for inadequate utilization of ANC services (*n*=98)

Reason	*n* (%)
Unaware of full ANC services	43 (43.9)
Financial problems	22 (22.4)
Long distance of health facility	12 (12.2)
Fear of side effects of injections and tablets	9 (9.2)

ANC: Antenatal care

health facility. About 83.1% had ≥4 ante natal visits and 65.6% mothers had consumed ≥100 iron and folic acid tablets; thereby, only 62.6% women received full ANC services.[16] Other study done in rural area of Bareily involving 566 ante natal women showed 37.1% had received ≥4 antenatal check-ups; 54.2% were found to be immunized against T.T, whereas full IFA intake was taken by 98.7% of the females. Overall, only 24.7% of the total pregnant females received full antenatal care.[17]

All the above studies showed that, the ANC services are not completely utilized by the pregnant women. Therefore, Social and behavior change communication activities has to be considered to provide adequate knowledge on importance of ANC registration and utilization of the available ANC services to have a healthy mother and a healthy child after the delivery.

In the present study, there was statistically significant association between religion, education of mother, parity, and socio-economic status with utilization of complete antenatal care services ($P \leq 0.05$). Similarly a study done on antenatal care service utilization and contributing factors in rural Belgaum involving 630 mothers showed that, the education, family income, knowledge on ANC, distance of health facility from residence and transportation cost were significant contributors ($P < 0.05$) of ANC service utilization.[18] Another study conducted in Kanchipuram district, Tamil Nadu among 284 mothers also showed a significant association between higher educational status, skilled workers, those having their first child, and higher socioeconomic class with utilization of complete antenatal care services ($P < 0.05$).[19] other study conducted in rural area of Jaipur among 111 women also showed that factors like educational status, type of family and socio-economic status had a significant association with full ANC utilization.[20]

The above studies showed that the utilization of ANC services was associated with factors such as parity, literacy, and socio-economic status, which should be overcome by health education and creating awareness among the lower socio-economic status mothers to utilize the government services which is provided free of cost.

In the present study, the major reasons for non-utilization of ANC services were lack of awareness in 43.9%, followed by financial problem in 22.4% women and health facility was at a long distance for 12.2%. Similarly, a study done on ANC service utilization and factors affecting in north Maharashtra involving 210 mothers showed that, majority of study subjects were not utilizing the ANC services because of lack of awareness and financial problem in 16.22% each and 10% had lack of transport facility.[21] Another study conducted in Assam involving 300 women showed that, the reason for inadequate utilization of ANC services in 26.7% of women were reported being residence in remote areas, followed by 22.6% were unwillingness of ANC. Among them 21.6% of women were not aware about the need of antenatal care services and 18.6% had reported with difficulty in transportation.[22] In other study done in Thane, among 100 women the reason for inadequate utilization of ANC services were unsatisfied with ANC services, long waiting time, bad behavior of staff, and non-availability of medicine.[23]

All these studies once again reiterate, the need to create awareness regarding government program for providing free ANC services at all the health-care facility.

CONCLUSIONS

The antenatal services were not adequately utilized by the pregnant mothers and the utilization depends on various factors such as parity, education, and socio-economic

status. Therefore, there is a need for improving community awareness on importance of antenatal care and availability of free health services; thereby, motivating them to utilize these available services.

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